2007 Research Report: Center for Economic Studies and Research Data Centers

25th Anniversary 1982–2007

Issued October 2008

New Data
Neighborhoods
Health-Related Research
CES History

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U.S. Department of Commerce
Economics and Statistics Administration
U.S. CENSUS BUREAU

2007 Research Report: Center for Economic Studies and Research Data Centers

Issued October 2008

U.S. Department of Commerce
Carlos M. Gutierrez,
Secretary

John J. Sullivan,
Deputy Secretary

Economics and Statistics Administration
Cynthia A. Glassman,
Under Secretary for Economic Affairs

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2007 RESEARCH REPORT: CENTER FOR ECONOMIC STUDIES AND RESEARCH DATA CENTERS

25th Anniversary 1982–2007

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A MESSAGE FROM RON S. JARMIN, PH.D.
Chief Economist and Chief of the Center for Economic Studies

While this report is intended to highlight important research and events at the Center for Economic Studies (CES) for 2007, I want to provide a brief update on a very important new development in 2008. Effective March 31, 2008, U.S. Census Bureau Director Steven Murdock moved the Longitudinal Employer Household Dynamics (LEHD) Program from Demographic Directorate's Data Integration Division to CES. This move roughly doubles the size of CES and adds a significant data production component. The move reflects the Census Bureau's commitment to work with the program's state partners to put LEHD on firmer financial footing and ensure it continues to generate innovative and important data products. I, and the rest of the CES staff, look forward to this new challenge and to working with our new colleagues from LEHD and its state partners to improve and grow this important program.

It is hard to top news like that. Nevertheless, 2007 was an eventful year at CES and the Research Data Centers (RDCs). Importantly, 2007 marked the 25th anniversary of CES. This report contains several features highlighting this milestone. John Haltiwanger recounts his experiences over the years at CES and Chapter 4 contains a brief history written by B.K. Atrostic. Last October, CES celebrated its 25th year with a small party attended by CES and Census Bureau alumni.

Last year saw many significant changes. In January 2007, CES and the Census Bureau HQ RDC moved into the new headquarters building in Suitland, MD, from their former offices in an office park in Upper Marlboro, MD. The move went smoothly, and I think I can speak for the entire staff that it is good to be back with the rest of the Census Bureau. The move included, after some alterations and new furniture, a major improvement in the amenities enjoyed by researchers using the Census Bureau HQ RDC lab. To help celebrate the move to the new building, CES hosted the 2007 Annual RDC Conference in the Census Bureau's new conference center.

We had a number of personnel changes at CES and the RDCs in 2007. Lynn Riggs moved from Chicago, where she served as the Administrator of the Chicago Census Research Data Center, to CES, where she now serves as the Team Lead for the Administrators across the entire RDC network and as the administrator of the Census Bureau HQ RDC lab. Her experience, knowledge, and attentiveness are helping us to improve RDC operations through better proposal and project tracking and oversight. She was also the primary organizer of the 2007 Annual RDC Conference.

Recognizing the greater emphasis the Census Bureau has placed on data stewardship, CES created the position of Disclosure Officer to approve the release statistics and other output generated in the RDCs. Arnie Reznek, who formerly administered the Census HQ RDC and was our go-to person on disclosure-related matters, was chosen for this new responsibility. Teaming up with Lynn Riggs and programmer Bill Yates, Arnie recently put into production a new Clearance Module on the CES Web site <www.ces.census.gov> that will provide an efficient way to assign and track clearance requests from RDC researchers.

Perhaps the most significant personnel change was at the level of Chief of CES. Former Chief Dan Weinberg left CES last summer to become Assistant Director for the American Community Survey and Decennial Census. Dan oversaw many milestones at CES and the RDCs, including CES being elevated to a formal Census Bureau Division and the addition of non-Census Bureau data to the RDCs. I am sure that Dan's wealth of knowledge and experience will serve him well as he tackles the challenges and opportunities of the 2010 Decennial Census. I want to express my gratitude for Dan's two and a half years of service and leadership to CES and the RDCs and wish him the best in his new position. After Dan's departure, I assumed the role of Acting Chief of CES. Recently,

I was appointed Chief Economist and Chief of CES. I look forward to continuing the progress made by Dan and previous leaders at CES.

Finally, I would like to recognize the many contributors to this report. I want to thank B.K. Atrostic, who pulled the entire report together and authored Chapters 1 and 4; Cheryl Grim, who assisted on coordinating the report, contributed to Appendix 6, and edited the other appendixes; Lynn Riggs, who organized Appendix 1 and contributed to Chapter 1; Angela Andrus, Brian Holly, Sang Nguyen, and Shigui Weng, who contributed or worked on Appendixes 1 through 5 ; Javier Miranda, who contributed to Chapter 1; Kirk White, who authored Chapter 2; and Alice Zawacki and Rosemary Hyson, who put a tremendous amount of work into making Chapter 3 a complete overview of health research at CES and the RDCs. In addition, I would like to thank Jamie Stark, who edited the report, and Jan Sweeney, who did the graphic design and layout for the report, in the Publication Services Branch of the Census Bureau's Administrative and Customer Services Division. Finally, I would like to thank our RDC partners and administrators for their assistance.

MESSAGE FROM JOHN HALTIWANGER,
Chief Economist, 1997–1999

The Center for Economic Studies (CES) has come a very long way since I began the gross job flow project with Steve Davis and Scott Schuh in 1987. In 1987, CES was spread across two locations in the old census building and Scott and I were allocated space in a windowless room (with boarded up windows) in the 1500 corridor of the old building. In the room were three old fashioned large wooden office desks—one for Scott, one for Al Nucci, and one for myself. Between us, Scott and I had a single PC to process the Annual Survey of Manufactures (ASM) and Census of Manufactures (CM) files—a Hewlett Packard (HP) Vectra 386. Steve would regularly come in for meetings, which we would often hold in a small area in the adjacent office where Bob Bechtold (Assistant to CES Director Robert McGuckin) had his office. Since we did not have enough disk space to store all the data simultaneously, we had a tape drive that read tapes written from the HP mainframe and processed 2 years at a time. Jim Monahan and Cyr Linonis would write the tapes for us in ASCII as the SAS on the HP frame was not compatible with the SAS on the PC. The tape drive was cumbersome to move around, so Scott built a little wooden cart with wheels for it. We maintained more than 75 tapes at a time to process the ASM and the CM for the gross flows project.

Obviously, CES has changed dramatically since that time. It is not just the computer revolution and the new census building that have changed for CES, but the full scope of data and activities of CES. In the early days, CES dealt only with the data for manufacturing; there was a very small staff, there were no Research Data Centers (RDCs), and all of the staff time was focused on building the data infrastructure through research projects. The rest of the Economic Directorate was curious about CES, but CES could offer little direct help or expertise to the rest of the directorate. One can now say the rest is history. Today, CES has become the data warehouse for the entire Economic Directorate for all sectors of the economy. The professional staff play key roles in a host of internal Economic Directorate projects ranging from redesign of the economic censuses and annual surveys, to comparisons of the business list between the U.S. Census Bureau and Bureau of Labor Statistics, to backcasting NAICS into key economic series. The comprehensive Longitudinal Business Database covers all U.S. establishments and firms from 1976 to the present and is being used for new data products for the Economic Directorate, for internal staff research projects, and for external research projects at the RDCs. The RDCs now support a large number of research projects from coast to coast. The methods from the development of the CES data infrastructure and CES research are now increasingly used in other parts of the Economic Directorate (and by statistical agencies around the world).

All of these developments reflect the revolution in economics measurement and thinking that has resulted from research over the last 25 years at CES. We now know that within narrowly defined industries there is a high pace of churning of firms, workers and jobs, and that there is substantial dispersion of productivity. We also know these observations are connected—the churning is productivity enhancing with outputs and inputs in the U.S. being reallocated from low productivity to higher productivity establishments and firms. These observations about churning and productivity dispersion are just two of many examples illustrating the within industry heterogeneity and dynamics of United States firms that CES has documented. The findings from the many

publications that have emerged from CES research have changed core areas of economics including macroeconomics, productivity, labor economics, and industrial organization.

Interestingly, the success of CES was envisioned by one of the early proponents of CES—Shirley Kallek, who was the Associate Director for Economic Programs in the early 1980s when CES was founded. Shirley Kallek argued convincingly that the Economic Directorate was sitting on a goldmine of micro business data that needed to be developed and analyzed to help understand the underpinnings of U.S. economic growth and fluctuations. I think it is fair to say that Shirley Kallek's visions have been realized.

Congratulations to CES on its first 25 years!

John Haltiwanger has been a research associate of the Census Bureau since 1987. He was the Census Bureau's first Chief Economist, and headed the Center for Economic Studies from 1997 to 1999.

Chapter 1.
INTRODUCTION[1]

Which businesses, households, and areas are affected by large-scale disasters, such as Hurricane Katrina? Why do people choose to live and work where they do? How well do we measure enrollment in public programs, such as Medicaid? Recent research at the Center for Economic Studies (CES) and the Research Data Centers (RDCs) addresses these and many other timely topics. Our research supports a key U.S. Census Bureau goal of meeting the needs of policymakers, businesses, nonprofit organizations, and the public for current measures of the U.S. population, economy, and governments.[2]

We produce new information by developing and applying cutting-edge techniques to existing Census Bureau data. The new information leverages investments made by the Census Bureau and respondents to its surveys and censuses. What we learn from this research could not be produced from data already available to the public. In many cases, no public-use version of the data even exists.

[1] This chapter was written by B.K. Atrostic of the Center for Economic Studies (CES). Javier Miranda and T. Lynn Riggs of CES also contributed to the chapter.

[2] U.S. Census Bureau Strategic Plan FY2007–2012, June 2007. See Strategic Goal #2. See <www.census.gov/main/www/strategicplan/strategicplan.html#4-4>.

2007 NEWS

Wide Recognition for CES and RDC Research

Researchers at CES and the RDCs published more than 40 professional papers in 2007, keeping pace with recent years. Our research increasingly spans multiple RDCs and involves both CES staff and RDC researchers. A combined listing of CES and RDC research appears in Appendix 1.

Publications included major journals in several disciplines, such as the *American Economic Review*, the *Journal of Political Economy,* and the *American Sociological Review*, and field

Text Box 1-1.
What Is a Research Data Center?

RDCs are Census Bureau facilities staffed by Census Bureau employees that meet all physical and computer security requirements for restricted access. At RDCs, qualified researchers from academia, federal agencies, and other institutions receive restricted access to Census Bureau data files that are not publicly available.

CES judges each proposal against five standards:

- Potential benefits
- Scientific merit
- Clear need for restricted data
- Feasibility with data available in the RDC system
- No disclosure risk

Proposals meeting these standards are reviewed by the Census Bureau's Office of Analysis and Executive Support. Proposals approved by the Census Bureau may also require approval by the federal agency sponsoring the survey or supplying the administrative data.

Researchers must become Special Sworn Status (SSS) employees of the Census Bureau. Like career Census Bureau employees, SSS employees are sworn for life to protect the confidentiality of the data they access. Failing to protect confidentiality subjects them to significant financial and legal penalties. The RDC system and the CES proposal process are described in detail on the CES Web site <www.ces.census.gov>.

journals, such as *Health Affairs,* the *Journal of Regional Science,* and *Labour Economics*. More than 30 CES Discussion Papers were issued in 2007. See Appendix 3.

CES and RDC researchers presented new findings on private equity financing at conferences in 2007 and then at a major venue, the 2008 World Economic Forum in Davos, Switzerland. See Text Box 1-2.

The Director's Award for Innovation was presented to then-Acting CES Chief Ron Jarmin and Javier Miranda for developing tools that can map economic damage within days of events such as the landfall of major hurricanes. Jarmin and Miranda's mapping of the economic impact of Hurricanes Katrina, Wilma, and Rita using new geospatial tools provided important information to all levels of government, businesses, and residents of affected areas. It also showed how such tools in combination with Census Bureau data could more generally be used to assess the impact of large-scale disasters. See Text Box 1-3.

CES research provided background support to U.S. Department of Commerce Secretary Carlos Gutierrez' Advisory Committee on Measuring Innovation in the 21st Century Economy.[3]

Kristina Steffenson McElheran, a researcher at the Chicago RDC, is one of two doctoral candidates selected as Census Bureau Dissertation Fellows in the first year of this new program. McElheran is a graduate student in managerial economics and strategy at Northwestern University's Kellogg School of Management. She will be joining the Harvard Business School as an Assistant Professor in Technology and Operations Management in the fall of 2008.

Her research explores the link between market leadership and firm adoption of innovative business practices, such as buying and selling online. Using variation in prior performance, competitive environment, and technology use, she identifies key drivers of business process innovation and technological change in U.S. manufacturing.

Fellows receive up to $50,000 in funding for their dissertation research. Information about the Census Bureau's Dissertation Fellowship Program is available at <www.census.gov/srd/www/DissertationFellowshipTopics.pdf>.

Photo by Lauren Brenner

In June 2007, Ron Jarmin (center left) and Javier Miranda (center right) receive the Director's Award for Innovation from Director Louis Kincannon (far left) and Associate Director for Economic Programs Tom Mesenbourg (far right).

New Health-Related Data

CES research partnerships expanded the health-related data that can be accessed through the RDCs. Former CES Chief Dan Weinberg had led an initiative to partner with other agencies to house selections of their internal data, available to researchers under the agencies' rules. The data available through these new partnerships are described in more detail in Chapter 3. More information about the Agency for Healthcare Research and Quality (AHRQ) and National Center for Health Statistics (NCHS) data, including how to apply for access, is available at <www.ces.census.gov>.

In 2007, our first new partnership, with NCHS, began to provide researchers with access to selected NCHS health data.

[3] Atrostic, B.K. Forthcoming. "Measuring U.S. Innovative Activity: Business Data at the U.S. Census Bureau." *Journal of Technology Transfer*.

Photo by Lauren Brenner

Census Bureau Dissertation Fellow Kristina Steffenson McElheran presents her work at a July 2007 CES seminar.

A new agreement reached in 2007 between the Census Bureau and AHRQ will provide access for qualified researchers to restricted Medical Expenditure Panel Survey (MEPS) data.

REPORT OVERVIEW

In this year's report on CES and RDC research, we highlight recent research on neighborhood effects and neighborhood choice, take an in-depth look at health-related research, and review the history of CES.

PARTNERS AND SUPPORTERS

CES and the RDC system exist through the efforts of Census Bureau and RDC partners. CES and the RDCs receive ongoing assistance from many of the business and household program areas of the Census Bureau. These groups provide the microdata from which researchers build databases to support their empirical work. The program areas provide additional support to CES and RDC researchers by sharing their expert knowledge of the methodologies underlying the collection and processing of the microdata. Particularly for household data, the program areas also review RDC research proposals, a crucial step in assuring that approved RDC research projects hold the potential to benefit the Census Bureau. Their contributions are too many to name separately, but each one is vital to successful research. We thank all of them.

The assistance of the business and household program areas allows CES to increase the number of Census Bureau data series available through the RDC system and to improve and update the series we already offer. The Census Bureau data series added or expanded in 2007 are listed in Appendix 4.

CES operates the RDCs in partnership with a growing roster of prominent research universities and nonprofit research organizations. Our RDC partners in developing and maintaining the nine RDCs around the country are listed in Appendix 5.

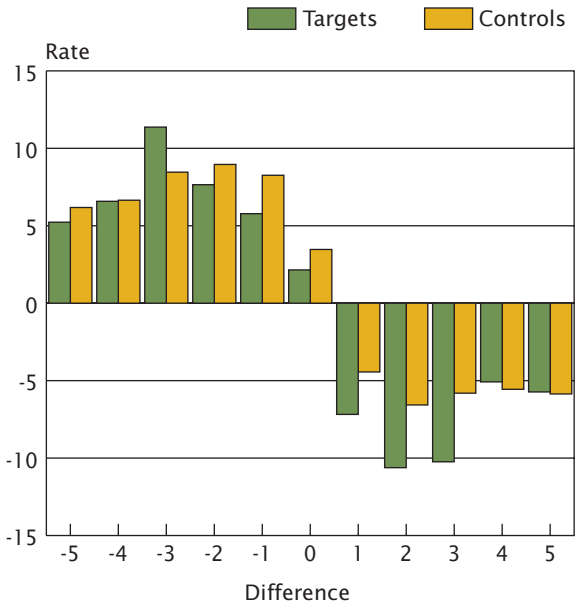
The CES and RDC research programs rely on high-caliber professional support. The CES Data Staff regularly update the series in CES's holdings as new years of data become available and add new data series. CES professional staff that manage the proposal and project processes are also vital to the RDC research program. Because this report focuses on the products of research conducted at CES and in the RDCs, the work of these staff members is not described in detail. Nor does this report describe either the administrative support provided by our colleagues in the Governments Division or the support to the CES and RDC computing infrastructures provided by our colleagues in several Census Bureau divisions. But the success of the CES and RDC research programs reflects their continuing contributions. The full CES staff and support staff roster is in Appendix 6 of this report.

Text Box 1-2.

Davos World Economic Forum—Private Equity

Between 2001 and 2007, the total value of firms purchased using private equity investments has been estimated at $2.7 trillion. This is a dramatic increase in private equity investment, given that the total value of firms purchased for the period 1970–2007 has been estimated at $3.6 trillion.[4] The growth in private equity in recent years generates considerable debate about its impact on companies and, more importantly, on the economy as a whole.

Figure 1-1.
Net Job Creation Rates: Targets vs. Controls Before and After Event



Source: Authors' calculations on the LBD-Capital IQ matched database.

Private equity groups use funds from investors to purchase firms through leveraged buyouts or through similar types of equity investments with a substantial amount of indebtedness; hence, these investments are risky. Moreover, these investors are not just financiers but also public and private pension funds. According to the Private Equity Council, "the 20 largest public pension funds for which data is [*sic*] available (including the California Public Employees Retirement System, the California State Teachers Retirement System, the New York State Common Retirement Fund, and the Florida State Board of Administration) have some $111 billion invested in private equity."[5] Given the rapid increase in private equity investment and the debate surrounding it, the World Economic Forum undertook a research project, "Global Economic Impact of Private Equity," to examine these issues through a consortium of leading international scholars.

As part of the World Economic Forum's research project, researchers Steven J. Davis, John Haltiwanger, Ron Jarmin, Josh Lerner, and Javier Miranda studied the impact of private equity investment on employment over the period 1980–2005.[6] They used the Longitudinal Business Database (LBD) from the Census Bureau, combined with a private database, Capital IQ, which provided information on private equity deals.

The LBD contains data on all legally operating establishments with paid employees in the

[4] Lerner, Josh and Anuradha Gurung. 2008. "Executive Summary." In *The Globalization of Alternative Investments Working Papers Volume 1: The Global Economic Impact of Private Equity Report 2008*, ed. Josh Lerner and Anuradha Gurung, page viii. World Economic Forum USA: New York, NY.

[5] See <www.privateequitycouncil.org/private-equity-handbook/faq/>.

[6] Davis, Steven J., John Haltiwanger, Ron Jarmin, Josh Lerner, and Javier Miranda. 2008. "Private Equity and Employment." In *The Globalization of Alternative Investments Working Papers Volume 1: The Global Economic Impact of Private Equity Report 2008*, ed. Josh Lerner and Anuradha Gurung, pp. 43–64. World Economic Forum USA: New York, NY. This work was presented at the American Enterprise Institute Conference on Private Equity in Washington, DC, on November 15, 2007, and at The New World of Private Equity Preconference in Boston at the National Bureau of Economic Research on October 5, 2007.

Text Box 1-2.
Davos World Economic Forum—Private Equity—Con.

United States and covers the entire nonfarm private sector. The comprehensive coverage of the LBD allowed the researchers to compare changes in employment at firms acquired in a private equity deal and all the establishments owned by these firms (called target firms and target establishments) with changes in employment at comparable firms not acquired by private equity groups and all the establishments owned by those firms (called control firms and control establishments).

The researchers analyzed two aspects of private equity activity: 1) the impact on existing establishments and 2) the activity of the buyout firm after the takeover. To examine the first issue, the researchers compared net job creation as well as gross job creation and gross job destruction for the 5 years before, the year during, and the 5 years after a private equity deal at target establishments relative to control establishments.[7] Figure 1-1 shows the net job creation rates for the years surrounding the private equity deal for both target and control establishments. The researchers conducted similar analyses at the firm level to examine differences in activity from opening new establishments. These analyses followed firms for 2 years after the private equity deal.

The results suggest that private equity groups act as a catalyst for economic change along the lines of Schumpeter's ideas of creative destruction.[8] For example, employment at targeted establishments grew more slowly before and after the private equity transaction than employment at control establishments (at a difference of approximately 4 percent), which indicates that private equity groups target failing firms. Gross job destruction is also substantially greater at target establishments than at controls. However, the analyses also indicate that firms backed by private equity tended to create more new jobs by opening new establishments, compared to firms not backed by private equity (15 percent vs. 6 percent, respectively). These firms also tend to engage in more acquisitions and divestitures than the controls. Hence, by streamlining existing establishments and opening new establishments, it appears that private equity groups are pushing acquired firms into new, higher-value directions.

The above results are based on all sectors of the economy. However, differences do exist between sectors. For the manufacturing sector, the researchers found no differences in employment for targets relative to controls. In the Retail Trade, Services, and Finance, Insurance, and Real Estate (FIRE) sectors, employment fell rapidly in establishments affected by private equity deals compared to those that were not affected.

Previous studies in this field had a number of limitations. Many studies could not set up a control group of comparable firms. Some studies found it hard to determine if the firms being studied were representative of the population of private equity buyouts because they relied on surveys with small sample sizes, focused on "surviving firms," or found it hard to disentangle complex ownership changes and reorganizations. Another limitation is that previous studies used aggregate employment changes. Aggregate changes did not allow them to identify whether job creation or job destruction came from existing establishments or from establishments that were bought or sold. Finally, these studies did not know whether employment gains and losses were located in the United States or overseas. The study by Davis et al. overcomes many limitations of previous studies because the LBD provides a long time series with comprehensive coverage of the economy.

[7] Gross job creation is measured as the sum of employment growth for establishments increasing employment (including the contribution of entry). Gross job destruction is measured as the sum of employment loss for establishments decreasing employment (including the contribution of exit).

[8] Schumpeter, Joseph A. 1942. *Capitalism, Socialism, and Democracy*. New York: Harper.

Text Box 1-3.

Director's Award for Innovation: GIS Tools Give Rapid Estimates of Damage From Disasters

The main challenge the Census Bureau faces in providing estimates from large-scale disaster events is determining which establishments or housing units are affected, and how, and then releasing timely and accurate estimates. In their paper "The Impact of Hurricanes Katrina, Rita, and Wilma on Business Establishments: A GIS Approach," Ron Jarmin and Javier Miranda tackle this challenge.[9]

Their methodology relies on the creative use of Geographic Information System (GIS) tools to map establishments from the Census Bureau's Business Register (BR) into digitized damage zones defined by remote sensing information provided by the Federal Emergency Management Agency (FEMA). They can determine precisely the businesses located within an affected area and can classify the businesses' damage level following the FEMA classification (limited damage, moderate damage, extensive damage, catastrophic damage, flooded area). Estimates using geocoding tools are far more accurate than those typically reported from readily available county-level data, and the estimates can be provided in a timely fashion. Jarmin and Miranda were able to produce initial estimates of the number of businesses affected by Hurricane Wilma within 3 days of landfall in Florida.

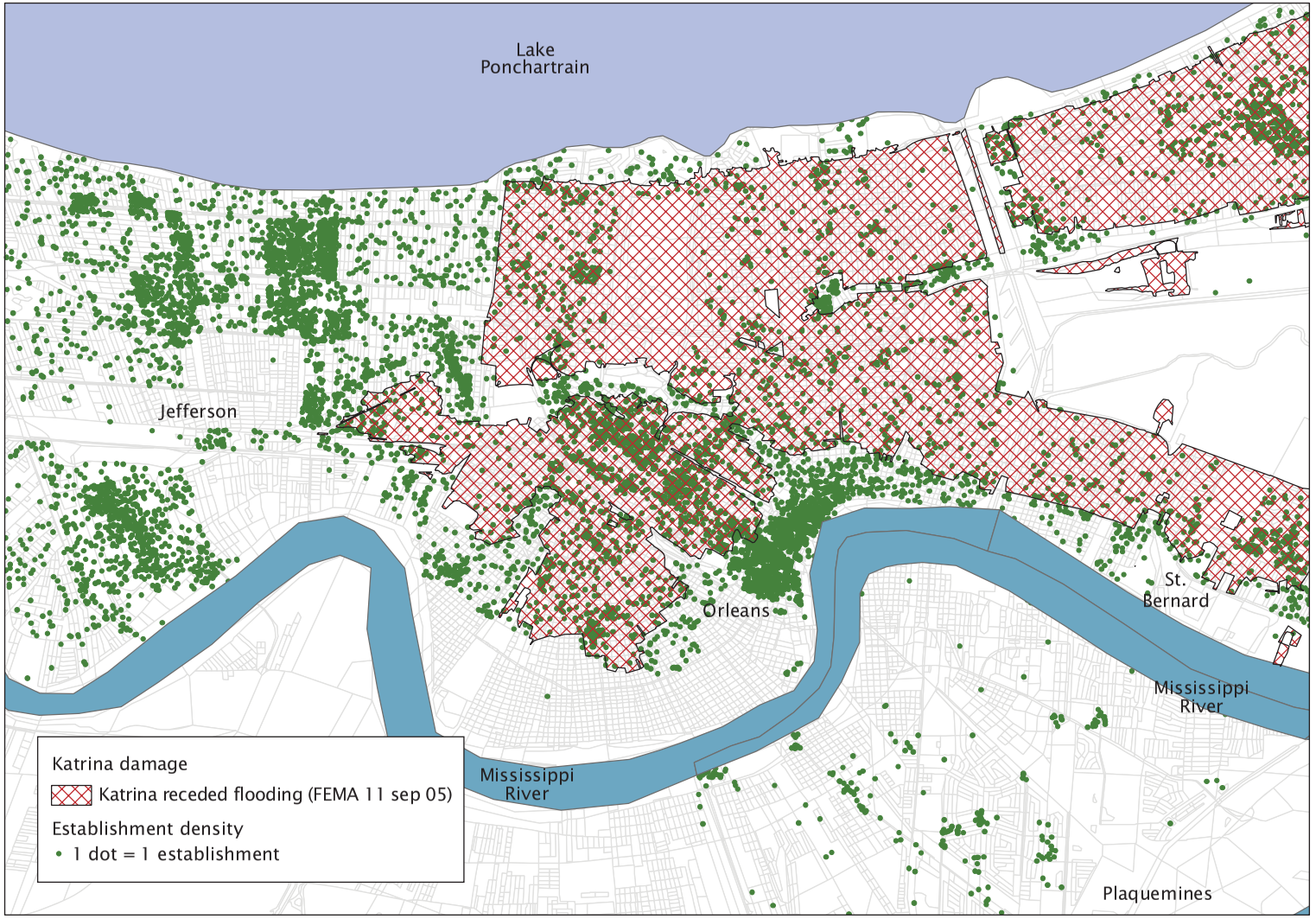
The combined BR data and FEMA damage information for New Orleans is shown in the map in Figure 1-2. Establishment densities are green dots. To preserve confidentiality, dots do not represent actual locations within a block. This map highlights the areas sustaining the most severe damage, where the floodwaters receded slowly. These "receded flooding" areas are marked in red cross-hatching. The combination of BR and FEMA information in the map shows the location of establishments inside and outside the "receded flooding" zone.

In June 2007, Ron Jarmin and Javier Miranda received the Director's Award for Innovation. The award recognizes their development of innovative methods to estimate the economic impact of disaster events, such as Hurricane Katrina. As a direct result of their work, the Census Bureau can now quickly generate similar estimates. Jarmin and Miranda's estimates for Hurricanes Katrina, Rita, and Wilma are posted on the Census Bureau's main Web site <www.census.gov> under a new heading, "Census Bureau Data and Emergency Preparedness."

[9] Miranda, Javier, and Ron S. Jarmin. 2006. "The Impact of Hurricanes Katrina, Rita and Wilma on Business Establishments: A GIS Approach," Center for Economic Studies Discussion Paper Series CES-06-23.

Figure 1-2.

Katrina Damage: New Orleans (Source: U.S. Census Bureau/FEMA)



To preserve confidentiality, dots do not represent actual locations within a block.

Chapter 2.

USING RESTRICTED-ACCESS CENSUS MICRODATA TO STUDY NEIGHBORHOODS[10]

Researchers at the Center for Economic Studies (CES) and Research Data Centers (RDCs) made significant contributions to the literatures on neighborhood effects and neighborhood choice in 2007. CES and RDC researchers published papers in the *Journal of Political Economy* and the *American Sociological Review* and produced seven CES Discussion Papers on these topics in 2007.

This chapter summarizes selected research that can be placed in two broad categories: (i) the relationship between neighborhood characteristics (crime rates, demographic composition, school quality, average income, etc.) and individual-level or household economic outcomes (employment, occupation, perceptions of crime, etc.); and (ii) the relationship between households' choice of neighborhood and the characteristics of the neighborhood. *While these papers address different topics and even different disciplines, they all highlight the critical need for confidential Census Bureau data. This research would not have been possible without the fine levels of geographic and demographic detail provided by confidential Census Bureau data.*

[10] This chapter was written by Kirk White of CES.

NEIGHBORHOOD EFFECTS: RESIDENTIAL LOCATION AND INDIVIDUAL AND HOUSEHOLD OUTCOMES

Recent CES and RDC research on the relationships between residential location (neighborhoods) and individual or household outcomes has focused on two types of neighborhood effects: labor market outcomes and perceptions of crime.

Neighborhood Effects and Labor Market Outcomes

People with similar levels of education, similar incomes, and similar preferences for neighborhood amenities, such as good schools or access to jobs, tend to live in the same neighborhoods. This makes it difficult to distinguish between the effect that a neighborhood has on, say, the average labor earnings of the people who live in that neighborhood and the fact that high earners tend to live in the same neighborhoods. Furthermore, there are many things about both individuals and neighborhoods that typically are not observed in Census Bureau data, and the different types of "unobservables" may also affect the outcome of interest (such as average labor earnings). Measuring such neighborhood effects is crucial to many public policy issues. For example, how do neighborhood crime, school quality, poverty, etc., affect the economic outcomes of the people that live in those neighborhoods?

In a recent CES Discussion Paper, economists Patrick Bayer and Stephen Ross (2007) propose a solution to this "neighborhood effects" problem.[11] They propose a strategy for identifying neighborhood effects in a model that allows for both individual and group unobservables. Using household-level data from the 1990 Decennial Census for the Boston metropolitan area, they estimate neighborhood effects on labor market outcomes. The results imply that the direct effects of geographic proximity to jobs, neighborhood poverty rates, and average neighborhood education are substantially larger than the effects identified using more standard methods, although the net effect of neighborhood quality on labor market outcomes remains small.

Neighborhoods in the United States tend to show clustering by income, education, and race. Clustering among neighborhoods raises obvious questions—to what extent does it contribute to the different

[11] Note that this is one of a series of papers on residential location resulting from research conducted by Bayer and coauthors at various RDCs around the country over a period of years (Bayer, McMillan, and Reuben, 2002; Bayer, McMillan, and Reuben, 2003; Bayer, Ross, and Topa, 2005). This is one example of a larger pattern—RDC projects increasingly involve collaboration of researchers across multiple RDCs involved in multi-year projects producing multiple papers.

economic outcomes experienced by Black households versus White households? Economists Judith Hellerstein, David Neumark, and Melissa McInerney (2007) use decennial census data to tackle this question. More specifically, they study two alternative explanations for Blacks' higher levels of unemployment relative to Whites. The first hypothesis, known as spatial mismatch, posits that Black unemployment is higher because there are fewer jobs per worker near Black residential areas than White areas. They contrast the spatial mismatch hypothesis with what they term the "racial mismatch" hypothesis—that the problem is not a lack of jobs where Blacks live but a lack of jobs into which Blacks are hired, whether because of discrimination or labor market networks in which race matters.

On the spatial mismatch hypothesis, the authors construct direct measures of the presence of jobs in detailed geographic areas and find that these job density measures are related to the employment of Black male residents in ways that would be predicted by the spatial mismatch hypothesis—in particular, that spatial mismatch is primarily an issue for low-skilled Black male workers. They then look at racial mismatch by estimating the effects of job density measures that are disaggregated by race. They find that it is primarily Black job density that influences Black male employment, whereas White job density has little if any influence on their employment. This evidence implies that space alone plays a relatively minor role in low Black male employment rates. The authors note that one of the key differences between this paper and the existing literature on the spatial mismatch hypothesis is that the decennial census data give them measures of job access at a considerably more disaggregated level.[12] In addition, because of the large sample and other features of the data, they are able to construct job access measures by skill, which may provide a better characterization of spatial mismatch facing particular groups of individuals.

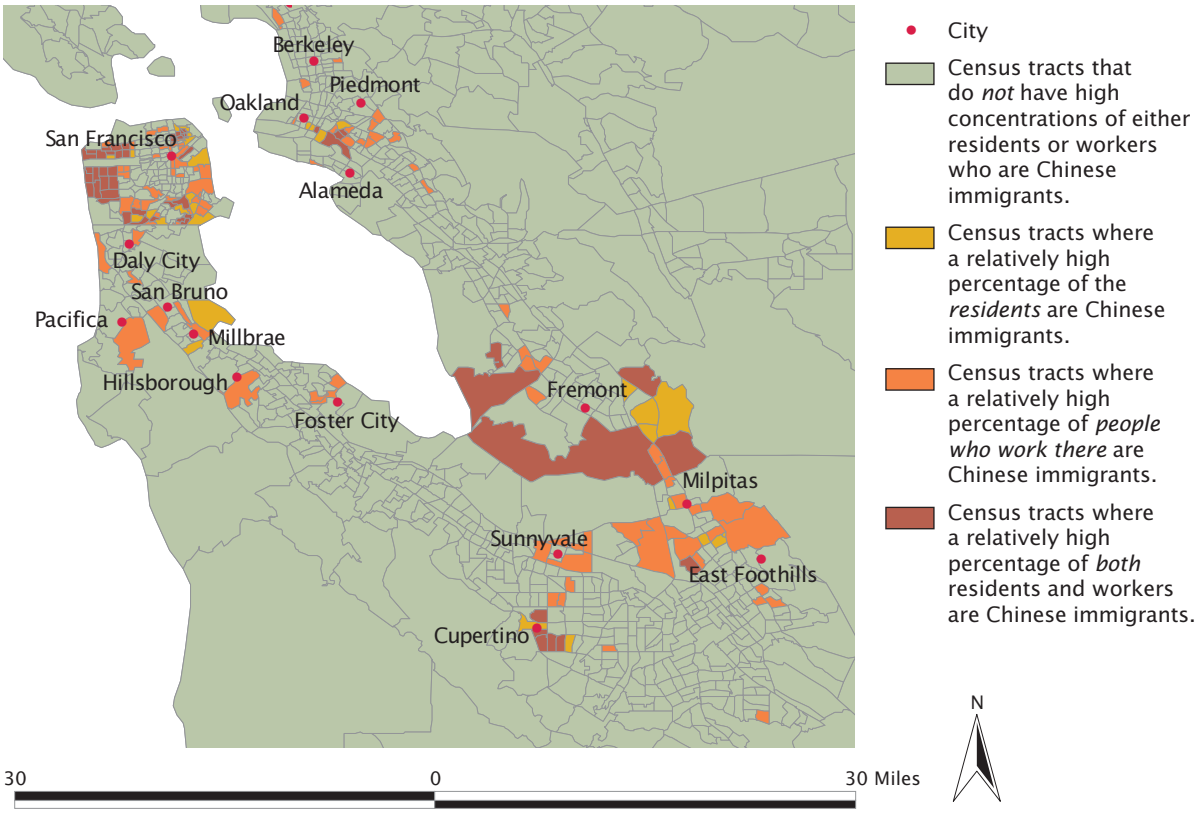
As has been established, in the United States, people of the same race or ethnicity tend live in the same neighborhoods. In some parts of the United States, people of the same ethnicity also tend to work in the same places and even in the same occupations—so-called "ethnic niche" occupations. Are the two phenomena related? In other words, is the fact that certain ethnic groups tend to live and/or work in the same neighborhoods related to working in ethnic niche occupations? Geographer Qingfang Wang (2007) uses the 2000 Decennial Census to study the relationship between residential location, workplace, and ethnic niche occupations (occupations disproportionately held by a particular ethnic group) among Chinese immigrants in San Francisco. She finds that immigrant Chinese women in San Francisco tend to be concentrated in semiprofessional, clerical, production, and service-related jobs, whereas immigrant Chinese men in San Francisco tend to be concentrated in more knowledge-intensive occupations. Next, Wang classifies each census tract in the San Francisco metropolitan area in one of four categories: tracts that do not have high concentrations of either residents or workers who are Chinese immigrants, tracts where a relatively high percentage of the residents are Chinese immigrants, tracts where a relatively high percentage of workers are Chinese immigrants, and tracts where a relatively high percentage of both residents and workers are Chinese immigrants. Figure 2-1 shows a map of the results.

The map shows that certain areas (labeled "D") are Chinese "ethnic enclaves"—areas with disproportionately high concentrations of ethnic Chinese immigrants, both in terms of where they live and where they work. Other areas (labeled "B" and "C") have high concentrations of Chinese immigrant residences but not workplaces or vice versa. Maps showing both fine geographic detail and unpublished demographic measures as in Figure 2-1 would not be possible without the geographically and demographically detailed data made available through the Census Bureau RDCs. Finally, Wang estimates the relationship between the residential and workplace concentration of Chinese immigrants in San Francisco and the probability of working in an

[12] The authors focus on "zip code areas," defined as a zip code and all contiguous zip codes.

Figure 2-1.

Geography of Chinese Immigrants in the San Francisco Consolidated Metropolitan Statistical Area by Type of Concentration Pattern



ethnic niche occupation. She finds significant relationships between living in a tract with a high concentration (by workplace or residence) of Chinese immigrants and working in an ethnic niche, and the effects differ by gender.

Neighborhoods and Crime

Most of the above research focused on the relationship between neighborhoods and economic outcomes such as employment. But one of the most important factors people consider when choosing a neighborhood is the crime rate in the neighborhood. Note that what matters for neighborhood economic outcomes (like housing prices) is not just the actual crime rate in the neighborhood but perceptions of crime. In two related papers that he developed from his dissertation, sociologist/criminologist John Hipp studies neighborhood perceptions of crime. In the first paper, Hipp compares the relationship between official crime rates and residents' perceptions of crime in census tracts (2007a). He first creates a unique dataset by linking the household-level data from the American Housing Survey (AHS) over a period of 25 years (1976–2000) with official crime rate data for census tracts in selected cities during selected years. He finds that residents' perception of crime is most strongly related to official rates of tract violent crime.

In a related paper published in the *American Sociological Review*, Hipp uses the AHS to study the appropriate level of aggregation of the "neighborhood" characteristics that might affect perceptions of crime and

disorder (2007b).[13] He finds that different neighborhood characteristics seem to have different effects depending on the level of aggregation. For example, some characteristics (e.g., racial or ethnic differences) seem to have strong effects on the perception of crime at different levels of aggregation (census tract or census block). However, other characteristics, such as average income, seem to have a strong effect on perceptions of crime at the block level (an area that may contain only a hundred or so people) but not at the census-tract level (census tracts usually contain between 2,000 and 8,000 people). As with Wang's study, these findings highlight the crucial need for the fine levels of geographic detail that RDC data provide.

NEIGHBORHOOD CHOICE

The research discussed so far has focused on the effects of neighborhoods on individuals. But neighborhoods are composed of individuals. Thus, one can turn the question around—who chooses to live in certain neighborhoods, and why do people choose neighborhoods with certain characteristics? How much do people value certain neighborhood characteristics, such as school quality or racial diversity (or lack of diversity)? Another line of research at the RDCs has focused on these questions.

In a paper published recently in the *Journal of Political Economy*, economists Patrick Bayer, Fernando Ferreira, and Robert McMillan develop a framework for estimating household preferences for neighborhood attributes (such as school quality) in the presence of "sorting"—the process whereby households choose the neighborhoods and housing units that they live in. Households with similar observable characteristics, such as high income and high education, tend to choose to live in the same neighborhoods. If one wants to estimate how much households are willing to pay for, for example, good schools, one has to deal with the possibility that households may be choosing to live in a neighborhood not only because of observable characteristics (such as the income and education of the other people in the neighborhood) but also because of other neighborhood characteristics that we cannot see in the data—for example, having a nice view.

Since unobserved neighborhood characteristics may affect house prices, the unobserved characteristics muddy the waters when it comes to trying to estimate households' willingness to pay for school quality. The authors use a simple idea (and an econometric sorting model) to address this problem. The intuition is as follows: houses with similar characteristics within the same small area on either side of a school attendance zone boundary will tend to share the same neighborhood unobservables, as they are effectively in the same neighborhood. If the quality of the schools in two adjacent school attendance zones is very different, then there will tend to be a jump in the house prices at the boundary. Further, because of sorting, neighborhood sociodemographics will tend to jump also. One can use the discontinuities to estimate households' willingness to pay for school quality (or other neighborhood characteristics).

Bayer, Ferreira, and McMillan apply their approach using household-level data from the 1990 Decennial Census data for the San Francisco metropolitan area and find a number of new results. First, they find that households are willing to pay less than 1 percent more in house prices—substantially lower than previous estimates—when the average performance of the local school increases by 5 percent. Second, much of the apparent willingness to pay for more educated and wealthier neighbors is explained by the correlation of these sociodemographic measures with unobserved neighborhood quality. Third, neighborhood race is not capitalized directly into housing prices; instead, the negative correlation of neighborhood race and housing prices is due entirely to the fact that Blacks live in unobservably lower-quality neighborhoods. Finally, they find that households prefer to self-segregate on the basis of both race and education.

While the huge sample sizes in the decennial censuses allow researchers to focus on a single metropolitan area, the decennial census also makes it possible for researchers to study issues

[13] Disorder is measured in two ways: (i) physical disorder, defined as the presence of bothersome (from the survey respondent's perspective) litter or housing deterioration (a binary variable); and (ii) social disorder, defined as the presence of bothersome people in the neighborhood (again, from the survey respondent's perspective).

that are national in scope. One such issue is gentrification—low-income neighborhoods in many urban areas around the nation experienced above-average growth in average household income in the 1990s. Some people view this as a positive phenomenon, a revitalization of blighted urban areas; others view gentrification in a negative light because of the perception that higher-income Whites are displacing lower-income minorities. There is much anecdotal evidence in the popular press about gentrification, and there have been a few careful studies of select metropolitan areas. However, despite the controversy about the causes of gentrification, until recently there has been no national study of it. On average, who is more likely to move into gentrifying neighborhoods, and who is likely to move out?

Economists Terra McKinnish, Randall Walsh, and Kirk White address these questions using the 1990 and 2000 Decennial Censuses. Specifically, they study the demographic processes underlying the gentrification of low-income urban neighborhoods during the 1990s in 64 metro areas across the United States. In contrast to previous studies of gentrification, they use a finer level of geography (census tract) with a narrower definition of gentrification and more narrowly defined comparison neighborhoods. The analysis is also richly disaggregated by demographic characteristic, uncovering differential patterns by race, education, age, and family structure that would not have emerged in the more aggregate analysis in previous studies. The results provide little evidence of displacement of low-income non-White households in gentrifying neighborhoods. The bulk of the income gains in gentrifying neighborhoods are attributed to White college graduates and Black high school graduates. It is the disproportionate inmigration of the former and the disproportionate retention and income gains of the latter that appear to be the main engines of gentrification. The large sample sizes, the finer geographic definition of a neighborhood, the narrower definition of gentrification, and the rich disaggregation by demographic characteristic needed to conduct this analysis are available only by using the restricted-access decennial census data through the RDC network.

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Chapter 3.
HEALTH-RELATED RESEARCH[14]

Economic studies on health-related issues have the potential to benefit all Americans. Decision makers, employers, and individuals are concerned about our population's health, health insurance coverage, and the growth of health care costs. Health care spending represented 16 percent of the gross domestic product in 2006, and health care reform is on the national agenda.[15]

Understanding this dynamic sector, and the likely effects of proposed changes to it, requires ongoing analysis. This chapter describes the many confidential business and household data used in health-related research conducted at the Center for Economic Studies (CES) and the Research Data Centers (RDCs), details the benefits to the U.S. Census Bureau of providing access to these data, and then summarizes the research.

Research to Date

This chapter discusses nearly 30 papers resulting from health-related research conducted at CES and the RDCs during the past decade.[16] Some focus on data linkages and assessing data quality, while others address important research questions on the employer, public, and individual insurance markets. These papers have been published in peer-reviewed journals such as *Health Affairs*, *Health Services Research*, *Inquiry, International Journal of Health Care Finance and Economics*, *Journal of Labor Economics*, *Journal of Public Economics*, and *Medical Care*.

Need for Confidential Data

This research could not have been accomplished with public-use data. Confidential data contain detailed measures of geography, income, diagnoses, and labor force activity needed for fuller understanding of, for example, likely effects of proposals to expand health insurance coverage. The main source of private health insurance coverage is employer-sponsored insurance (ESI). The premier dataset on ESI, the Medical Expenditure Panel Survey—Insurance Component, can only be accessed in secure Census Bureau facilities.

New Partnerships and RDC Data

The research questions addressed in the past 10 years focused primarily on health insurance markets, reflecting the data available at the time. New partnerships with the Agency for Healthcare Research and Quality (AHRQ) and the National Center for Health Statistics (NCHS), and the availability of additional Census Bureau data, now allow approved researchers at CES and the RDCs to explore a greater variety of health-related topics. This chapter discusses the new and existing data provided in the RDCs. Researchers will be able to access these additional datasets with approval from the appropriate agency.

IN THIS CHAPTER

[14] This chapter was written by Rosemary Hyson and Alice Zawacki of the Center for Economic Studies (CES).

[15] Centers for Medicare and Medicaid Services, Office of the Actuary, National Health Statistics Group. <www.cms.hhs.gov/NationalHealthExpendData/02_NationalHealthAccountsHistorical.asp>.

[16] These represent a selection from the CES and RDC papers on health-related topics.

Text Box 3-1.

What We Have Learned From CES and RDC Research on Health-Related Issues

EMPLOYER-SPONSORED HEALTH INSURANCE (ESI)

Cost Sharing

- Total premium costs decline when employers make a fixed dollar contribution towards all plans and offer additional plans. *Vistnes, Cooper, and Vistnes (2001)*
- Simulations show that if employee contributions for single coverage were eliminated, up to 2.5 million more private sector employees would potentially enroll in ESI. *Cooper and Vistnes (2003)*
- Most of the establishments that paid the full insurance premium were young, small, single units, with a relatively high paid workforce. *Zawacki and Taylor (2005)*
- Through cost sharing arrangements, employers may be attempting to encourage their workers to enroll in family coverage through their spouse's plan. *Vistnes, Morrisey, and Jensen (2006)*

Affordability

- ESI plans pay, on average, about 83 percent of medical bills. Small firms pay 18 percent more for coverage than large firms for the same financial protection. *Gabel, McDevitt, Gandolfo, Pickreign, Hawkins, and Fahlman (2006)*
- ESI tax exemptions, projected to be more than $200 billion in 2006, are poorly targeted if they are intended to reduce the growing number of people without insurance or with public insurance. *Selden and Gray (2006)*

Retiree Provisions

- The firm's financial performance and the availability of alternative insurance options play a small, but significant role in the proportion of the premium paid by employers for retiree health insurance. *Born and Zawacki (2006)*
- Larger and older firms are more likely to offer retiree health insurance. *Buchmueller, Johnson, and LoSasso (2006)*
- New retirees' eligibility for employer-sponsored retiree health insurance declined roughly 5 percentage points between 2001 and 2004. *Eibner, Zawacki, and Zimmerman (2007)*

Institutional Framework

- Nondiscrimination rules reduce within-firm inequality in benefits and appear to increase use of benefits, such as health insurance. *Carrington, McCue, and Pierce (2002)*
- State legislatures have enacted regulations to encourage more small employers to provide insurance, but RDC research suggests that the reforms resulted in a net decrease in coverage at small employers. *Simon (2005)*
- Large employers reduced their offerings of health maintenance organization (HMO) plans and employees were less likely to choose HMOs from 1997 to 2003. *Cooper, Simon, and Vistnes (2006)*
- Primarily due to federal Employee Retirement Income Security Act (ERISA) exemptions, state-level reforms aimed at expanding health benefits may have limited effect. *Buchmueller, Cooper, Jacobson, and Zuvekas (2007)*

Text Box 3-1.
What We Have Learned From CES and RDC Research on Health-Related Issues—Con.

PUBLIC INSURANCE PROGRAMS

- Adjusted estimates suggest only minor underreporting of Medicaid coverage in California in the Survey of Income and Program Participation (SIPP)—85 percent of the total Medicaid coverage in California (Medi-Cal) population, and over 90 percent of children with Medi-Cal report eligibility in the SIPP. *Card, Hildreth, and Shore-Sheppard (2004)*
- As more families had access to the State Children's Health Insurance Program (SCHIP) for their children, employers did not reduce offers of health insurance or coverage to dependents. *Buchmueller, Cooper, Simon, and Vistnes (2005)*
- The Current Population Survey (CPS) uninsured rate for California is overestimated by 3 percentage points for adults and 8 percentage points for children. *Klerman, Ringel, and Roth (2005)*
- Underreporting of Medi-Cal is likely due to a reluctance to report coverage by recipients. *Klerman and Ringel (2005)*

INDIVIDUAL INSURANCE MARKET

- A subsidy of 50 percent would reduce the number of uninsured families by only about 4 to 8 percent. *Marquis, Buntin, Escarce, Kapur, and Yegian (2004)*
- People in poor health at enrollment do pay higher prices than healthy people, but the differences are not large—on the order of 10 percent. *Marquis, Buntin, Escarce, Kapur, Louis, and Yegian (2006)*
- Product choice is sensitive to price, while decreases in deductibles and out-of-pocket maximums will only modestly increase overall participation. *Marquis, Buntin, Escarce, and Kapur (2007)*
- Premium subsidies for individual insurance would increase whole family coverage and reduce the number of partially uninsured families among those who purchase individual coverage, but their role would be small. *Kapur, Escarce, and Marquis (2007)*

NEW AND EXISTING HEALTH-RELATED DATA AT CES AND THE RDCS

Access to the confidential data on health insurance and health status at CES and the RDCs provides researchers with detailed information. Such richness yields insights that could not be achieved with publicly available data. Although some of the RDC datasets have public-use equivalents, these often have to suppress, aggregate, or top-code measures for disclosure avoidance. In contrast, the detailed geographic information in RDC files enables researchers to examine topics such as how characteristics of local insurance markets, households, or public programs affect health insurance coverage. In other cases, the public-use files contain only a fraction of the total responses available in the RDC versions.

There are also some RDC datasets that have no public-use equivalents, so researchers can work with the microdata only through an approved project at a Census Bureau RDC. For example, for studying employers' decisions to offer health insurance, no publicly or privately available data can match the Medical Expenditure Panel Survey—Insurance Component (MEPS-IC) list sample's coverage of private sector employers in the United States or the number of years of data. The MEPS-IC list data are only available at CES and the RDCs.

RDC research also demonstrates how combining several sources of microdata can extend the depth and range of questions that can be examined. For example, access to more detailed geography allows researchers to add information on provision of health care in an area. Projects using RDC business data can combine information on employer health insurance plans and business outcomes from two different confidential RDC datasets. New partnerships with the Agency for Healthcare Research and Quality (AHRQ) and the National Center for Health Statistics (NCHS), and the addition of new Census Bureau data, further increase the range of research on heath-related topics that can be conducted through the RDCs.

Census Bureau Data

Census Bureau datasets containing information about health insurance used by CES and Census Bureau RDC researchers include the sample MEPS-IC, the Current Population Survey Annual Social and Economic Supplement (CPS ASEC), and the Survey of Income and Program Participation (SIPP). These three datasets are discussed below. The American Community Survey (ACS), which began collecting information on health insurance in January 2008, is also available to RDC researchers.

To date, much of the research at CES and the RDCs has focused on the topic of health insurance simply because the Census Bureau collects more information on this topic than on other health-related issues. However, some measures of the incidence and extent of disability are available in the SIPP and CPS, as well as the decennial census and the ACS. A general measure of self-reported health status is also available in the CPS. Information on medical expenses, general health status, utilization of health care services, child height and weight, long-term care, and home health care are included in various SIPP topical module datasets available at the RDCs.[17]

Business Data: MEPS Insurance Component

2007 marked the 10-year anniversary of annual data collection for the MEPS-IC and the successful long-term institutional partnership between the Census Bureau and the AHRQ.[18] Under sponsorship from AHRQ, the Census Bureau collects information on employer-sponsored health insurance in the MEPS-IC list sample survey. Together, AHRQ and the Census Bureau develop and provide the premier data source for the study of the dynamic employer-sponsored insurance system.

The MEPS-IC list sample uses the Census Bureau's Business Register as its sampling frame and thus is nationally representative of private sector employers with one or more employees in the United States.[19] Approximately 25,000-35,000 establishments are included in the repeated cross-sectional sample every year.[20] This large sample size, combined with the Census Bureau's ability to achieve a high response rate, contributes to making the MEPS-IC the leading source of data on employer-sponsored health insurance.

MEPS-IC collects detailed information from businesses on whether employees are offered health insurance and, if so, details on the type and cost of coverage for as many as four plans. Surveyed establishments are asked to report information on provider arrangements (exclusive, fee-for-service, mixed), gate keeping, premiums for single and family coverage (including employer and employee shares), deductibles, copayments, and coinsurance.

[17] Detailed information on which panels and topical modules cover health topics can be found on the SIPP Web site <www.bls.census.gov/sipp/top_mod/top_mods_chart.html>.

[18] The MEPS-IC list data were first collected in 1997 for the calendar year 1996.

[19] The MEPS-IC sample also includes establishments selected from the Census of Governments to collect information from state and local governments on health insurance offerings. These data are not confidential.

[20] Survey instruments, methodology reports, publications, and summary data tables for the MEPS-IC can be found at <www.meps.ahrq.gov>.

Retiree health insurance information is collected at the firm level, but the data file includes a retiree weight that permits establishment-level analyses of retiree health insurance issues.[21] Information on non-health fringe benefits at the establishment level (vacation, sick leave, and pensions) is also collected, along with general information about the employer and its workforce.

Household Data

The CPS and SIPP are household surveys that capture information on whether individuals in a household are covered by insurance and the type of insurance (individual, employer-sponsored, and a range of specific public insurance plans). Both surveys are frequently used to estimate the number and proportion of insured and uninsured among the noninstitutionalized population.[22] These datasets also contain background information on households and individuals, such as income, labor market outcomes, demographics, household structure, and disability status. The versions of the CPS and SIPP available through the Census Bureau RDCs have more detailed levels of geography that enable researchers to merge external data to enhance analyses of health insurance coverage and reported disability status. A number of disclosure-avoidance protections on the public-use files are removed, such as the top-coding of income.

The CPS began asking questions about health insurance in 1980 in the March Income Supplement and asks about coverage at any time during the previous calendar year.[23] These data provide estimates of the uninsured and insured populations at both the state and national levels and are the official source of data used to allocate funding to states for the State Children's Health Insurance Program (SCHIP).

The SIPP is a longitudinal household survey that has been collecting data on health insurance coverage and disability since its inception in 1984. SIPP questions capture dynamic aspects of coverage—how long someone has or does not have coverage and changes between types of coverage. Preparations are currently underway for the 2008 SIPP panel, which is scheduled to begin in September 2008, and work is continuing to release the remaining data collected as part of the 2004 panel.

The decennial census datasets available at RDCs include 100 percent of the survey responses rather than the 1 percent or 5 percent available through the Public Use Microdata Sample Files (PUMS). The larger number of responses can aid analyses of events affecting smaller populations or narrow demographic groups. Although limited in nature, the disability status information is increasingly being used for projects at the RDCs. For example, access to the RDC versions of the decennial census data enabled one team of researchers to analyze how survey mode and interviewer error affected disability reporting. Another team used information on date of birth to analyze the impact of the Vietnam draft on disability status—see the summary in Text Box 3-2. This study could not have been done outside the RDC. The study required access to information that is not available on the PUMS data and the much larger number of observations available to RDC researchers.

Additional Census Bureau Data Now Available at the RDCs

The National Longitudinal Mortality Survey (NLMS) constructed by the Census Bureau became available through the RDCs in 2007.[24] The NLMS is a research database that was constructed for analyzing variation in mortality by socioeconomic and demographic factors. The NLMS data were created by matching vital statistics records with a subset of 1980 Decennial Census respondents and respondents to the CPS ASEC (March). The version of the NLMS available to RDC researchers corresponds to public-use NLMS Release 2 but with geographic detail.

[21] An establishment is a single physical location where business is conducted. A firm is comprised of all the establishments that operate under the ownership or control of a single operation.

[22] For more information on health insurance data collected in the CPS and SIPP, see <www.census.gov/hhes/www/hlthins/overview.html>.

[23] Health insurance coverage is considered underreported in the CPS; compared with other national surveys, CPS estimates of the uninsured more closely approximate the number of individuals uninsured at a specific point in time than the number uninsured for the entire year. See DeNavas-Walt et al. (2007).

[24] See <www.census.gov/nlms/index.html>.

AHRQ and NCHS RDC Data Now Available at Census Bureau RDCs

In 2007, CES-initiated agreements between the Census Bureau and AHRQ and NCHS enabled researchers to apply to AHRQ and NCHS to use these agencies' confidential RDC data for projects conducted at Census Bureau RDCs.[25] Projects requesting NCHS and AHRQ RDC data go through the proposal process of each agency rather than that of CES and the Census Bureau. Similar to many of the Census Bureau RDC datasets, the AHRQ and NCHS RDC data give researchers the ability to control for geographic factors that affect health risks, status, behaviors, and outcomes to a greater extent than with the public-use data. The confidential RDC data also offer information that must be suppressed, top-coded, or aggregated on public-use files for disclosure avoidance. Certain NCHS and AHRQ datasets available through the RDCs have no public-use equivalents. Listings of the AHRQ and NCHS data currently available to researchers at Census Bureau RDCs are given in Text Boxes 3-3 (AHRQ) and 3-4 and 3-5 (NCHS). Extracts of the restricted data are created by NCHS and AHRQ based on each approved project's scope and made available to the approved project researchers at a Census Bureau RDC.

[25] For more information on NCHS RDC data and proposals, see <www.cdc.gov/nchs/r&d/rdc.htm>; for AHRQ RDC data and proposals, see <www.meps.ahrq.gov/mepsweb/index.jsp>.

Text Box 3-2.

Data Spotlight: RDC Confidential Decennial Census Data

Recent work by Angrist and Chen (2007) highlights use of confidential RDC decennial census data to examine the long-term effect of the Vietnam draft on health status and labor market outcomes. The disability status and receipt of disability income data in the 2000 Decennial Census are important for this analysis. The RDC data on date of birth, however, enabled researchers to determine how likely males born from 1948–1952 were to have been drafted for Vietnam service. The random assignment of males born from 1948–1952 to Vietnam service via the draft lottery is used to minimize selection bias into military service. This identification strategy would not be possible without the confidential data available at the RDCs. The larger sample sizes of males with Vietnam-era service in the RDC data also allowed the researchers to calculate more precise estimates of any effects.

The researchers find no effect of the Vietnam draft on the likelihood of reporting a work disability, for both Whites and non-Whites. However, the researchers find that among Whites, Vietnam draftees were more likely to be receiving disability income in 2000. The effects on disability-related income variables for non-Whites are roughly double those for Whites but considerably less precise. The research results also show that service increased disability income only from programs specific to veterans, not Social Security Supplemental Income or Disability Income. The authors interpret this as evidence that health consequences of the Vietnam draft did not reduce veterans' earnings. The researchers also found no impact of service on work-related disability, labor supply, or work history.

AHRQ RDC Data

Data from AHRQ's RDC program currently available through Census Bureau RDCs include various components of the Medical Expenditure Panel Survey (MEPS). Researchers can apply to use the MEPS Household Component (MEPS-HC). MEPS-HC has collected data since 1996 on health insurance coverage and costs, socioeconomic and demographic characteristics, health status and behaviors, and healthcare access and utilization. While public-use files for the MEPS-HC can be downloaded from the Internet, the RDC versions of these files can be used in conjunction with other confidential RDC data. The MEPS Two-Year, Two-Panel file matches individuals across the first and second year of the MEPS-HC and can also be used at the AHRQ

and Census Bureau RDCs. The RDC versions also provide information not available on the public-use file, such as estimated federal and state marginal tax rates, as well as detailed diagnosis codes.[26]

The MEPS Medical Provider Component includes charge and payment data from hospitals, physicians, home health care providers, and pharmacies that can be added to household reports of health care expenditures found in the MEPS-HC. The billing data also include procedure codes (CPT4) and diagnosis codes for medical visits and stays and NDC prescription codes. While some components of the provider information are available to be linked to the public-use MEPS-HC, much more detail is available in the AHRQ RDC version.

Other AHRQ RDC files now available through Census Bureau RDCs have no public-use version. The MEPS Household Component-Insurance Component linked file (available for 1996–1999 and 2001) surveyed the employers of MEPS-HC respondents to collect information on health insurance offerings in the workplace. Such linked data give researchers the opportunity to study workers' insurance options and selected coverage more thoroughly by using data from both the employer and the household. The 1996 MEPS Nursing Home Component collected information on characteristics of the facility and residents, including health status, residence history, and expenditures, and is only available at the AHRQ and Census Bureau RDCs.

Geographic contextual information can be merged in by AHRQ at the state, county, census tract, or block group level and made available for use in RDC projects. AHRQ will also merge county-specific data from the Area Resource File (ARF) to the MEPS-HC data. The ARF contains information on health care providers, health status, economic activity, health training programs, and socioeconomic and environmental characteristics.

NCHS RDC Data

Many NCHS datasets are available for use at Census Bureau RDCs through the NCHS RDC program. The National Health Interview Survey (NHIS) includes information on detailed health characteristics of individuals, health care access and utilization, health insurance, and socioeconomic and demographic characteristics. NHIS includes three measures of uninsured status: current, intermittent (uninsured at least part of the prior year), and long term (uninsured for more than a year). NHIS data are available starting in 1969. Compared to the public-use file, the RDC data include more information on income, earnings, and the nature and timing of health events in addition to exact age, geography of residence, and place of birth.

The National Health and Nutrition Examination Survey (NHANES) has been collected since 1971 and includes information on socioeconomic and demographic characteristics, risk factors, behaviors, and directly measured data on health status and outcomes. Through the RDCs, NHANES users can add information by state and county geography.

The National Vital Statistics System (NVSS) data are also available through the NCHS RDC program. This group of datasets include birth and death records as well as the National Survey of Family Growth (NSFG), which tracks reproductive health. The RDC data on natality and mortality provide more precise dates and geography that are no longer available in the public-use file. The NSFG RDC data include geographic contextual details that range from socioeconomic characteristics of the community to crime and family planning services' availability. Use of NVSS datasets at the RDCs facilitates studies of life expectancy, causes of death, pregnancy and birth outcomes, prenatal care, and nonmarital births.

NCHS RDC data include surveys of various types of providers, such as nursing homes, hospitals, home and hospice care, and ambulatory care facilities, as part of the National Health Care Surveys. NCHS RDC data also offer versions of several surveys, including the NHIS and NHANES, that are linked to administrative data on mortality, health care costs and utilization

[26] Federal and state marginal tax rates are estimated using the National Bureau of Economic Research's TAXSIM package.

records from Medicare, and retirement and disability data from the Social Security Administration.

HOW HEALTH-RELATED RESEARCH HAS BENEFITED THE CENSUS BUREAU

The primary purpose of encouraging external researchers to use confidential Census Bureau data is to generate information that will benefit a Census Bureau program, statistic, or survey. CES and RDC projects benefit the Census Bureau in many ways.[27] This section highlights projects that enhanced or improved the quality and usefulness of Census Bureau datasets by documenting the content and quality of a survey for its use in studying particular topics, linking data to create richer datasets to better answer important questions, or evaluating the impact of improvements to specific questions on a survey. However, it should be noted that most of the projects cited in this section and throughout this chapter produced additional benefits not discussed here.

Documenting Data

The increasing cost of health care and growing share of the population aged 55 and older, make it important to know about health insurance available to older individuals. Employer-sponsored insurance for retirees is often the sole source of coverage for retirees not yet eligible for Medicare and provides supplemental coverage for Medicare-eligible retirees. As part of a larger research project, Zawacki (2006) documents how the MEPS-IC data can be used to study employer-sponsored retiree health insurance (RHI). This paper describes the RHI measures collected on plans offered to those already retired—Medicare-eligible (aged 65 and older) and early retirees (under age 65)—and to new retirees, including eligibility, enrollment, premiums, and cost sharing. The author also presents preliminary estimates of trends in RHI provision. Changes have been made in the MEPS-IC RHI questions since 1996 to improve data collection and to respond to emerging RHI issues. Zawacki provides suggestions for estimating data elements that are not available every survey year. The author also describes item nonresponse issues and their possible role in explaining unexpected patterns in the estimates. Inconsistencies between imputed values of RHI offers and premium/enrollment information are also discussed, but the author points out that less than 5 percent of establishments are affected.

Linkages

One of the advantages of the MEPS-IC being based on the same sampling frame as most of the Census Bureau's business surveys is that MEPS-IC data can be linked with additional information about establishments and firms. McCue and Zawacki

Text Box 3-3.
AHRQ Data Available Through Census Bureau RDCs

Project-specific extracts can be created from the following Agency for Healthcare Research and Quality (AHRQ) Medical Expenditure Panel Survey datasets for AHRQ-approved projects at Census Bureau RDCs:

a. Household Component-Insurance Component linked file (1996–1999, 2001)

b. Nursing Home Component (1996)

c. Medical Provider Component (except directly identifiable data)

d. Two-Year, Two-Panel Files

e. Area Resource File county-level data linked to MEPS-HC

f. MEPS-HC Public-Use Files linked to confidential variables

Researchers interested in using these data should contact AHRQ directly through its Web site <www.meps.ahrq.gov /mepsweb/data_stats/onsite_datacenter.jsp>.

[27] All RDC projects must propose benefits to the Census Bureau under at least one of several criteria. See <www.ces.census.gov>.

Text Box 3-4.

NCHS Data Available Through Census Bureau RDCs

Project-specific extracts can be created from the following National Center for Health Statistics (NCHS) datasets for NCHS-approved projects at Census Bureau RDCs:

a. National Health and Nutrition Examination Survey I, II, and III
b. National Ambulatory Medical Care Survey
c. National Hospital Ambulatory Medical Care Survey
d. National Survey of Ambulatory Surgery
e. National Hospital Discharge Survey
f. National Nursing Home Survey
g. National Home and Hospice Care Survey
h. National Employer Health Insurance Survey
i. National Health Provider Inventory
j. National Health Interview Survey 1967–2005
k. National Immunization Survey
l. Longitudinal Study on Aging
m. National Survey of Family Growth
n. State and Local Area Integrated Telephone Survey
    1. Health
    2. Child Well-Being and Welfare, 1997
    3. National Survey of Early Childhood Health
    4. National Survey of Children With Special Health Care Needs
    5. National Survey of Children's Health
    6. National Asthma Survey
    7. National Survey of Children With Special Health Care Needs
o. Vital Statistics
    1. Birth
    2. Mortality
    3. Marriages and Divorces
    4. Fetal Death
    5. National Death Index

Researchers interested in using these data should contact NCHS directly through its Web site <www.cdc.gov/nchs/r&d /rdc.htmthrough>.

(2006) describe the results from matching 1997 MEPS-IC private list sample data to the 1997 Economic Census. The match between the MEPS-IC data and the economic census was of high quality, and, more significantly, there was no evidence that the matched establishments were biased towards offering or not offering health insurance benefits. The combined data on health insurance plan offers and business characteristics can be used to examine factors underlying employer offers of health insurance and the role that such benefits play in compensating workers and determining productivity. McCue and Zawacki's analysis finds that firms offering health insurance to employees had 25 percent greater labor productivity and 32 percent higher pay when other characteristics of the establishments were held constant. Such analyses have the potential to provide important insights as employers consider ways to restructure health insurance offers to meet cost pressures.

The MEPS-IC list sample is nationally representative of private sector employers. Similar information collected from the employers of individuals in the Medical Expenditure Panel Survey—Household Component (MEPS-HC) is called the MEPS-IC household sample.[28] Cooper, Hagy, and Vistnes (1999) compare employer size and multiunit status in the two samples.[29] The employer characteristics were obtained by linking each dataset to the Census Bureau's Business Register for 1996. Many more employers in the MEPS-IC household sample are multiunit and are larger

[28] An important difference between the two MEPS-IC sources is that only 60 percent of respondents to the MEPS-HC gave permission for MEPS to survey their employers. Studies based on the MEPS-IC household sample therefore may not be nationally representative.

[29] Multiunit establishments are single locations belonging to a business operating in more than one location.

Text Box 3-5.

NCHS Data Linked to Other Agency Data Available Through Census Bureau RDCs

Project-specific extracts can be created from the following National Center for Health Statistics (NCHS) datasets linked with data from other agencies for NCHS-approved projects at Census Bureau RDCs:

a. National Health and Nutrition Examination Survey II with Medicare utilization and expenditure data 1991–2000

b. National Health and Nutrition Examination Survey III with mortality data 1988–2000

c. National Health and Nutrition Examination Survey III with Medicare enrollment and claims data (CMS-1991–2000)

d. National Health and Nutrition Examination Survey III with Social Security Administration retirement, survivors, and disability insurance data 1974–2003

e. National Health and Nutrition Examination Survey III with Social Security Administration Supplemental Security Income data 1974–2003

f. Longitudinal Study of Aging II with mortality data 1994–2002

g. Longitudinal Study of Aging II with Medicare enrollment and claims data 1991–2000

h. Longitudinal Study of Aging II with Social Security Administration retirement, survivors, and disability insurance data 1962–2003

i. Longitudinal Study of Aging II with Social Security Administration Supplemental Security Income data 1974–2003

j. 1985 National Nursing Home Survey with mortality data 1985–2002

k. 1985 National Nursing Home Survey with Social Security Administration retirement, survivors, and disability insurance data 1962–2003

l. 1985 National Nursing Home Survey with Social Security Administration Supplemental Security Income data 1974–2003

Researchers interested in using these data should contact NCHS directly through its Web site <www.cdc.gov/nchs/r&d/rdc.htm>.

employers—over 46 percent of the MEPS-IC household sample establishments have at least 50 employees, while only 17 percent of MEPS-IC list sample employers are in this size class. This project benefited the Census Bureau and AHRQ by comparing the two datasets on employer-sponsored health insurance (ESI). It assessed how representative the employer information derived from the MEPS-IC household sample is and documented how and why the two MEPS-IC samples differ.

Decressin, McCue, and Stinson (2003) describe the creation of a new dataset that combines administrative data on health benefits and other tax-advantaged benefits from the Internal Revenue Service (IRS) Form 5500 and the Census Bureau's Business Register. The combined data include benefits information for most businesses in the Business Register. The result is a larger, richer dataset than what most surveys can

offer for analyzing how benefit provision varies with industry, size, and other firm characteristics, as well as business and worker outcomes. Several years of Form 5500 data are available and thus, can be used to examine how benefits change in response to changes in the insurance market, firm and businesses circumstances, and labor markets. However, while most large employers offering health benefits must file Form 5500, an important limitation to the data is that most firms with small health plans (less than 100 participants, unfunded or fully insured) are not required to file Form 5500. Also, when the plan sponsor is not an employer (e.g., trade union plans), there is no way to match up the benefits data with participants' employers. For large firms, the match was successful. Subsequent research using this combined data linked to the Longitudinal Employer Household Dynamics data has examined whether firms benefit in terms of productivity, worker turnover, employment growth, and survival by offering health and other benefits (Decressin et al., 2005; Decressin et al., forthcoming).

Assessing Data Quality

A project by Houtenville and Erickson (2007) aimed to help improve measurement of the disabled population. Accurate measures of the numbers of people with various disabilities are critical for planning to assure that services, such as mass transit, Medicare, and Medicaid, are adequate to serve the disabled population. However, the factors defining a disability are complex, which makes disabilities difficult to precisely identify with a limited number of survey questions. The researchers focus on measures of employment and "go-outside-the-home" (mobility) disabilities in the 2000 Decennial Census and 2000–2005 ACS. Prior work by Census Bureau staff (Stern, 2003; Stern & Brault, 2005) indicated that respondent and interviewer errors related to the layout of this disability question resulted in unexpectedly high rates for these disabilities. Houtenville and Erickson confirm these earlier results. To better understand why respondents report with error, the researchers use other data elements, such as disability income and nonproblematic disability measures, to identify respondents who erroneously reported a work disability. The size of this group declines in accordance with the improvements in the survey and the use of more experienced enumerators. The researchers plan to analyze whether particular characteristics of this group, such as age or education, are associated with a greater likelihood of respondent error.

SOURCES OF HEALTH INSURANCE COVERAGE

Studies at CES and the RDCs have examined many of the trends and interactions in the employer-sponsored, public, and individual health insurance markets using Census Bureau data. Figure 3-1 shows the percent coverage from each of these sources for each age segment of the population in 2006 using data from the Current Population Survey (CPS).[30,31] The figure shows that individuals of all ages rely upon coverage from the employer-sponsored system. This reliance wanes from 60 to 67 percent for younger people to 36 percent for people 65 years of age or older, when Medicare becomes the primary insurer. Another public source of coverage, Medicaid provides health insurance to 27 percent of children. Figure 3-1 also shows that 5 to 10 percent of people under the age of 65 and almost 28 percent of people 65 years of age or older purchase coverage on their own through the individual (direct) market, either as their only source of insurance or as supplemental coverage. Finally, many individuals are uninsured. Researchers at CES and the RDCs have used both business and demographic data from the Census Bureau separately, linked to external data sources and in unique combination with one another, to examine health-related issues in each of these markets.

[30] CPS estimates of health insurance coverage are considered underreported. See DeNavas-Walt et al. (2007).

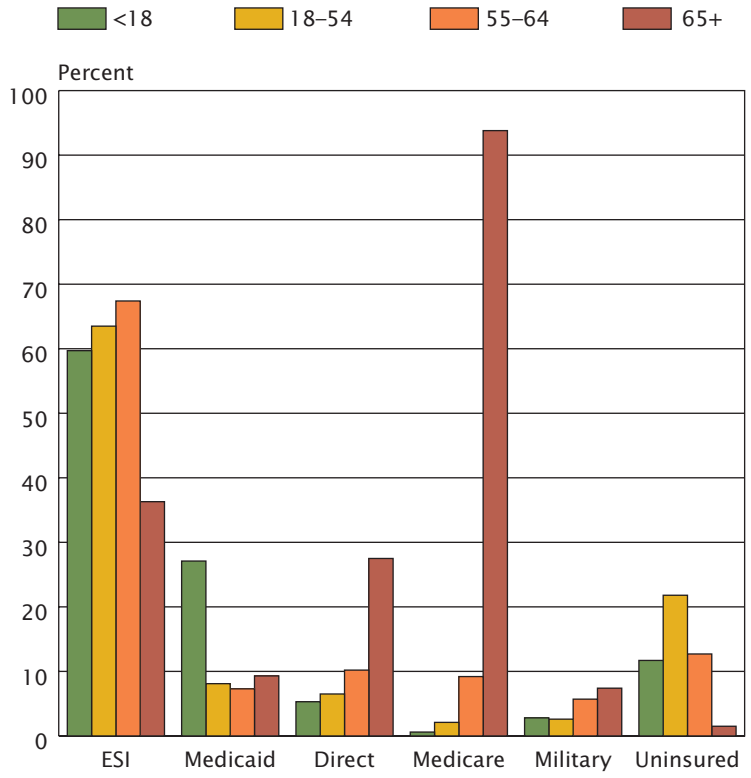
[31] Individuals may receive coverage from more than one source; therefore, totals within each age category may exceed 100 percent. These figures come from the basic CPS sample of the resident civilian noninstitutionalized population and do not include people in institutions, such as nursing homes and long-term care hospitals.

EMPLOYER-SPONSORED HEALTH INSURANCE

Cost Sharing

A number of researchers from CES and Census Bureau RDCs have examined contributions made by employers and workers towards the premium for ESI. Each of the papers described here used confidential RDC MEPS-IC data, which provide benefits over other ESI data because of their more representative sampling and annual collection schedule. Rising health care costs contribute to higher total premiums for health insurance. RDC research shows how increasing competition among plans may lower these premiums. New estimates from other studies show that employee contributions towards premiums influence employees' enrollment decisions, and these contributions may be affected by characteristics of their employer, workforce, and local markets.

Figure 3-1.
Source of Insurance Coverage by Age Category

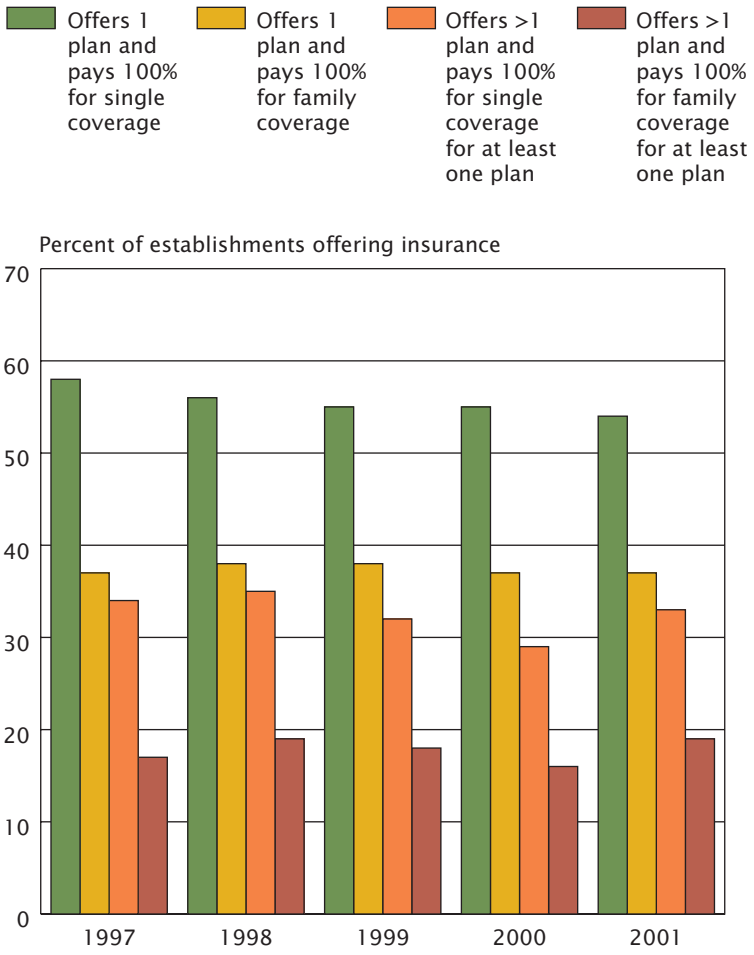


Source: DeNavas-Walt, Proctor, and Smith, 2007.

While rising premiums may challenge employers' budgets for employee compensation, many employers offering ESI offer plans without requiring any employee contributions towards its premium. Further, Zawacki and Taylor (2005) find little change in the percent of establishments offering insurance that pays 100 percent of the premium regardless of the number of plans offered. Estimates are based on the MEPS-IC data from 1997–2001, as seen in Figure 3-2. Most of the establishments that paid the full premium were young, small, single units, with a relatively high paid workforce. The authors note that because many of these establishments are single units and small in terms of the number of people employed, the health benefit decisions made by these employers impact a small percentage of the workforce.

How do workers' out-of-pocket premiums (or their absence) affect their decision to enroll in ESI? Cooper and Vistnes (2003) address this question using 1997—1999 MEPS-IC data on establishments offering ESI. They find that higher employee contributions for single coverage are associated with lower enrollment. The researchers simulate what enrollment would be if employers contribute the full premium cost for single coverage. If employee contributions for single coverage in 1999 fell to zero in establishments that had required a positive employee contribution, enrollment in these establishments would have increased by approximately 6 percentage points. The data do not allow the researchers to determine whether this would be supplemental coverage or if this represents newly insured individuals. The simulations show that if

Figure 3-2.
Percent of Establishments Offering Insurance That Pay 100 Percent of Premium for at Least One Plan



Source: Zawacki and Taylor, 2005.

employee contributions for single coverage were eliminated, however, 2.5 million more private sector employees would potentially enroll in ESI.

Given concerns about rising health insurance costs, policymakers and researchers have been interested in studying ways to control these costs. Economic theory suggests that increased competition among health plans can help lower these premiums. Vistnes et al. (2001) investigate the importance of competition among plans at two stages in the ESI market. The researchers first look at the competition among plans for selection by employers and then at competition among plans offered by the employer for employee enrollment. Based on the 1996 MEPS-IC, they find that total premiums decrease when employers make a fixed dollar contribution towards all plans and offer additional plans. This study shows that when employers contribute the full premium cost for all offered plans and increase their number of offered plans, total premiums actually rise.

Employers may also use their premium contributions along with worker preferences to strategically sort employees into different health plan options. Through cost-sharing arrangements, employers may be attempting to financially motivate their workers to enroll in family coverage through their spouse's plan rather than through their own employer. Using the 1997–2001 MEPS-IC and the Census Bureau's PUMS for 2000, Vistnes et al. (2006) find that the marginal employee premium contribution for family coverage (the additional premium contribution for family coverage, over and above that for single coverage) is higher when more women are in the workforce but only in markets with a higher proportion of dual-earner households. These findings reveal that employers designing their cost-sharing arrangements consider both the characteristics of their workforce and the local labor market.

Affordability

Rising premiums and out-of-pocket medical costs associated with health insurance plans affect the affordability of ESI. Some researchers have used Census Bureau data to study the financial protection provided by health plans offered in the workplace and subsidies for ESI. The studies described here have enhanced Census Bureau data by combining the restricted-use MEPS-IC and the MEPS-HC to create datasets that contain both business data on employers and demographic data on individuals. The RDC researchers find that ESI plans with exclusive providers pay a higher percentage of a medical bill, and ESI subsidies may not be the best approach for encouraging ESI coverage of the uninsured or those on public insurance.

What financial protection against high out-of-pocket medical costs do ESI plans offer workers? To address this question, Gabel et al. (2006) calculate actuarial values (the percentage of the medical bill the health plan would pay, on average, for a standardized population) and quality-adjusted premiums. In the latter measure, the premiums are adjusted for the quality of the financial protection the plan provides to the employee and is basically the premium divided by the actuarial value. These measures are developed using the 2002 MEPS-IC and 2000 MEPS-HC along with other data sources (including 2002 National Health Expenditure Accounts). According to the study, the average actuarial value for an ESI plan is about 83 percent; actuarial values are determined primarily by the plan type rather than by firm size, industry, or workers' wages. Holding all other factors constant, a health maintenance organization's (HMO) plan had an actuarial value almost 14 percentage points higher than an indemnity plan. Quality-adjusted premiums, on the other hand, were strongly determined by firm size. Smaller firms (1 to 9 employees) faced adjusted premiums 18 percent higher than larger firms (1,000 or more employees).

CES and RDC research on the value and out-of-pocket costs of health plans offered to workers point to the affordability of ESI. For many individuals who are uninsured or receiving public assistance, the cost of ESI may be too great. Subsidies are intended to make ESI more affordable. Selden and Gray (2006) examine subsidies for ESI (exemptions from federal and state income taxes, social security, and Medicare taxes), and find these exemptions are poorly targeted if they are intended to stop the growing number of people without insurance or with public insurance. The authors statistically match a synthetic workforce created using pooled data from the 2000–2002 MEPS-HC with establishments in the 2002 MEPS-IC sample. This methodology helps maintain correlations between employer and worker characteristics and helps support simulations of marginal tax rates. They find subsidies are unevenly distributed. The average tax subsidy per worker is larger for bigger private employers, for those with a predominantly full-time workforce, and for those with a relatively higher paid workforce. The researchers project that the total federal and state subsidy in 2006 for ESI coverage of active workers will be $208.6 billion or $2,788 per covered worker.

Retiree Provisions

The surge in the number of Americans concerned with retirement benefits has only just begun with the first Baby Boomer filing for social security benefits in October 2007. According to the 2000 Decennial Census, more than 1 out of every 4 adults will be 55 years of age or older by the year 2015.[32] Health insurance coverage and expenses are a major financial concern for the growing numbers of both early retirees (55 to 64 years old) and Medicare-eligible retirees (65 years of age or older). A large percentage of each of these cohorts (67 percent and 36 percent, respectively) was covered by employer-sponsored retiree health insurance (RHI) in 2006 (see Figure 3-1).[33]

But, can retirees continue to rely upon employers as a source of insurance coverage? Rising premium costs, economic downturns, and Medicare-provided drug benefits have all been cited as reasons why employers

[32] U.S. Census Bureau, 2000. Projections of the Total Resident Population by 5-Year Age Groups and Sex With Special Age Categories: Middle Series, 2011 to 2015. National Population Projections, Summary Files (consistent with 1990 Census). <www.census.gov/population/projections/nation/summary/np-t3-d.txt>.

[33] DeNavas-Walt et al. (2007).

may drop RHI. According to estimates using the MEPS-IC, the percent of private-sector establishments offering health insurance to current workers that also offer health insurance to retirees has hovered around 13 percent in recent years, dropping only a couple of percentage points since the late 1990s.[34] Concerns about ESI coverage for retirees have been studied at CES and the RDCs using the restricted-use MEPS-IC files. This survey provides advantages over other data sources on RHI because the MEPS-IC is conducted every year and samples establishments with one or more employees. RDC researchers have produced new estimates showing larger and older employers are more likely to offer RHI, a decline in RHI offers to new retirees, and an increase in retiree contributions towards premium costs.

Financial security in retirement can be threatened by high medical costs and is a particularly pertinent issue for older workers. Eibner et al. (2007) use the 2000–2004 MEPS-IC to evaluate RHI access and RHI contribution requirements for this segment of the population by weighting each observation by the number of workers over the age of 50 employed at each establishment. They find no evidence of a significant decline from 2000 to 2004 in the probability of older workers being employed by private-sector establishments that provide RHI to existing retirees. The probability remained constant at about 27 percent for both early retirees (less than 65 years of age) and Medicare-eligible retirees (65 years of age or older). Beginning in 2001, the MEPS-IC has collected data on new retirees, asking additional questions about only those people retiring from the organization during the survey year. As shown in Figure 3-3, the probability that new retirees were eligible for RHI declined roughly 5 percentage points between 2001 and 2004. Additionally, this study shows retirees face increasing contribution requirements and increasing risk for having an "access-only" plan (i.e., employer offers group coverage plan but makes no contribution towards its premium cost). These findings raise concern about the cost of health insurance coverage for future retirees.

Measured at the establishment level, these overall trends show some differences when broken out by early retirees (under age 65) and Medicare-eligible retirees (65 and older). Zawacki (2006) shows that from 1997 to 2000, establishments that offer RHI are more likely to offer coverage to early retirees than to Medicare-eligible retirees. Similarly, from 2001 to 2003, establishments that offer RHI are more likely to offer coverage to *new* early retirees than to *new* Medicare-eligible retirees.

The relationship between trends in RHI offers and employer characteristics is also important to understand and has been studied by Buchmueller et al. (2006) and Zawacki (2006) within the private sector from 1997 to 2003. Using the MEPS-IC, Buchmueller et al. find that larger employers and older firms are more likely to offer RHI, and these benefits are more likely to be made available to unionized workers and by employers with an older workforce. Similar to the findings by Eibner et al. (2007), these researchers also find that average total premiums for RHI have increased over time and the employee's share of the premium cost has risen.

Zawacki (2006) shows that businesses with fewer low-wage and part-time workers are more likely to offer RHI. In addition, there are some industry differences in the trends—for example, RHI offers by establishments in transportation/utilities and wholesale trade increased, but enrollment fell. Enrollments in family coverage declined at establishments with fewer female employees and increased at establishments with a greater proportion of low-wage workers. Further, Zawacki (2006) finds that the number of enrollees at unionized establishments has declined as enrollment in nonunionized establishments has increased. Explanations for these findings include the definition of unionization used by the author (i.e., an establishment is considered unionized if 25 percent or more of the workforce belongs to a union, thereby reducing the number of establishments considered unionized), the reduction in RHI benefits in renegotiated union contracts, or the shifts in

[34] Agency for Healthcare Research and Quality, Center for Financing, Access, and Cost Trends. 2002–2005 MEPS-IC.

employment to nonunionized establishments.

As Buchmueller et al. (2006) show, larger and older firms are more likely to offer RHI, and manufacturing firms are often larger and older than firms found in other industries. Restricting their sample to manufacturing, Born and Zawacki (2006) linked establishments from the 1999 MEPS-IC with the 1997 Census of Manufactures to study offers of RHI by firms. In the first stage of their analysis, the researchers also find that size (number of employees) and firm age increase the probability that a firm offers RHI. In the second stage, they examine the impact of the firm's financial performance and the availability of alternative insurance options available in the market on the percentage of the RHI premium cost contributed by the employer. The results indicate that these factors play a small but significant role in the proportion of the premium paid by firms.

Figure 3-3.
Declining Probability That Workers Over the Age of 50 Are at Businesses Offering Insurance to New Retirees
(Percent)

* Conditional on health insurance provision to existing retirees under age 65 and those 65 and older, respectively.
Source: Eibner, Zawacki, and Zimmerman, 2007.

Institutional Framework

The provision of ESI is not only motivated by productivity incentives, labor market conditions, or labor relations. The availability of this non-wage benefit is also affected by the institutional framework: the legal environment and insurance supply market an employer faces. The legal environment governs what is offered and to whom, while the group insurance market determines the types of plans available and cost to employers. As pressures from rising health care and insurance costs mount, employers and providers are looking for alternatives in the group insurance market. Consumers, concerned with rising costs but also access to quality care, press for more health care choices and a greater range of benefits. A number of papers by CES staff and RDC researchers provide insights on how employers and consumers have interacted within the evolving institutional framework over the last 20 years and how this has changed insurance coverage, insurance costs, types of plans, and benefits. Understanding how these groups have responded to past changes in the institutional framework will be very important in considering changes for the future. These studies have all used employer information on health benefits offerings and require data covering multiple years to examine the impact of changes in legal mandates, plan offerings, or market pressures. The MEPS-IC list sample, which can only be accessed via the secure Census Bureau environment, has been a particularly important source of consistent data covering more than 10 years.

Using the MEPS-IC list sample, Cooper, Simon, and Vistnes (2006) examine the decline in popularity of Health Maintenance Organizations (HMOs). The researchers analyze changes in enrollment in each of the four major ESI plan types between 1997 and 2003: HMOs, preferred-provider organizations (PPOs), fee-for-service (FFS), and point-of-service (POS) plans. They break down the enrollment changes into changes in employer plan offerings and employee choices among offered plans. The researchers find an overall decline in HMO enrollment (32 percent to 26 percent) similar to other studies, but their results indicate that the decline occurred post-2001 rather than in the late 1990s. Figure 3-4 shows the change in the percentage of enrollees in HMO plans compared to PPO plans estimated by Cooper et al. The percentage of enrollees in HMOs fell by 18 percent while the percentage in PPOs rose by 45 percent; about half of enrollees were in PPO plans in 2003 while only a quarter were enrolled in HMOs. Small to medium-sized employers (less than 1,000 employees) increasingly offered HMOs, but large employers reduced HMO offerings and their employees were less likely to choose HMOs over other plans. PPOs showed a 15 percentage-point rise in enrollment because, in firms of all sizes, employers were more likely to offer PPOs and when offered, employees increasingly chose them.

Regulations related to the sale of health insurance, particularly at the state level, are another important feature of the environment affecting ESI. In recent years, state legislatures have moved to enact regulations either to encourage more employers to provide health insurance, to increase the range of benefits covered, and/or to reduce the impact that worker characteristics have on the price or availability of health insurance. Smaller employers are much less likely to offer health insurance; one potential reason for this is that smaller employers may face highly variable premium costs from one year to the next as worker insurance claims vary.[35] Simon (2005) uses the MEPS-IC list sample to examine states that implemented reforms in the early 1990s aimed at increasing ESI offers at small employers. The reforms limited the degree to which insurers could price discriminate between low- and high-risk customers and, in some states, created guaranteed issue laws. Simon compares changes between 1992 and 1996 in benefit offerings (premiums, employee contributions, and employer offers of health insurance) and the coverage rate at small employers in reform states with two control groups: large employers in reform states and small employers in nonreform states. Since the MEPS-IC's first year of coverage was calendar year 1996, Simon used an innovative approach to combine the MEPS-IC estimation results with another restricted-access dataset, the 1993 National Employer Health Insurance Survey. Results indicate that reforms increased monthly premiums by a significant $7.80 and employee contributions by $5.10. No effect was found on offers of health insurance, but the rate of enrollment fell by two percentage points. Simon indicates that the reforms' failure to increase coverage at small employers is not surprising. The results are in line with a prediction of economic models that when insurers cannot differentiate between risk groups, insurance can fall for healthier individuals but not for those with greater health care costs.

Buchmueller et al. (2007) examine another set of state-level reforms sought by mental health advocates—laws which mandated that plans not restrict coverage for mental health benefits more than other types of care. After the enactment of the 1996 Federal Mental Health Parity Act (MHPA), mental health advocates were concerned that MHPA did not do enough to increase availability of mental health benefits and pressed states to enact laws to increase their provision. The cost of such mandated benefits to firms is of concern; however, small employers were usually exempt from the reforms, and the federal Employee Retirement Income Security Act (ERISA) holds self-insured plans exempt from any state mandates. Buchmueller et al. use MEPS-IC data on enrollees, firm size, and plan type (e.g., self-insured) and

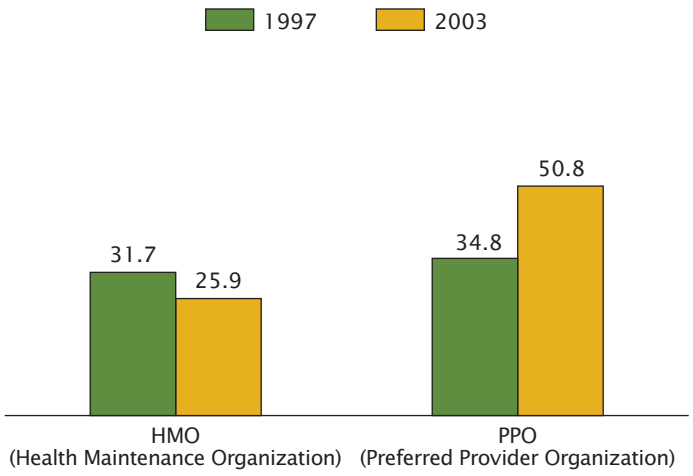
[35] For example, Zawacki and Taylor (2006) show that in 2001, less than half of small employers (less than 10 employees) offered health insurance compared to more than 90 percent of establishments with 100 or more employees.

state laws regarding adoption of reforms and find that the percentage of employees covered by ESI at firms required to expand mental health benefits increased from under 5 percent to about 20 percent between 1997 and 2002. Had small firms and firms subject to ERISA not been exempt from the mandate, the percentage of employees enrolled in ESI plans required to expand such benefits would be more than 40 percent. ESI at firms subject to ERISA accounts for the majority of the difference. Since such a large number of plans fall under the ERISA exemption, the researchers conclude that reforms aimed at expanding coverage for certain health conditions will have a limited effect if not done at the federal level.

Another important institutional feature of ESI is that in exchange for tax-advantaged treatment of health benefits, many large employers are subject to nondiscrimination (ND) rules.[36] ND rules prevent firms from offering greater nonwage benefits, such as health insurance, to highly compensated individuals. However, different benefits can be offered for workers in distinct groups for business reasons (e.g., part-time vs. full-time, above/below 2 years of service). Carrington, McCue, and Pierce (2002) use the Bureau of Labor Statistics' Employer Cost Index survey to examine the effect of ND rules—whether they bind, increase, or decrease wage inequality within firms and affect how employees are grouped. The researchers find that ND rules reduce within-firm inequality in benefits and appear to increase use of benefits such as health insurance. ND rules also increase within-firm wage inequality and thus, have an ambiguous net effect on total compensation. The results also suggest that employees who are paid very differently (low wage at high-wage firms) are more likely to be part-time, a categorization that would enable firms to offer these workers a lower level of benefits.

[36] These rules apply to employers who self-insure (assume financial risk for their plan); employers with self-insured plans are much larger than those who do not self-insure.

Figure 3-4.
Percentage of Enrollees in HMOs Fell While Percentage of Enrollees in PPOs Rose



Source: Cooper, Simon, and Vistnes, 2006.

PUBLIC INSURANCE PROGRAMS

Over the last several years, efforts have been made at the state and national level to address the health insurance needs of people with little or no access to private coverage. This includes both efforts to increase enrollment in public health insurance programs among eligibles and to extend eligibility to certain groups (children, households in poverty). As Figure 3-1 shows, public health insurance provides coverage for most adults aged 65 and over and, following several years of expansions in the Medicaid program, about a quarter of all

children.[37] For adults aged 18 to 64, public programs cover 10 to 16 percent of the population. Researchers, service providers, and governments rely on survey estimates of those reporting public health insurance program coverage to assess the degree to which eligible individuals take up coverage and to obtain better estimates of the number and percentage of the uninsured. However, the estimates of Medicaid coverage in the CPS are markedly lower than estimates from administrative Medicaid data.[38] Survey data have also been used to analyze the impact of expansions in Medicaid and the State Children's Health Insurance Program (SCHIP). Researchers have used Census Bureau RDC data to examine the accuracy of measures of public health insurance coverage and the uninsured population, as well as the impact of coverage expansions on employer offers of ESI.

The SCHIP expansions raised concern among policymakers that, in response to new SCHIP access, parents would drop private insurance and/or employers might change their dependent coverage offerings. Buchmueller, Cooper, Simon, and Vistnes (2005) study these questions in the MEPS-IC list sample, which, unlike studies based on household surveys, can directly examine mechanisms for substitutions between private and public coverage because it contains information from employers on plan offerings. The study finds no evidence that employers reduced offers of health insurance or coverage to dependents as more families had access to SCHIP for their children. However, at businesses with a high proportion of employees likely to be SCHIP eligible, the annual cost of family coverage (relative to single coverage) increased by approximately $119 where 20 percent of the workforce was potentially eligible for public coverage and $351 where 50 percent were potentially eligible. In take-up models for family coverage, the researchers find that these increases in employee contributions resulted in significant declines in family coverage enrollment of 1.4 and 4.6 percentage points, respectively, for these two groups.

Papers by Klerman and Ringel (2005) and Klerman, Ringel, and Roth (2005) analyze underreporting of Medicaid participation (Medi-Cal for the state of California) in the CPS and discuss its causes and effects. The project was able to match monthly data from California's Medi-Cal Eligibility Data System (MEDS) to responses in the Annual Social and Economic Supplement to the Current Population Survey (CPS ASEC) (March supplement) to examine these issues.[39] The combined survey and administrative records data could only be used in the secure environment at the Census Bureau.

Klerman, Ringel, and Roth find that the CPS understates Medi-Cal enrollment by 30 percent for adults and 25 percent for children in the 1990s. Underreporting of welfare receipt (which confers automatic Medicaid eligibility) and thus, inferred Medi-Cal coverage is even greater—on the order of 50 percent. Effects differ by group—those with characteristics less associated with Medi-Cal or welfare receipt (higher income, more education, other health insurance during year) were more likely to underreport. Underreporting of participation also leads to overestimation of the number of the uninsured. This is of particular concern because estimates of the uninsured and program participation from the CPS are the official data source used to allocate SCHIP funding. The researchers develop methods that can be used to adjust the survey data to get more accurate measures of Medi-Cal participation and the uninsured. Figure 3-5 shows that the adjustments to the March CPS data for 1990–2000 used by Klerman et al. increase estimated Medi-Cal enrollment rates for adults and children by 4 and 9 percentage points respectively while lowering the estimated proportion of uninsured adults from 24 percent to 21 percent and uninsured children from 18 percent to 12 percent.

The CPS measures of health insurance are designed to ask about coverage at any point in

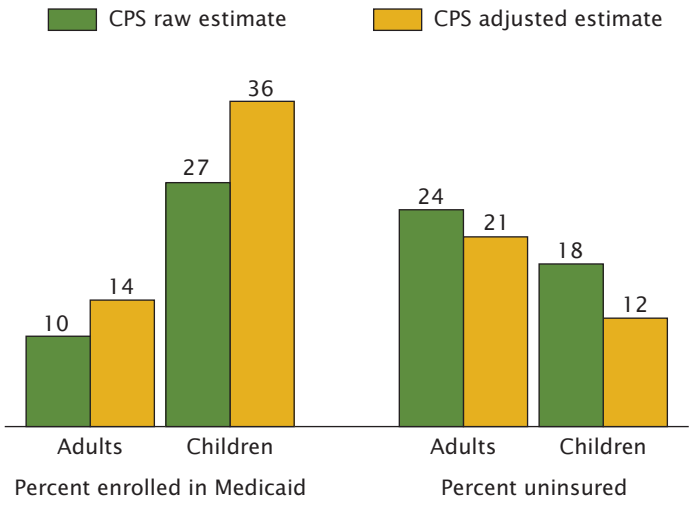
[37] People covered by military plans are not included in the discussion of public programs here.

[38] See Appendix C in DeNavas-Walt et al. (2007).

[39] The Census Bureau provided anonymized identifiers for both datasets, which allowed the researchers to perform the match.

the prior year. Research suggests there is underreporting in the CPS compared to other estimates of health insurance coverage, and one potential explanation is that respondents are answering the question as if it were asking about coverage at a point in time.[40] Klerman and Ringel (2005) focus on this issue with respect to reports of Medi-Cal receipt. The project compares the degree of false negatives and false positives, as well as how reporting varies by length of coverage in the administrative data. Their results indicate that respondent error in interpreting the period for reporting coverage accounts for less than half of the underreporting. In fact, the results suggest that the underreporting is more likely due to a reluctance to report coverage and the fact that the number of months of coverage appears to be positively correlated with reporting coverage in the CPS. Those with fewer months of coverage were less likely to report being covered even though the administrative data indicate that they were covered at a point in time.

Figure 3-5.
Adjusting CPS Data Raises Estimated Medicaid Enrollment Rates and Decreases the Percent Uninsured
(Data for California, Current Population Survey, 1990–2000)



Source: Klerman, Ringel, and Roth, 2005.

Card, Hildreth, and Shore-Sheppard (2004) also used California administrative data on Medicaid enrollment to assess underreporting of Medicaid coverage in the SIPP. The researchers examine each data source separately for patterns of error, and then examine correspondence between the confidential matched survey and administrative reports. The researchers find spikes in changes in Medicaid coverage at the beginning and end of the month and in the month immediately prior to the interview—or seam bias—in the SIPP data. Card et al. also find seam bias in the administrative data, which could result from missing social security numbers (SSNs) on initial application files that were filled in later. The researchers exploit overlap in the administrative records (that include eligibility in the current month and at any time in the prior 15 months) and find inconsistencies in the administrative reports, most likely because people can be deemed eligible after seeking care. In the matched sample, the coverage reported in the SIPP actually exceeds that reported in the administrative data. If the administrative data are assumed to be correct, then unmatched SIPP recipients (those without a valid or reported SSN) would have to underreport Medicaid participation at a very high rate to generate the aggregate level of underreporting. Once problems with SSNs and other errors in the administrative data are accounted for, the researchers estimate that the degree of underreporting in the survey data is not large—85 percent of the overall Medi-Cal population and more than 90 percent of children with Medi-Cal report coverage in the SIPP. The researchers conclude that errors in reported SIPP Medicaid status will not greatly attenuate estimated effects of Medicaid as either an explanatory or dependent variable in regression models. At most, reporting errors could produce a 20 percent

[40] See Klerman and Ringel (2005).

reduction in the estimated impact of Medi-Cal as an explanatory variable.

INDIVIDUAL HEALTH INSURANCE MARKET

According to the 2006 Current Population Survey (CPS), the employer-sponsored insurance market provided coverage for almost 60 percent of the population, and public insurance provided coverage for 27 percent; meanwhile almost 16 percent are uninsured.[41, 42, 43] Figure 3-6 shows the percentage of the population at all ages that is uninsured. The employer-sponsored and individual insurance markets are two sources of private coverage, and the latter covered approximately 9.1 percent of the population in 2006 according to the CPS. In this market, individuals purchase a health plan directly from a private insurance company rather than obtaining coverage through a group, such as their employer. Some discussions consider whether the individual market may be a viable source of coverage for the uninsured. Affordability is considered to be one reason why people do not have insurance. Tax credits and subsidies have therefore been proposed to reduce the cost of coverage in the individual market. Aside from affordability, coverage for the chronically ill or those with preexisting conditions may also present issues. These medical conditions may be excluded from health insurance plans obtained in the individual market, although this market may provide greater health plan choice than what is available from employers. Researchers using confidential RDC data, which allowed them to use variations of combined data from households, insurers, and employers, have produced new estimates on the individual insurance market. Using this improved data, the studies show that subsidies in the individual market only modestly increase the rate that plans are bought, reduce the number of uninsured families by only a small percentage, and may not be efficient for promoting whole family coverage. The research also finds, however, that people with health problems do in fact obtain individual coverage.

A group of RDC researchers have studied the individual insurance market in California. These studies use various combinations of demographic data from the Census Bureau (including the CPS and SIPP) and external data sources (including the National Health Interview Survey, Robert Wood Johnson Employer Health Insurance Survey, administrative data from insurers, and data on California health care markets including the researchers' own surveys of individuals). Their publications from 2004 through 2007 examine the impact of subsidies, product design, and consumer decision-making in the individual insurance market. California is the focus because the researchers were able to obtain data on the premiums and benefit offerings for the majority of individual health plans in this market. The authors also point out that while the analyses are limited to one state, California is a large state with variation in premium costs within the state. And, like other states, California has few regulations in the individual market. California also experienced a change in plan offerings during the period studied, and California's trends in employer-sponsored insurance and uninsurance reflect national trends. On the other hand, in California's individual insurance markets HMOs are more prevalent, and premiums in its individual market tend to be lower than national averages.

Marquis, Buntin, Escarce, Kapur, and Yegian (2004) study two decisions related to the individual insurance market using a combination of the data described above. First, they estimate the probability that a family would purchase coverage in the individual market if the family lacked access to group coverage. Even a subsidy of 50 percent would reduce the number of uninsured families by only about 4 to 8 percent. Second, they study the decision to purchase group insurance, individual insurance, or to remain uninsured by workers who are offered group coverage. Few individuals with access to employer-sponsored group coverage are likely to switch to individual coverage if offered a subsidy, indicating that offering subsidies in the individual market would not necessarily translate into the crumbling of the employer-based system.

[41] Here, "public insurance" includes Medicare, Medicaid, and military health care.

[42] See DeNavas-Walt et al. (2007) and footnotes 10 and 17.

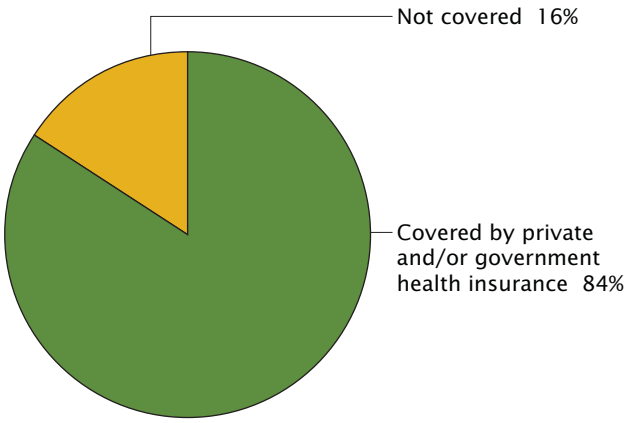
[43] Individuals may receive coverage from more than one source; therefore, the total percent insured is 84 percent and not simply the sum of the percent covered by the employer, public, and individual markets.

Data from California are again used by Marquis et al. (2006) to examine risk pooling in the individual market. This work found that many people with health problems do in fact obtain individual insurance—almost one-third of purchasers report having an adult family member with at least one chronic condition. People in poor health at enrollment do pay higher prices than healthy people, but the differences are not large—on the order of 10 percent. This suggests that insurers pool risks to some extent—that is, they spread risks across purchasers rather than charge much higher premiums for those in poor health. Despite the fact that consumers in poorer health do get access to individual health insurance, Marquis et al. (2006) show that consumers in poorer health are less likely to enroll in the individual market than those in better health, even when controlling for preferences and income. High-risk subscribers are less likely to purchase high-deductible plans. Also, more than 30 percent of new episodes of coverage in the individual market maintain the coverage for more than 3 years and older subscribers are more likely to use the individual market for long-term coverage.

To focus their analyses on individuals who are most likely to purchase products in the individual insurance market, Marquis et al. (2007) use a sample of families from California who lack access to group coverage and are not enrolled in public insurance. Product choice appears sensitive to price, while decreases in deductibles and out-of-pocket maximums will only modestly increase participation. The authors show that a 50 percent subsidy to families in this sample would decrease the number of uninsured by only about 3 percent. The findings again suggest the importance of addressing nonprice barriers. Marquis et al. suggest that introducing new high-deductible plans is unlikely to significantly reduce the number of uninsured. They point out, however, that they do not have data to study the impact of high-deductible plans when used in combination with health savings accounts.

Some families are only partially insured, which means that one or more of the adults and/or children in the family are not covered by insurance. This can result in adverse consequences for both the insured and uninsured members of the family. Kapur et al. (2007) study increasing whole family coverage through the use of subsidies in the individual insurance market. The authors focus on three options: (1) purchase individual health insurance and cover the entire family; (2) purchase individual health insurance, leaving some or all of the children uninsured; or (3) purchase individual coverage but leave only the adults uninsured. Premium subsidies for individual insurance would increase whole family coverage and reduce the number of partially uninsured families among those who purchase individual coverage. The role of the subsidies would be small, however, because efficiently targeting subsidies to this population is difficult.

Figure 3-6.
Health Insurance Coverage: 2006



Source: DeNavas-Walt, Proctor, and Smith, 2007.

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Chapter 4.

THE CENTER FOR ECONOMIC STUDIES (CES) AT 25: A SHORT HISTORY[44]

The Center for Economic Studies (CES) opened in 1982 to house new longitudinal business databases, develop them further, and make them available to qualified researchers. A generation of visionaries, including U.S. Census Bureau management and outside academic researchers, laid the foundation for the establishment of CES within the Census Bureau. Pioneering CES staff joined with qualified academic researchers who visited the Census Bureau to begin fulfilling those visions. Together, they improved and expanded the initial microdata files and added new microdata files and databases.

CES staff and academic researchers used the new data to produce analyses that contributed to a revolution of empirical work in the economics of industrial organization. The economic relevance of the growing body of CES research began to affect the development of official statistics, new longitudinal business databases, and economic research in the United States and other countries. CES and the Census Bureau identified a strategy—research data centers (RDCs)—to expand researcher access to these important new data while adhering to the requirement to preserve the confidentiality of respondent data in the Census Bureau's authorizing legislation, Title 13 of the U.S. Code.

The very existence of CES and RDCs, let alone their expansion and success, could not have happened without the continuing strong support of both the research community and senior management of the Census Bureau. CES has been particularly fortunate to have grown under a series of Associate Directors for Economic Programs whose vision and insight, as well as resources, allowed CES to surmount a series of challenges and continue to grow.

This chapter focuses on the years leading up to the creation of CES in 1982 and CES's first two decades. Because CES activities from 2000 through 2006 are discussed in recent CES and RDC research reports (U.S. Census Bureau, 2005, 2006, and 2007), this chapter highlights only major accomplishments and changes during this period.

VISIONARIES, 1950s–1982

Decades of effort by far-sighted researchers and Census Bureau officials predate the emergence in 1982 of CES as a new organization within the Census Bureau. They saw the enormous potential analytical value of the considerable resources already invested by the Census Bureau and respondents to its censuses and surveys. As early as the 1950s, the Census Bureau, through an arrangement with the Social Science Research Council, sponsored a series of studies by economists such as Victor Fuchs, Michael Gort, and Nancy Ruggles and Richard Ruggles, analyzing internal economic census data (Report of Representatives to the Social Science Research Council 1960; Kallek, 1982b). These analyses used primarily cross-section data or compared aggregates between two periods. Longitudinal analyses—linking records for the same businesses in multiple time periods—were considered during the same period. Conklin (1982) states "For nearly a quarter of a century, the Census Bureau has been attempting to create a reasonably adequate time series of longitudinal files for individual plants included in the Annual Survey of Manufactures," with Conklin and Nancy Ruggles and Richard Ruggles as strong advocates. Creating longitudinal data files required creating and keeping information in the survey and census files that would allow them to be linked. But that information was not always present.

In 1964, the Census Bureau Advisory Committee of the American Economic Association addressed ways to increase researcher access to unpublished data. "One suggestion, already under study by the Bureau, is the creation of regional Census data

[44] This chapter was written by B.K. Atrostic. Many current and former members of the Center for Economic Studies (CES) contributed to this history, including Steve Andrews of the Bureau of Economic Analysis; Tim Dunne of the Federal Reserve Bank of Cleveland; John Haltiwanger of the University of Maryland; Brad Jensen of the McDonough School of Business, Georgetown University; and Brian Holly, Sang V. Nguyen, and Arnold Reznek of CES.

centers at various universities, each having complete and corrected files of Census source data tapes" (Report of the Census Advisory Committee, 1965). Two major issues cited then—meeting the legal requirement of preserving the confidentiality of the data and the high cost of providing complete and correct data—would take decades to resolve.

In 1965, the Census Bureau and the National Science Foundation (NSF) initiated a project led by Harvard professor Zvi Griliches to begin matching the 1957–1965 annual NSF-Census Survey of Industrial Research and Development, collected by the Census Bureau, to the 1958 and 1963 Census of Manufacturing and Enterprise Statistics (Griliches, 1980). Only Census Bureau employees had access to microdata, including the work of matching the data and producing complex econometric estimates. Regression results and other aggregate output were released to external researchers only after Census Bureau employees had reviewed them to be sure no confidential information was disclosed. The process was expensive and slow. A final draft was presented at a conference in 1975 (Griliches and Hall, 1982).

Despite these problems, the potential usefulness of analyses based on the individual respondent records from Census Bureau surveys and censuses of businesses remained clear. Researchers had already shown the value of access to public-use respondent-level data such as the 1970 Decennial Census, and

Photo by U.S. Census Bureau

Shirley Kallek, Associate Director for Economic Programs, 1974–1983.

public-use versions of household surveys were increasingly available. The Census Bureau began making changes in its operating procedures to facilitate record-level linkages among business records as it realized that such linkages would also benefit its operations (Kallek, 1982b and 1983). The Census Bureau continued to consider ways to make available additional analytically useful statistics that could be calculated from the underlying microdata (Kallek, 1975).

A new record-level linkage was made between the 1970 and 1971 Annual Surveys of Manufactures. An analysis conducted under the direction of Shirley Kallek, Associate Director for Economic Programs from 1974 through 1983, showed that the quintile distribution of productivity growth differed across establishment size classes (Kallek, 1975). Kallek thanked two Census Bureau employees, Thomas Mesenbourg and William Menth, for their help in preparing the tabulation; Mesenbourg's association with CES continues to the present.

The Census Bureau persevered in working through the problems associated with developing microdata files from business data with such external researchers as Thomas Juster, Guy Orcutt, Harold Watts, and Nancy Ruggles and Richard Ruggles. One formal response was the economic research unit the Census Bureau established in the mid-1970s to prepare microdata analyses for other researchers on a reimbursable basis (Kallek, 1975). The Census Bureau also charged that unit with exploring ways to link its internal household microdata to its business microdata (Kallek, 1975). Linking records about individual workers to records from the businesses that employed them would allow analyses incorporating characteristics of both—"an entire new area which has never been tapped" (Kallek 1975).

PIONEERS, 1982–1986

Nancy Ruggles and Richard Ruggles, funded by the National Science Foundation, the Small Business Administration, and the Census Bureau, pioneered the development of a longitudinal database for U.S. manufacturing establishments from internal Census Bureau data (Kallek 1982a). A January 1982 workshop, *Development and Use of Longitudinal Establishment Data,* discussed the new database. The workshop covered methodological issues in developing the database, confidentiality issues in use of such data

Photo by Alice Zawacki

One of CES's early homes, the 1500 wing of Census Bureau Headquarters.

by external researchers who were not paid Census Bureau employees, experiences in using longitudinal establishment data, and the analytical potential of the new data.

At the workshop, Griliches and Hall commented that "The long-run difficulty in developing more extensive, detailed, and sophisticated analyses of Census-collected microdata sets is the absence of a strong in-house research arm at the Bureau itself, with its own programming and computer resources." The workshop paper by Govoni (1982) noted the Census Bureau plan to establish an "economic research unit to prepare microdata analyses for others on a reimbursable basis should go a long way towards resolving the disclosure problem."

John R. (Randy) Norsworthy came to the Census Bureau as chief of the new economic research unit, CES, established in mid-1982. Norsworthy previously headed the Office of Productivity Analysis at the U.S. Bureau of Labor Statistics. The first CES staff members were Census Bureau economist Steve Andrews, who joined in June 1982, and programmer Jim Monahan, who joined a week later. Sang V. Nguyen, the first economist hired into the new organization, joined a month later, followed shortly by sociologist Craig Zabala, economist Peter Zadrozny, and Robert Bechtold, who became assistant chief. CES offices were in several locations of the main Census Bureau headquarters in Suitland, MD, eventually settling in the 1500 wing.

A longitudinal business file soon became a reality. At an October 1984 conference sponsored by the Census Bureau and the National Science Foundation, Nancy Ruggles and Richard Ruggles reported on the development of the Longitudinal Establishment Database (LED) file containing manufacturing data for 1972 to 1981 (Ruggles and Ruggles, 1984). An important innovation to the LED was the creation of a Permanent Plant Number (PPN) that made it easier to track an establishment as its ownership changed. The PPN and the Census File Number (CFN), which identified plants and the companies that owned them, greatly expanded the ability to follow establishments and firms over time.

Researchers immediately began using the LED. In 1983, CES launched its Technical Notes series and its first series of Discussion Papers, both edited by Sang V. Nguyen.

RESEARCH, RECOGNITION, AND REVISIONING 1986–1992

When Randy Norsworthy accepted a position on the faculty of Rensselaer Institute of Technology in 1986, Robert McGuckin came to the Census Bureau from the U.S. Department of Justice to head CES. McGuckin built on the foundation Norsworthy laid. Charles (Chuck) A. Waite, who succeeded Shirley Kallek as Associate Director for Economic Programs following her death in 1983, continued to provide strong support for the young CES during his tenure, 1983 through 1994.

By 1988, the LED expanded to include the Economic Censuses of 1963 through 1982 and the

Annual Survey of Manufactures for noncensus years from 1973 to 1985 and was updated as new years of data became available (McGuckin and Pascoe, 1988). The expanded LED was named the Longitudinal Research Database (LRD). Much effort was spent developing PPNs for other microdata collected by the Census Bureau, such as the Census-NSF Research and Development data, and generating consistent industry and geography codes. The PPNs allowed these files to be linked to the core LRD. Analyses based on this new longitudinal linkage led to a series of publications on various topics, such as inventories, the structure of manufacturing industries, and the role of research and development.

CES expanded access to these new economic microdata in several ways. External researchers could submit computer programs to CES. CES staff would run the programs, review the output to avoid disclosing confidential information, and send approved output to the researcher (McGuckin and Pascoe, 1988). CES, together with others in the Census Bureau, explored the potential for creating public-use microdata files from business data but concluded that public-use business data files that preserved the confidentiality of responses could not be created at that time (McGuckin and Nguyen, 1990).

Another way to access new economic microdata was for external researchers to become Special Sworn Status employees (SSS) subject to the same confidentiality responsibilities and penalties as Census Bureau employees. Researchers came from academia, other government agencies, and private institutions. Their research often was conducted jointly with CES staff, as can be seen in the examples throughout this chapter and in the CES Discussion Paper series. Consistent with the requirements of the Census Bureau's enabling legislation, Title 13 of the U.S. Code, access to internal microdata by such outside researchers is required to provide benefits to the Census Bureau.

The American Statistical Association (ASA)/NSF/Census Bureau Research Fellow Program was an important source of support for external researchers at CES during these years. The research program sponsored both Research Fellows (established researchers) and Research Associates (usually advanced graduate students or recent Ph.D.s). In 1990, for example, CES had 6 ASA/NSF/Census Bureau Research Fellows, 11 staff researchers, and 21 external researchers. The research program's support of Research Associates helped CES create an ongoing intellectual community that continues to train new generations of empirical researchers.

Many researchers who came to CES through the ASA/NSF/Census Bureau Research Fellow Program continued their association with CES for decades. Two examples—Mark Roberts and Michael Gort—illustrate the experiences and contributions of a much broader range of researchers. Mark Roberts came to CES from Pennsylvania State University in 1985 as one of CES's first Fellows. Roberts has remained an active RDC researcher, with CES Discussion Papers spanning 1992 through 2007 and became a member of the Census Advisory Committee. Roberts brought Tim Dunne to CES as his research assistant in 1985, beginning an association with CES that continued as Dunne completed his own dissertation, became an ASA/NSF/Census Bureau Research Fellow, was an RDC researcher, then returned to CES as Research Director from 1997 through 1999. Dunne's early work examining the quality of PPNs identified and corrected thousands of likely errors. Students of both Roberts and Dunne have become RDC researchers. Michael Gort, who had been among the academics conducting some of the earliest microdata research at the Census Bureau in the 1950s, came to CES as a Fellow in 1989. His students have become RDC researchers. Gort, too, became a member of the Census Advisory Committee for a number of years and contributed a CES Discussion Paper as recently as 2003.

New data and expanded access led to more empirical research on topics such as mergers and acquisitions, high technology trade, plant-level productivity, and entry and exit of firms (Pascoe and McGuckin, 1988). CES continued the long-standing tradition of collaboration between Census Bureau staff and outside scholars. The first Technical Paper, issued in 1989, was coauthored by Boston

Text Box 4-1.

Showing the Value of Access to Microdata

McGuckin's foreword to Gollop and Monahan (1989) succinctly states the view of the economics profession on the problems of data access and illustrates how well the new venture was solving them.

> In perhaps the best known and most widely read text on industrial organization, F.M. Scherer in discussing diversification research based on confidential census data, published in 1962, comments that:
>
> > The Census Bureau has ceased granting such access to outside scholars. ... The data, collected at an expense of tens of millions of dollars, lie unanalyzed in Census Bureau files. Though less apt to draw headlines than Congressional junkets and the overpayment of welfare recipients, this state of affairs is equally wasteful.
>
> This passage was taken from the second edition of Scherer's book entitled *Industrial Market Structure and Economic Performance* published in 1980. Since that time, substantial research on a wide range of industrial organization, productivity, and econometric issues have been undertaken by economists working at or with the Center for Economic Studies at the Census Bureau. The Center was formed in 1982 to facilitate, among other things, research by outside scholars.
>
> In view of Scherer's comments, it is fitting that the Center's first monograph is about diversification and was written jointly by an outside scholar (Frank Gollop) in collaboration with a Center staff member (James Monahan). Gollop and Monahan provide an important empirical analysis of the extent and nature of diversification in U.S. manufacturing industries. The authors develop, at various levels of industrial detail, comparable measures of diversification at 5-year intervals over the 1963 through 1982 period. They also develop an index of diversification with very desirable properties. The index is a clear improvement over previous measures of diversification.
>
> Although the authors present a number of interesting findings, one result stands out. Since 1963, diversification has been increasingly associated with firms which operate multiple plants, rather than with plants which produce a variety of products. Thus, Gollop and Monahan find that although plant-level diversification has been decreasing over time, firm-level diversification has been increasing.
>
> The monograph, *From Homogeneity to Heterogeneity: An Index of Diversification*, represents a significant step in the study of diversification. It also represents a new commitment by the Census Bureau to outside scholars in furthering its mission to profile the nation's institutions.

Scherer later become an ASA/NSF/Census Bureau Research Fellow and a member of the Census Advisory Committee. A book and a journal article were produced from his research using CES data.[45] The passage cited above does not appear in the third (1990) edition of his textbook.[46]

[45] Scherer, F.M. and Keun Huh. 1992. "R&D Reactions to High-Technology Import Competition." *Review of Economics and Statistics*. 74(2): 202–212; and Scherer, F.M. 1992. *International High-Technology Competition*. Cambridge: Harvard University Press.

[46] Scherer, F.M., and David Ross. 1990. *Industrial Market Structure and Economic Performance,* 3rd ed.

College researcher Frank Gollop and CES staff member James Mohahan (Gollop and Monahan, 1989) (see Text Box 4.1). Aggregate data showed that firms had become increasingly diversified in terms of the kinds of output they produced. The paper used the new microdata to identify sources of this diversity and found that plants were becoming homogeneous. Firm-level diversity was being driven by a trend towards firms operating multiple plants, not by increasing heterogeneity in the output of those plants.

McGuckin's initiatives sought to increase awareness of CES research accomplishments and their contributions to the work of the Census Bureau. The CES seminar series began in 1987, organized initially by Sang V. Nguyen. CES restarted its Discussion Paper series in 1988, with Sang V. Nguyen again as editor. The Discussion Paper Series had four papers in 1988, grew to 16 in 1992, and remained in the mid- to upper teens through 1999. McGuckin instituted an annual research report in 1988. The report, edited by CES researcher Arnold Reznek from 1990 to 1999, was distributed to the CES research community, potential researchers, stakeholders, and decision makers.

The earliest surviving report, from 1989, documented several characteristics of CES research that continue to the present. First, the report states clearly on the first page the legal requirement that work conducted by employees with special sworn status must benefit the Census Bureau's statistical program. Second, the report documents a diverse range of active research topics. Research is grouped into seven broad programs (organization and behavior of firms and markets; labor market issues; production, productivity growth, and technical change; minority business; international issues; statistical issues; and data and computer program development). While there have been changes over the years in the groupings under which research at CES and the RDCs is categorized, with additions and deletions, research continues on most of these early topics.

Photo by U.S. Census Bureau.

Left to right: Bob McGuckin, Janice Bryant, Ronald Coase, and Gordon Green at a reception during Coase's 1992 visit to CES.

The value of greater access to internal economic microdata quickly revealed itself in the coin of the research realm—papers and publications. CES staff and Special Sworn Status researchers published 64 papers in 1991 alone (U.S. Census Bureau, 1991). CES research findings on the diversity and differential dynamism of businesses showed the convenient analytical construct of the "representative firm" to be fatally flawed. The implications of the new research caught the attention of the academic community. Nobel Laureate Ronald Coase, who visited CES in 1992, noted in his December 1991 Nobel Lecture:

> Nor should we forget the work now getting started at the Center for Economic Studies of the Bureau of the Census. This greater availability of data and the encouragement given to all researchers working on the institutional structure of production by the award to me of the Nobel Prize, should result in a reduction in that elegant but sterile theorizing so commonly found in the economics literature on industrial organization and

should lead to studies which increase our understanding of how the real economic system works.

With the value of access to internal microdata established, Bob McGuckin in 1992 presented to the Census Bureau's senior executives a strategy to increase access for external researchers. Census Bureau facilities could be established in universities or similar institutions around the country, or CES facilities could be created in existing Census Bureau regional offices (McGuckin, 1992).

EXPANDING HORIZONS 1992–1999

McGuckin's 1992 proposals for expanding researcher access to CES data took root. In 1994, in partnership with the National Science Foundation, the first remote RDC was established in the Census Bureau's Boston Regional Office. The opening of the Boston RDC expanded the kinds of microdata researchers could access. Research by Jeffrey Liebman of Harvard University used household data—data from the Survey of Income and Program Participation (SIPP) linked to data from the Internal Revenue Service (IRS) and the Social Security Administration—to study distributional effects of the Social Security system (Liebman, 2002; Feldstein and Liebman, 2002). Internal data from the American Housing Survey (AHS) were made available for research conducted by Jeffrey Zabel that analyzed the economic and social factors determining the neighborhoods where people decided to live and the price of housing in those neighborhoods (Ioannides and Zabel, 2002; Kiel and Zabel, 2004).

The RDC system expanded quickly in both sites and data. The next RDC to open was Carnegie-Mellon in 1997. Brad Jensen, a CES researcher, became its Executive Director. The National Consortium on Violence Research (NCOVR), also based at Carnegie-Mellon, had opened in 1995. At the request of the U.S. Bureau of Justice Statistics, the Census Bureau provided microdata from the National Prisoner Statistics Program and the National Crime Victimization Survey for use by NCOVR researchers at the Carnegie-Mellon RDC. Internal microdata from the 1990 decennial census were made available to Carnegie-Mellon RDC researchers.

CES researchers continued to expand the Longitudinal Research Database (LRD). For example, work by Dunne and Doms in 1991 added economic variables, such as capital stocks, input and output deflators, energy indexes, and wage rates, to the LRD. Establishments within a firm were linked together into the Manufacturing Plant Ownership Change Database (Nguyen, 1999). The linkages allow researchers to study the effects of mergers and acquisitions activity on a business's economic performance (e.g., McGuckin, Nguyen, and Reznek, 1995; and Phillips and Maksimovic, 2001).

Following the success of the manufacturing-based LRD, researchers at the Census Bureau began developing a longitudinal database covering nearly all of the nonfarm private economy, and some activities in the public sector, in the late 1990s. The Longitudinal Business Database (LBD) was created by linking annual snapshots of the Standard Statistical Establishment List (SSEL). The LBD provides basic information for nearly all establishments and firms with paid employees in all sectors. However, the LBD does not have the depth of information available for the manufacturing sector in the LRD. The process of creating the LBD identified and repaired errors in the longitudinal linkages in the LRD. Like the LRD, the LBD is designed so that researchers can link it to other Census Bureau surveys and censuses of businesses (Miranda and Jarmin, 2002).

New research databases were developed from other business censuses and surveys, including quarterly financial reports, research and development, characteristics of business owners, environmental data, and energy use in manufacturing. The CES research report for 1993-1994 lists 22 databases.

Two examples illustrate the breadth of the research topics for which CES researchers were developing micro databases. First, the Characteristics of Business Owners (CBO) database was created from the CBO survey conducted by the Census Bureau in 1982 and 1987

(Nucci, 1989) and was updated to include the 1992 CBO survey (Headd, 1999). Using the CBO database, researchers can relate detailed information about the demographic characteristics of people who start businesses and the businesses themselves (for example, industry, financing, exports, franchising) to the success or failure of the businesses. Second, the Pollution Abatement Costs and Expenditures (PACE) survey database was created by linking PACE survey microdata to the LRD (Streitwieser, 1996). The initial PACE database included the annual PACE survey from 1979 to 1993 (except 1983 and 1987). The PACE survey was discontinued after 1994; however data were collected in a substantially different form in 1999. A study by CES and RDC researchers documented changes in the survey over time and provided a guide to comparisons between the 2 years of survey data (Becker and Shadbegian, 2005).

Another dimension was added to CES's portfolio in the early 1990s—projects that provided benefits both to the Census Bureau and to other federal agencies. Such projects took on a number of forms. In some cases, ongoing research agendas and interagency relationships were formalized. For example, a series of researchers had created a research and development (R&D) database. The R&D database described in Adams and Peck (1994) built on the pre-CES era work begun by Griliches (1982) and continued by CES researcher Steven Andrews and others (Guerard, Bean, and Andrews, 1987). Analyses and insights from building and using the R&D database, and close work with survey staff, resulted in proposals for changes that were considered by the survey sponsor, the National Science Foundation (Adams and Champion, 1992). Further research by Hall and Long evaluated the survey data by comparing it to data for companies that were required to file R&D data with the Securities and Exchange Commission on form 10-K (Hall and Long, 1999). More recently, the R&D survey data were linked with National Bureau of Economic Research (NBER) Patent Dataset, providing "an unprecedented view of the R&D-to-patenting innovation process" (Kerr and Fu, 2006). CES staff have continued to work with the Census Bureau offices that conduct the Survey of Industrial Research and Development that forms the core of the R&D database.

Mutual benefit could result from having staff of agencies that sponsor surveys collected by the Census Bureau become Special Sworn Status employees and analyze the underlying historical survey microdata at CES. For example, since the mid-1990s, the Federal Reserve Board has been conducting research at CES to improve the Industrial Production Index, which is based on the Survey of Plant Capacity. Staff from the Federal Reserve Board also work closely with the Census Bureau program area staff that conduct that survey. This collaboration has resulted in the development of a new quarterly survey of plant capacity that began in the first quarter of 2007. In addition, Federal Reserve Board staff conduct research on a range of topics. Some of that research is conducted jointly with CES staff.

CES's ability to support wide-ranging analyses was an important reason that the U.S. Department of Education selected the Census Bureau to conduct a new survey of employer training practices—the National Employer Survey (NES). The NES was conducted in 1994, 1996, 1997, 1998, and 2000. A series of studies analyzed the impact of workplace practices and innovation on productivity and workplace outcomes (e.g., Cappelli, 1997; a series of papers by Black and Lynch [e.g., 2001, 2005]; and Lynch, 2007).

Collaboration between CES and the Census Bureau's program areas received support from the Census Bureau's senior management. The American Economic Association members of the Census Advisory Committee recognized the potential of collaboration to improve both aggregate statistics and the readiness of the underlying microdata for research use. Staff worked on the then-new Medical Expenditure Panel Survey Insurance Component (MEPS-IC) and became participants in planning meetings for the economic census and the Annual Survey of Manufactures.

CES staff and RDC researchers contributed a range of analyses that were important to the development of the North

American Industry Classification System (NAICS), designed to replace the Standard Industrial Classification (SIC) system used to categorize business units. For example, CES helped develop a matrix that characterized how economic data are grouped under the SIC and identified potentially more consistent or useful groupings (Triplett, Kennet, Jarmin, and Gollop, 1998). The matrix was based on part of the diversification developed in Gollop and Monahan (1989). Once the final NAICS specification had been adopted, CES researchers worked with program area staff to incorporate NAICS codes into existing Census Bureau data. CES researchers and researchers from the Federal Reserve Board created a way to make industry coding in CES microdata that was consistent over time (Bayard and Klimek, 2004). Consistent coding allowed Federal Reserve Board economists to construct a NAICS-based version of the Index of Industrial Production back to 1972.

Mutual benefit could also be provided by analyses that CES staff conducted under contract to an agency. CES researcher Mary Streitwieser conducted work for the U.S. Department of Energy that combined several sources of data on energy use to develop a better understanding of the energy consumed by industries. The resulting report formed the basis of congressional testimony by officials of the Department of Energy (Streitwieser, 1993). A notable example is the joint work CES undertook with the Manufacturing Extension Partnership (MEP) program of the National Institute of Standards and Technology (NIST). The MEP program provided technical and business assistance to small and medium-sized businesses through a series of manufacturing extension centers around the country, similar to the assistance that county extension agents provide to farmers. One component of the MEP was a monthly follow-up survey directed by CES researcher Brad Jensen. Records from the MEP program were also matched with the LRD to provide measures of plant performance and to provide a scientifically balanced sample for analyzing the MEP program. Evaluations of the MEP program were conducted using the MEP-LRD database (see, for example, Jarmin, 1999). Labor productivity growth was 3.4 to 16.0 percent faster at plants that were MEP clients (Jarmin 1999).

The 1996 publication of *Job Creation and Destruction*, by RDC researchers John Haltiwanger and Scott Schuh, together with Steven Davis (Davis, Haltiwanger, and Schuh, 1996), received enthusiastic critical reviews within the economics profession and was widely cited in the business press. The authors use the LRD to document the heterogeneity and dynamism of the U.S. business sector. Their analysis shatters the convenient analytical fiction of the "typical" firm and underlines the importance of analyzing microdata to understand industries and economies. A draft of the book was released shortly before the Group of 7 (G-7) Jobs Conference in Detroit in March 1994 (Davis, Haltiwanger, and Schuh, 1994). Its findings formed the basis of the U.S. presentation at the G-7 conference and the resulting call for further research on job creation and job loss.

The book subsequently affected the development of official statistics and economic research in G-7 and Organization for Economic Co-Operation and Development (OECD) countries and expanded horizons for CES and RDC researchers. The demonstrated value to economic analysis of longitudinal panels of U.S. business data led to a major international conference held in Washington, DC, in 1995, entitled "The Effects of Technology and Innovation on Firm Performance and Employment." New longitudinal panels of business data subsequently were created in many of these countries. New data sparked ongoing series of studies and international conferences using these new microdata, beginning with the first Conference on the Analysis of Establishment Micro Data (CAED), held in Helsinki, Finland, in 1996. CAED conferences, held every year or two since, alternate between Europe and the United States and draw microdata research practitioners from an expanding number of countries (Bartelsman, Doms, and Laaksonen, 2008).

Frederick T. Knickerbocker ("Dr. Knick") succeeded Chuck Waite as Associate Director for

Economic Programs in 1995 following Waite's retirement in 1994. Knickerbocker's vision and advocacy of CES throughout his 10-year tenure were crucial to the continuing development and existence of CES, its data, and the RDC program.

After a decade at CES, McGuckin left to become Director of Research at the Conference Board in New York City in 1996. CES moved from Census Bureau headquarters to an office building several miles away, in Upper Marlboro, MD. John Haltiwanger of the University of Maryland became the Census Bureau's first Chief Economist, and the head of CES, in 1997. Tim Dunne returned to CES from the University of Oklahoma for 2 years as Director of Research, from 1997 to 1999. Dunne continued building and documenting the LRD and building CES.

Haltiwanger describes his experiences at CES, including his leadership era, in his introduction to this report. The value of those contributions to the Census Bureau was widely recognized. The Census Advisory Committee of Professional Associations awarded Haltiwanger a statement of appreciation (see photo above). When Haltiwanger's 2-year term as Chief Economist ended and he returned to the University of Maryland, the CES *Annual Report 1998–1999* contained a statement from Frederick T. Knickerbocker on "John Haltiwanger's Legacy for the Census Bureau." Knickerbocker noted that, while the Census Bureau had hired Haltiwanger to provide intellectual guidance, much of his work involved institution building by formalizing the system for expanding the RDC system, expanding the use of household microdata in the RDCs, and supporting efforts urging the Census Bureau to support research on linking household and business data.

Photo by U.S. Census Bureau.

Chief Economist John Haltiwanger (center) receives a certificate of appreciation in April 1999 from Frederick T. Knickerbocker, Associate Director for Economic Programs (left), and Ernst Berndt (right) of the Census Advisory Committee of Professional Associations.

MANAGING GROWTH 1999–2006

Brad Jensen returned to CES as Director in August 1999. Jensen's tenure saw the fruits of the formalized RDC expansion plans. The UCLA and Berkeley RDCs opened in the summer of 1999, followed by the Triangle RDC at Duke University in September 2000. Two more RDCs opened in 2002: the Michigan RDC at the University of Michigan opened in September and the Chicago RDC at the Federal Reserve Bank of Chicago opened in December. In 2004, the Carnegie-Mellon RDC closed by mutual agreement between the Census Bureau and the university, and the RDC at Cornell University opened. The most recent expansion was the RDC at Baruch College, New York City, which opened in 2006.

More Microdata for Research

The datasets available to CES and RDC researchers continued to grow. Sectors outside manufacturing were added to the manufacturing-focused LRD, creating the Longitudinal Business Database (LBD), which currently covers almost 24 million unique

establishments from 1976 through 2005. Businesses without workers may precede businesses with workers. Work began to expand the LBD to include businesses without workers—nonemployers—in all sectors to allow better understanding of the factors underlying the formation and growth of businesses with workers (Miranda and Jarmin, 2002). This Integrated Longitudinal Business Database (ILBD), developed with support from the Census Bureau and the Kauffman Foundation, contains the universe of all U.S. business establishments with and without paid employees—or more than 20 million records per year for 1977, 1982, 1987, 1992, and 1994–2005. Links allow the ILBD to be integrated with the LBD and economic censuses.

An agreement with the Agency for Healthcare Research and Quality (AHRQ) made data from the new Medical Expenditure Panel Survey-Insurance Component (MEPS-IC), which the Census Bureau collects for AHRQ, available to RDC researchers. The MEPS-IC, discussed in detail in Chapter 3, collects information on health insurance plans offered through employers from about 25,000 establishments annually. Data currently are available for 1996 through 2004. CES staff economists support the MEPS-IC collection effort and conduct research using the microdata.

More household data became available. Microdata from internal versions of the Survey of Income and Program

Brad Jensen, CES Director, 1999–2003.

Participation (SIPP) through 1996 were delivered to CES in 1998. Internal versions of the Census 2000 100 percent and sample files (also known as "short" and "long-form" files) became available in 2003. Data from the new American Community Survey first became available in 2005. More years of data, both recent and historical, have been added to most of the household surveys. CES funded work to develop documentation for the Census Bureau's flagship household surveys, the Current Population Survey (CPS) March supplement (recently expanded and known as the Annual Social and Economic Supplement, or ASEC), and SIPP.

As Kallek noted in 1975, the economic research community had long wanted microdata that would allow modeling of both the employer and worker sides of the labor market. An early CES project linked workers in manufacturing industries in the CPS to employers in the LRD (e.g., Davis and Haltiwanger, 1991). Beginning in the early 1990s, CES projects linked information about workers from the 1990 Decennial Census sample files—many more workers than in the CPS—to information about the businesses in the LRD at which they worked. The first test phase expanded to a full-blown project that, like the LRD, was limited to manufacturing. The Worker-Establishment Characteristics Database (WECD) linked roughly 200,000 workers and 16,000 manufacturing establishments (Troske, 1995). When the LRD expanded into other sectors, the worker-establishment linkage effort followed suit. RDC researchers improved the matching techniques until the final data file, known as the 1990 Decennial Employer-Employee Database (DEED), linked nearly 4 million workers to over 1 million establishments (Bayard et al., 2002).

New products from the Census Bureau's Longitudinal Employer and Household Dynamics (LEHD) program, linking worker and employer records from a variety of Census Bureau data sources and state unemployment insurance programs, became available to RDC researchers in 2005. The evolving LEHD data greatly expand the range of longitudinal worker-employer dynamics that CES and RDC researchers can analyze. For example, the LEHD Employer Quarterly Workforce Indicators data described on the current CES Web site provides information on the gender and age of the workforce for approximately 4 million establishments in more than 20 states for 1990

through 2003, with years varying by state. The scope of the LEHD data available to RDC researchers will expand to encompass the 49 states now included in the LEHD program.

Managing Under New Rules

The Census Bureau has longstanding concerns about the best way to provide researchers with access to microdata for analyses while also maintaining the required confidentiality of respondent information, as stated, for example, in Kallek (1975 and 1982a). The Census Bureau requires external researchers to become Special Sworn Status employees, sworn to uphold the same confidentiality requirements and subject to the same significant penalties as Census Bureau employees (see, for example, McGuckin, 1992). However, concerns about preserving privacy and confidentiality of respondent data in the face of ever-increasing computing capabilities (e.g., Duncan, Jabine, and de Wolf, 1993) heightened in the late 1990s as computing costs fell and the Internet became a widely used tool (e.g., Doyle, Lane, Theeuwes, and Zayatz, 2001).

In 1999, the IRS conducted its required triennial review of the confidentiality safeguards applied to IRS data at the Census Bureau. The review raised some concerns that potentially disrupted the Census Bureau's ability to use tax data and so, to produce fundamental statistics about businesses (see, for example, Greenia, 2004; and Davis and Holly, 2006). As a result of the review, a number of RDC research projects were suspended.

Photo by U.S. Census Bureau

Dan Weinberg, Chief Economist and Chief, Center for Economic Studies, 2004–2007.

Subsequent discussions between the agencies were difficult but ultimately resulted in an interagency agreement in 2000—*Criteria for the Review and Approval of Census Projects That Use Federal Tax Information,* known as the Criteria Document. The Criteria Document specified the requirements for access to IRS data at the Census Bureau, which includes most data from businesses. CES posted the Criteria Document on its Web site and incorporated the document's requirements in its proposal submission and review process. All CES and RDC projects using tax data meet those requirements. Once CES approves projects using tax data, they are sent to the IRS for a second required review to ensure that the project meets the "predominant purpose" standard specified in the Criteria Document.

"The 1999 IRS safeguard review was a watershed experience for the CES and all its stakeholders. Many users of the RDC system stood by the [Census] Bureau in the difficult period following the review, and they have helped to strengthen the program such that it is now viewed by executive staff at Census as a corporate resource whose role is much larger than previously envisioned" (Davis and Holly, 2006).

To improve its ability to manage and track RDC research, Brad Jensen asked CES programmers James Monahan and William Yates to create an on-line proposal submission and management system. CES began using the system in 2000. The system continues to expand to accommodate both new requirements and enhancements that make the system easier to use for both CES staff and external researchers. Emphasizing how important it was to CES to manage the volume and diversity of proposals, CES added a new full-time position, the Project Review Coordinator, in 2001. The Project Review Coordinator organizes the review and approval of RDC research proposals, and tracks the status and products produced from approved projects. Brian Holly joined CES as Project Review Coordinator in December of that year.

Brad Jensen left CES in 2003 to join the Petersen Institute for International Economics. Ron Jarmin became Acting Director until Dan Weinberg was appointed Chief Economist and Chief of the Center for

Text Box 4-2.

The Legacy of Robert H. McGuckin III

Photo provided by The Conference Board.

Robert H. McGuckin III, 1942–2006. McGuckin was Director of the Center for Economic Studies, 1986–1996.

From the CES Annual Report 1995–1996 (1996):

Bob McGuckin—The Visionary Behind the Center for Economic Studies

Although Bob McGuckin did not start the Center for Economic Studies, it was under his direction that CES reached its current form. Among the innovations he created or inspired:

- Research Data Centers
- CES Discussion Paper Series
- Longitudinal micro databases expanded far beyond the Longitudinal Research Database (LRD) and viewed as core Census Bureau resource
- Linked economic (establishment/firm) and demographic (household/individual) databases
- New data products including
  - Index of High Technology Trade
  - Product Diversification Indexes
  - Gross Job Creation and Destruction Statistics

Economic Studies in December 2004. CES continued to receive strong support from the Census Bureau. Thomas Mesenbourg, who succeeded Frederick Knickerbocker as Associate Director for Economic Programs when Knickerbocker retired in 2005, had contributed advice, guidance, and resources to CES in his previous role as Assistant Director for Economic Programs.

The initial experience as CES, the Census Bureau, and IRS began applying the Criteria Document to new RDC research proposals made it clear that researchers and reviewers alike needed more formal guidance about what the criteria meant. Weinberg led a series of initiatives to address these problems. A primer on writing a convincing statement of how the proposed research would benefit the Census Bureau had been written by an interdivisional team led by CES researcher B.K. Atrostic and including CES researcher Sang V. Nguyen. In 2003, the Census Bureau's Data Stewardship Executive Policy Committee adopted a document including the primer. CES posted the new guidance on its Web site. CES compiled a list of methodological research topics that Census Bureau staff identified as potentially benefiting their programs. The list is posted on the CES Web site.

CES increased its efforts to capture and disseminate the results of research in the RDC system. Annual CES research reports describing CES and RDC accomplishments were reinstituted, beginning with a combined report for 2000–2004 edited by CES researcher B.K. Atrostic. The CES Discussion Paper series expanded. From 2005 forward, there are 30 or more papers a year—a strong increase over the 15 to 20 papers typical of most of the preceding decade.

To provide value to more parts of the Census Bureau, and to expand the pool of potential RDC researchers, CES continued to expand the data available to

RDC researchers. An effort spear-headed by Weinberg led to agreements on the use of internal data from other federal agencies in the RDCs, as described in Chapter 3. Weinberg also strengthened the relationship between CES and the RDCs and the operating divisions of the Census Bureau, and the status of CES within the Census Bureau was raised to that of a formal Division.

Dan Weinberg encouraged CES and its partners in the proposal review process to find ways to streamline the process and reduce review time. An important development in that effort was the memorandum that Census Bureau Director Louis Kincannon issued in January 2007 specifically stating the value to the Census Bureau of research conducted by external researchers at the RDCs (U.S. Census Bureau, 2007). CES posted the letter on its Web site. Within a few months, Weinberg noted in his introduction to the 2006 annual research report that there was marked improvement in IRS review time. Approval processes with several other internal and external stakeholders also became shorter and smoother. However, complex projects, such as those using linked household datasets, remain likely to have lengthy review times.

At the April 2007 meeting of the Census Advisory Committees of Professional Associations, the American Economic Association members commended the Census Bureau and the RDCs for reducing proposal review time.

Photo by Alice Zawacki.

CES gets ready to move from its offices on the second floor, left, of the Washington Plaza II building in Upper Marlboro, MD, January 2007.

The members also viewed Kincannon's letter acknowledging the value of research at RDCs for advancing the mission of the Census Bureau as a favorable development.

Recognizing that CES had significantly streamlined the review process for RDC proposals, the Census Bureau in 2007 made CES responsible for managing the approval process and tracking system for *all* projects in the Census Bureau's Economic Directorate that use administrative records data. Brian Holly, CES Project Review Coordinator, now manages the approval process for projects that include activities crucial to the collection of the Census Bureau's surveys and censuses of businesses.

Bob McGuckin, 1942–2006

A great loss to the CES community and to economics was the death of Bob McGuckin in 2006. While Bob had left CES in 1996, he remained in close personal and professional contact with past and present CES staff and retained a keen interest in CES activities. CES dedicated its 2005 annual research report to Bob's memory, and the report contained a tribute to him. A more contemporaneous view of his substantial contributions to CES, from the CES annual report for 1995–1996 (reproduced in Text Box 4.2) described McGuckin as "The Visionary Behind the Center for Economic Studies."

LOOKING AHEAD: 2007 AND BEYOND

Rapid change marked 2007, as noted in the Chief Economist's message. When the second of the two new Census Bureau headquarters buildings opened, CES was among the first divisions to move into it in January 2007. Lynn Riggs, the newly

Photo by B.K. Atrostic; photo of Nguyen and slide by Alice Zawacki.

At CES's 25th anniversary party in October 2007, then-Acting Chief Economist Ron Jarmin stands in front of a slide of economist Sang V. Nguyen, who has been at CES since it began in 1982.

named Lead RDC Administrator, led the remodeling of the new RDC lab later that year. Reflecting the growing emphasis the Census Bureau has placed on data stewardship, CES created the position of CES Disclosure Officer, responsible for approving the release of statistics and other output from RDC research. Longtime CES staff member Arnold Reznek was named to this new position. Reznek had been the administrator of the RDC at Census Bureau headquarters and a researcher in disclosure avoidance techniques whose expertise was frequently sought by the administrators of other RDCs.

In August 2007, Dan Weinberg left CES to become Assistant Director for the American Community Survey and Decennial Census. Ron Jarmin was named Acting Chief. CES expanded after moving to the new Census Bureau headquarters building, adding a number of research assistants and several members of the Data Staff. The Longitudinal Employer-Household Dynamics program became part of CES in March 2008. In June 2008, Ron Jarmin was named Chief Economist and Chief of the Center for Economic Studies.

Half a century ago, visionaries representing both the Census Bureau and the external research community laid the foundation for CES and the RDC system. They saw a clear need for a system meeting the inextricably related requirements of providing more and better information from existing Census Bureau data collections while preserving respondent confidentiality and privacy. CES and the RDC system meet those requirements. They meet the commitments of the Census Bureau (and, recently, of other agencies) to preserving confidentiality while contributing paradigm-shifting fundamental research in a range of disciplines and up-to-the-minute critical tools for decision makers.

Our increasingly complex and interconnected economy and society require more information on evolving topics, delivered in rapidly changing forms. Information technology changes at least as rapidly, constantly providing both new ways to collect and present information and new threats, real and perceived, to the security of that information. The CES and RDC system of the future must continue to find new ways of meeting these fundamental responsibilities.

CODA

CES held a 25th anniversary party in October 2007. Many former and current researchers and supporters attended to share memories, celebrate achievements, and look to the future.

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Appendix 1.

CENTER FOR ECONOMIC STUDIES (CES) STAFF AND RESEARCH DATA CENTER (RDC) PUBLICATIONS, WORKING PAPERS, AND PRESENTATIONS

[Term inside brackets indicates work by CES staff or the main RDC involved]

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Appendix 2.
ABSTRACTS OF PROJECTS STARTED IN 2007

INTERGENERATIONAL INEQUALITY IN THE UNITED STATES

Bhashkar Mazumder—Federal Reserve Bank of Chicago
Katherine Meckel—Federal Reserve Bank of Chicago

This research project proposes three major areas of study in order to better understand the intergenerational transmission of inequality. First, building on Mazumder's previous work, the 1984 and 1990 Surveys of Income and Program Participation (SIPP) matched to the Social Security Administration's Summary Earnings Records (SER) and Detailed Earnings Records (DER) will be used to measure the intergenerational elasticity in earnings between fathers and their children. Second, a highly structured model of earnings dynamics will be estimated using pooled data from the 1984, 1990, 1991, 1992, 1993, and 1996 SIPPs matched to both the SER and DER. Among other things, this will provide a definitive view of the degree to which the rise in inequality during the 1980s and 1990s reflected changes in the distribution of permanent income. Third, a rich array of measures of family background and neighborhood characteristics will be used to better understand the underlying process by which income is transmitted from parents to children. This analysis will make use of the internal SIPP and Survey of Program Dynamics (SPD) files that contain the detailed geographic identifiers. There are four benefits to the U.S. Census Bureau that will be derived from this study: an analysis of the reliability of using short-term averages of SIPP earnings as a proxy for permanent earnings, a study of the quality of earnings data for an attrited sample such as the SPD, an analysis of the quality of self-employment income data in the SIPP, and an analysis of the biases from using a sample derived from a match based on social security numbers.

HEDONIC MODELS OF REAL ESTATE AND LABOR MARKETS

Gale A. Boyd—Duke University
Bhashkar Mazumder—Federal Reserve Bank of Chicago
Daniel P. McMillen—University of Illinois at Chicago
James J. Heckman—Department of Economics, The University of Chicago

The proposed research program will develop and implement methods to estimate hedonic price supply and demand models applied to two important classes of empirical economic issues where hedonic models are applicable, real estate and labor markets. Since these models include attributes that are highly location specific, this project will also develop and implement methods to link the micro-observations of Census Bureau datasets to micro-observations of other Census Bureau datasets and to external datasets. This linkage will be based on locations of the micro-observations, i.e., their physical geospatial proximity with each other, and will be performed using Geographic Information Systems (GIS). These two activities, development of hedonic prices and geospatial linking, form the principal benefits to the Census Bureau. In addition, through the application of these models to specific topics of interest, we will also generate benefits to specific Census Bureau surveys, such as the American Housing Survey and other surveys used through the course of the project. In order to apply hedonic models to study location issues, datasets containing highly detailed geographic information and robust methods for establishing the geospatial relationships are required. The project will use GIS modeling tools to create the necessary statistical measures of collocation that will enable us to examine specific topics using the hedonic approach. In addition, part of the proposed research will develop

new methodological approaches that address some of the theoretical and empirical shortcomings with the classical hedonic model. The topics that will be studied in this project include: an analysis of residential real estate markets; an analysis of school quality, education, location, and neighborhood effects; commercial real estate markets and community economic development; and a hedonic analysis of labor markets. This research program is focused not only on developing the data sources and tools needed to apply the hedonic approach to these questions but also on testing our progress with a series of interrelated topical studies that focus on some of these aspects. While the longer term goal is a more integrated assessment of the hedonic values across all of these factors, we begin with examining several more "manageable" sized research topics in this general area by incrementally developing the data and tools needed to measure the aforementioned community factors and estimate the hedonic prices associated with them. In doing so we also expect to address some important social science research questions with better data and better methodology.

A FIRM AND PLANT-LEVEL ANALYSIS OF OUTSOURCING: SOURCES OF PRODUCTIVITY GROWTH AND HETEROGENEITY

Christopher J. Kurz—Federal Reserve Board

The proposed analysis takes two avenues by studying: (1) The industry and geographic heterogeneity in the Census Bureau's Longitudinal Research Database, and (2) the sources of productivity growth for outsourcing organizations. For researching industry and geographic variation, economic concentration indexes and Locational Gini coefficients will be estimated for different geographic and industry measures. Economic concentration indexes and Locational Ginis provide a statistical measure of the geographic and industrial agglomeration of outsourcing. In addition, plant and firm intermediate input demand is estimated as a function of domestic variables in order to determine the importance of the different factors that drive an organization's decision to outsource. In particular, estimated demand functions calculate the importance of domestic wages, trade costs, regulation, and technology in the context of the decision to outsource. The derived demand estimation is verified through a probit analysis of the determinants of an organization's decision to outsource. The second avenue of research, the productivity analysis, entails estimating differences in exit rates and decomposing productivity growth between outsourcing and nonoutsourcing organizations. Estimates will be provided from various specifications that capture the factors important in the agglomeration and productivity growth of outsourcing within the United States.

JOB AVAILABILITY AND EMPLOYMENT

John Bound—University of Michigan
Patrick M. Kline—Yale University

Kain's classic paper on spatial mismatch argued that residential segregation reduces the equilibrium employment of minorities by increasing the distance to available jobs. While a substantial literature has emerged testing this hypothesis, and the more general notion that one's distance to potential jobs might reduce employment probabilities, few studies have been able to deal adequately with the endogeneity of firm and worker location decisions. This project uses a natural experiment to infer the wage and employment effects of moving employers closer to an underemployed population. Using the federal Empowerment Zone program as an exogenous predictor of firm location, the project develops an instrumental variables approach to estimating the elasticity of labor supply with respect to job availability. The analysis will utilize data from the 1990 and 2000 Decennial Censuses, the Standard Statistical Establishment Listing (SSEL), and the Longitudinal Business Database (LBD).

THE EMERGENCE OF E-COMMERCE USAGE AND THE CHARACTERISTICS OF FIRM STRUCTURES AND OPERATIONS

Matthew A. Zook—University of Kentucky, Department of Geography
Thomas R. Leinbach—University of Kentucky
Candice Y. Wallace—University of Kentucky

The blooming of e-commerce over the past decade has fostered a considerable diversity and complexity of structure, applications, and definitions. This project examines and evaluates the adoption and use of e-commerce across a diverse set of manufacturing firms. It examines the Computer Network Use Supplement data on e-commerce gathered in the Census Bureau's Annual Survey of Manufactures (ASM) and analyzes the characteristics of firms that are related to the use of e-commerce. The focus is on manufacturing because it is currently the sector in which e-commerce is most widely adopted. The project examines the implementation of e-commerce across manufacturing industries and product types and focuses on how it contributes to firms' competitive advantage through changes in value chains. The analysis is set in the context of how the material characteristics of firms (ranging from size to ability to adopt innovation) impact their medium to long-term viability. While this analysis masks the complex ways in which e-commerce is put to work by firms, this focus on the firm and firm-level characteristics is a first step in uncovering the larger changes at the firm and regional level engendered by e-commerce. This project will also inform the Census Bureau about the quality of the e-commerce data collected using the ASM, about new methods for collecting this type of data, and about the characteristics of firms that influence the probability that and the degree to which a firm will use e-commerce. The Census Bureau would then be able to use this information to further assess the quality of data reported as well as be able to update current methods for imputing missing data.

TEACHER QUALITY AND WAGE COMPRESSION

Kathryn Shaw—Stanford University
Annalisa Mastri—Stanford Graduate School of Business
Edward P. Lazear—Stanford Graduate School of Business

There is great concern among educators, policymakers, and laypersons about the perceived decline in primary and secondary school teacher quality over the past 40 years. Though this issue has spawned substantial academic and policy research on the relationship between student outcomes and observable measures of teacher quality (such as educational attainment, experience, and SAT scores), the results of such studies remain far from convincing. This project investigates the hypotheses that: 1) pay is more compressed in teaching than in other, comparable occupations; 2) as a result, high quality teachers leave teaching at higher rates than low quality teachers; and 3) this has a measurable effect on student outcomes. The Longitudinal Employer Household Dynamics (LEHD) data, with its matched employer-employee wage data, is uniquely suited to this empirical investigation. The project will identify high quality teachers by their relative wages and the wage dispersion at their jobs after leaving a particular school district; this avoids many of the frequent criticisms found in the teacher quality literature. The Schools and Staffing Survey (SASS) provides information on compensation and unionization policies in public schools in the states listed above; linked to the LEHD data this can establish the relationship between specific policies and wage compression. The Common Core of Data (CCD) provides basic information and descriptive statistics on all schools, their students, and their teachers; this information, linked to the LEHD, will provide many controls in the analysis and allow an investigation of student outcomes.

ANTECEDENTS AND CONSEQUENCES OF OUTSOURCING INNOVATION ACTIVITIES

Michael A. Stanko—Department of Marketing, Michigan State University
Roger J. Calantone—Department of Marketing, Michigan State University

This project explores the firm-level drivers of innovation outsourcing, such as exploratory research performed, inventory turnover, and consequences such as innovation costs and other financial outcomes. Industry-level moderators of these relationships are also proposed. This research project investigates the extent to which increased outsourcing of research and development (R&D) recategorizes innovation activities, which, if carried out internally, would be classified as manufacturing but when contracted to a specialist firm is categorized as a service. Time series analysis of shifts from manufacturing to nonmanufacturing will illustrate the extent to which the growth of contract R&D creates (or does not create) a measurement problem and give insight into the comparability of historical data with more recent years' data. The project will compute Herfindahl indexes for nonmanufacturing industries. The Census Bureau currently publishes Herfindahl indexes for the manufacturing sector but not for nonmanufacturing. This project will provide estimates of how firm and industry characteristics differentially influence the propensity to outsource innovation activities, as well as the consequences of this outsourcing. This study links the Survey of Industrial Research and Development, the Longitudinal Business Database and Compustat® for the years 1972–2001. Two external, publicly available databases are also required: The National Bureau of Economic Research's "U.S. Patent Citations Data File" as well as the Census Bureau's "Concentration Ratios in Manufacturing" dataset. Once assembled, these datasets will be used to test a multilevel model that examines firm- and industry-level factors influencing the propensity to outsource R&D as well as the outcomes of this outsourcing.

PUBLIC USE DOCUMENTATION AND ACCESS TOOLS FOR RESTRICTED USE 2000 DECENNIAL CENSUS PUBLIC USE MICROFILE

Felicia B. LeClere—ICPSR, University of Michigan
Sanda Ionescu—ICPSR, University of Michigan

This project will revamp existing documentation for the 1990 and 2000 decennial census micro data files currently available at Inter-University Consortium for Political and Social Research (ICPSR). The improved documentation will include information on the additional variables and codes available to researchers in the Census Bureau's Research Data Centers as well as relabel already publicly available variables to match internal documentation. Documentation also will include elements such as procedural histories, enumerator instructions, enumeration forms, and descriptive text from published Census Bureau volumes that explain how data are organized, details tabulation methods, and provides other information useful to users.

REAL INVESTMENTS AND MANAGERIAL CAREER CONCERNS

An Chee Low—The Ohio State University
Anil K. Makhija—The Ohio State University

This project examines how managerial career concerns, proxied by age, affect firm real investment policies. These career concerns can lead to distortions in the decisions to build or destroy plants since such decisions reflect on the ability of the manager to make good decisions. The researchers estimate logistic regressions to test whether managerial career concerns affect the probability of plant births, deaths, sales, and purchases. The research will also test the "trapped administrator" phenomenon where a manager who is afraid of losing her reputation is more reluctant to cease investments in unproductive plants which she built or acquired and may even try to increase the resources to these plants in order to prevent failure. This project will prepare new tabulations of public firms managed by different demographic groups. To understand whether CEO age affects plant births and deaths, the investigators will tabulate the different investment projects against CEO age and also prepare tabulations relating the value of capital expenditures, value of shipments, and total employment to CEO age. The project will provide benefits through the production of population-level estimates of plant births and deaths and by relating variation in these plant activities to managerial characteristics. Logistic models are used to relate CEO age and gender to the probability of various investment (or disinvestment) projects being undertaken. Additional estimates will show how managerial characteristics influence plant-level capital expenditures. These estimates of the impact of managerial age and other demographic variables are important as they shed light on how changing demographics can affect macroeconomic employment and productivity patterns.

PATTERNS OF FIRM EXPANSION

Chad W. Syverson—The University of Chicago
Ali Hortacsu—The University of Chicago

This project explores issues of firm expansion. Those address the following: what factors determine the firms that will expand; the underlying reasons for expansion (e.g., efficiency vs. market power); the manner of expansion (intensive or extensive, acquisition or building new); the choice of whom to acquire, if that is the preferred expansion mode; and the impact on other players in the market, be they competitors or consumers. Focus is on expansion along the extensive margin, that is, through the purchase of existing establishments or the building of new ones. For data reasons, the project concentrates on manufacturing establishments, but some analyses will also be done for nonmanufacturing sectors. The Longitudinal Business Database will be tied to production information from the Census of Manufactures, the Annual Survey of Manufactures, and the Commodity Flow Survey. In its examination of firm expansion patterns, the project focuses on examining changes in linkages between establishments and firms during changes in ownership and on changes in establishment employment, payroll, and revenues as establishments and firms expand. Additionally, this project will inform the Census Bureau about supply chains within industries and how e-business impacts supply chain relationships.

TELEPHONE PENETRATION OF LOW INCOME HOUSEHOLDS

Daniel A. Ackerberg—University of California, Los Angeles
Michael H. Riordan—Columbia University
Bradley S. Wimmer—University of Nevada, Las Vegas
Gregory L. Rosston—Stanford Institute for Economic Policy Research

Telephone penetration—the percentage of households with telephone service—is the accepted measure of universal service in the United States. This research studies the telephone penetration of low-income households in the United States. One purpose of the study is to measure the determinants of telephone penetration of low-income households, including the effects of universal service policies that reduce the prices these households pay for telephone service. Another objective is to compare predictions generated by the econometric model with standard hot-deck imputations used to assign responses for households that do not respond to the telephone availability question. The study uses cross-section and panel econometric methods to estimate the demand for telephone service by low-income households. The explanatory variables are demographic and location characteristics, including the characteristics of the telephone service plans offered to low-income households. The econometric analysis estimates the price elasticity of demand for telephone service for different demographic groups. Predicted household demands are aggregated to explain the determinants of changes in telephone penetration of low-income households between 1990 and 2000. Predictions from the econometric model are compared to imputations from standard hot-deck methods used for dealing with nonresponses to the telephone availability question. The study estimates the price elasticity of demand for telephone service of different demographic groups and measures the determinants of changes in telephone penetration between 1990 and 2000, including the effects of universal service policies that reduced the prices low-income households pay for telephone service.

INTERNAL MIGRATION TO AND RETENTION OF THE FOREIGN BORN IN NONTRADITIONAL DESTINATIONS

Mary M. Kritz—Cornell University
Douglas T. Gurak—Cornell University

This research employs census long form sample and American Community Survey (ACS) confidential data to analyze the dynamics underlying the increasing dispersal of the foreign-born population in the United States. The project focuses on three dimensions of this process: 1) The estimation of the individual and context characteristics that underlie internal migration to nontraditional destinations; 2) The analysis of place and individual characteristics associated with both residential stability and residential churning for foreign-born persons residing in nontraditional destinations; and 3) The examination of the process of selection of destinations for those departing from nontraditional settlement areas. The analysis utilizes McFadden choice models to estimate the role of different destination contexts in attracting foreign born. Multilevel logit models estimate the processes of departure from gateway and nontraditional places. This project will enhance census and ACS data by generating knowledge on cohort residential trajectories between the 1980s and early 2000s. The research on destination choices will also provide a detailed picture of the migration links between specific types of places. In addition to describing the nature of these linkages, the research will shed light on the dynamics underlying emerging trends in the internal migration and settlement behaviors of the growing foreign-born population.

AMERICAN COMMUNITY SURVEY: TRENDS IN COMMUTING BEHAVIOR BY POPULATION SUBGROUPS

Joost G. Berman—University of Illinois at Chicago
Siim Sööt—University of Illinois at Chicago

This project centers on the journey-to-work data from the American Community Survey to analyze the impact of population growth, especially for special population groups, on demand for transportation services. Focus is on seasonality in these data and the feasibility/reliability of producing small area estimates (e.g., transportation analysis zones) using these data. The project will produce estimates of social, economic, and demographic differentials among special population groups (specifically those that relate to transportation demand). It will inform the Census Bureau about the seasonality of the underlying data used in these analyses. It examines the feasibility and reliability of producing small area estimates, like transportation analysis zones, that are useful to the transportation planning community. The research focuses on the differences in commuting behavior among the major population groups and how these patterns may change in the long term and the short term through seasonal cycles. These research questions have major implications for decision makers and transportation planners.

WAGE MANDATES, STAFF TURNOVER, AND NURSING HOME QUALITY

Orna Intrator—Brown University
Vincent Mor—Brown University

This project examines the relationship between nursing home labor turnover and retention rates and the quality of care provided in nursing homes across the United States and determine how those relationships are altered in the face of changes in state mandates affecting nursing staffing or wages. Several Census Bureau datasets provide longitudinally linkable information about staff turnover and retention in all U.S. nursing homes. Census datasets for the years 1990–2006 are linked with the Online Survey Certification of Automated Reporting (OSCAR) annual data on nursing home structure, staffing and regulatory compliance, facility case mix acuity and resident quality indicators, and a survey of state regulations and initiatives regarding nursing home staffing standards and wages. The purpose of this project is to evaluate the quality of census nursing home data as collected in the economic census and business register; to examine the relationship between nursing home labor turnover, wages, and the quality of care provided in nursing homes; and to determine how those relationships are altered in the face of state legal changes affecting staffing or wage mandates.

HOUSEHOLD MOBILITY AND ENVIRONMENTAL HEALTH

Lucas W. Davis—University of Michigan

This project describes and estimates a model of neighborhood choice in which environmental health risks vary across neighborhoods. The model is estimated using household-level data from a restricted version of the U.S. Decennial Census 1990 and 2000. The analysis focuses on neighborhoods near waste incinerators, coal-burning power plants, nuclear power plants, and other facilities. The empirical strategy exploits the opening and closing of these facilities to control for unobserved differences across neighborhoods. The first objective of this project is to generate new estimates about the causal impact of environmental health risks on geographic mobility and home values, with particular emphasis on patterns for different ethnic and racial groups. A second objective is to assess the environmental-related questions in the American Housing Survey (AHS) and to make available a database of facilities that can be merged with the AHS.

FIRM INNOVATION, KNOWLEDGE SPILLOVERS, AND PRODUCTIVITY GROWTH

William R. Kerr—Harvard Business School

This study characterizes the innovative and entrepreneurial efforts of firms in the U.S. economy. It begins with a detailed analysis of the R&D-to-patenting inventive process and further delineates how this innovation translates into within-firm productivity growth and across-firm knowledge spillovers. It also considers how U.S. national and local governments influence these rates of innovation and entrepreneurship and firm entry more generally. These innovative forces will be finally linked to concomitant technological change, productivity growth, and changes in industrial structure. Specific topics addressed include immigration admissions of foreign-born scientists and engineers, labor market regulations, federal funding of R&D undertaken in private firms, government-backed loans to entrepreneurs and small businesses, banking and financial market structures and regulations, foreign direct investments by multinationals, and patent and trademark laws. Detailed firm-level and establishment-level data are employed to pair a firm's R&D and patenting efforts with its productivity outcomes, for considering federal support of R&D at the firm-level, and for looking at knowledge spillovers from a research-oriented firm to other businesses within the firm's state or industry. Establishment data characterize industrial and financial market structures in local areas, including entrepreneurial entry and exit rates, the firm size distribution, and market concentration and agglomeration indexes.

AN EMPIRICAL INVESTIGATION OF THE SUPPLY OF AND DEMAND FOR PRIVATE SCHOOLING IN THE UNITED STATES

Susan Dynarski—John F. Kennedy School of Government, Harvard University
Jonathan Gruber—Massachusetts Institute of Technology

This project will provide detailed descriptions of the availability of private schools to U.S. households and how this varies by geography and household characteristics. It also estimates the sensitivity of households to tuition prices when choosing a school for their children. Detailed geographic identifiers are used to link each household in the 1990 and 2000 Decennial Censuses and the American Community Survey (ACS) to data on private schools compiled from public sources and surveys. Data on private school tuition prices along with data on school attendance in the censuses and ACS are used to estimate the sensitivity of private school attendance to price. Existing Census estimates will be supplemented with researcher-constructed estimates of the availability of private schools to U.S. households and how this availability varies by income, education, geography, race, and ethnicity. Estimates employing both the decennial census and the ACS are generated and compared.

SCALE AND SCOPE ECONOMIES AND THE ORGANIZATION OF THE U.S. ADVERTISING AND MARKETING SERVICES INDUSTRY

Mohammad Arzaghi—American University of Sharjah
Ernst R. Berndt—MIT Sloan School of Management
Alvin J. Silk—Harvard Business School

This research aims to improve understanding of the quality of data on advertising agencies collected by the Census Bureau; assess the importance of scale and scope economies in the supply of advertising and marketing service industries; explore the relation of such economies to the overall organization of this industry in terms of the distribution of revenue and employment among single and multiestablishment firms and holding companies; examine employment turnover and advertising firm entry, survival, and exit patterns over time; and document the geographical distribution of advertising agencies and their economic activities. Census data are linked to external data on advertising agencies, specifically the Advertising Red Book. The project compares census data coverage with publicly available data on advertising agencies. The project will produce estimates of the population of advertising establishments, which will inform the Census Bureau's knowledge base on the extent of scale and scope economies in the supply of advertising and marketing service industries and the relation of such economies to the overall organizational structure of firms in this industry. It will examine entry, exit, and acquisitions at various levels of aggregation—individual establishment, the multiestablishment advertising agency, and the global holding companies. And it will investigate the role of mergers and acquisitions on the extent of outsourcing and measurement of output, price, average labor productivity, and labor turnover.

INNOVATIVE ACTIVITY AND ORGANIZATIONAL CHANGE: PRIVATE VERSUS PUBLIC STATUS AND ACQUISITIONS

Gordon M. Phillips—University of Maryland
Vojislav Maksimovic—University of Maryland
Liu A. Yang—University of California, Los Angeles

This project studies innovation and research and development in the spirit of Schumpeter where innovation and research and development (R&D) are part of the process of creative destruction in the economy. Using data on both public and private firms, it examines how firm organization changes following innovation that is initiated by itself, or by firms in its own upstream and downstream industries. It also studies the impact of firm organization on the exploitation of R&D expenditures and patents. The central premise of this study is that organizations adjust to industry technological change as both additional research and the development of ideas after patents require extensive organizational and financial resources. It focuses on two types of organizational adaptations: the decision to be private or publicly listed and changes in firm boundaries through mergers and acquisitions. Firms differ in the extent of their operations across multiple industries. Some firms choose to be focused and produce in single industries. Other firms produce in multiple industries. The central question is the extent that these two dimensions are significant in explaining which firms conduct and then commercialize research and patent activity. This project will provide evidence on the importance of research and the development of that research in determining the boundaries of the firm by examining three different aspects of innovative activity. These include patent activity, patent citations, and R&D expenditures.

PRODUCTIVITY, SUPPLY CHAIN STRUCTURE, AND INFORMATION TECHNOLOGY INVESTMENT: INVESTIGATING ENDOGENOUS IT INVESTMENT BY FIRMS

Shane M. Greenstein—Kellogg School of Management, Northwestern University
Kristina S. McElheran—Kellogg School of Management, Northwestern University

This research project links recent survey data on the digital economy with other Census Bureau datasets and with proprietary data to understand how productivity, supply chain structures, and investment in information technology (IT) are coevolving in the U.S. manufacturing sector. It investigates the drivers of firm IT investment that are likely to be endogenous in standard models of how IT affects firm behavior. The primary outcome of this research and main benefit will be more accurate and more-nuanced estimates of firm populations that invest in IT, as well as insights into the characteristics and distributions of these different subpopulations in the U.S. manufacturing sector. Another central outcome will be an assessment of the quality and consistency of existing census data on the digital economy. Directly linking and comparing datasets, as well as improving the Census Bureau's understanding of the interaction between IT, the infrastructure needed to support e-business, and evolving supply chain relationships in the U.S. economy, will reveal observable patterns in nonresponse, highlight inconsistencies across surveys and years, verify the stability of important empirical relationships across time, and suggest ways to improve future surveys.

EARNINGS, PRODUCTIVITY, AND HIERARCHIES: LEGAL SERVICES, 1977–2007

Luis Garicano—Graduate School of Business, The University of Chicago
Thomas Hubbard—Northwestern University

Wage inequality increased substantially in the United States during the past quarter century. The sources of this increase and its public policy implications have been controversial, both within academia and among policy makers. Much of the debate has surrounded whether this increase was due to technological factors, such as the diffusion of information technology, or to policy changes, such as reductions in the minimum wage (in real terms). Economists have proposed that organizational structure affects wage inequality and can amplify the effect of technological factors, especially in contexts where production is human-capital intensive. Understanding what affects wage inequality in human-capital-intensive sectors is particularly important because these sectors occupy a high and growing share of U.S. economy and because many government policies aimed at raising wages at the low end do so by increasing these workers' human capital. If wages are affected not just by individuals' human capital, but the organizational structure in which individuals' work, one can make these policies more productive by applying them in organizational contexts where they are likely to have the greatest impact on wages. This proposal examines the quality of the 2002 Census of Services data for legal services firms, compares their quality to that of previous census of Services, and produces estimates of number of lawyers that extend a series that the Census Bureau published for 20 years but failed to publish in 2002. The research also investigates how the organization of legal services—in particular, firms' hierarchical structure—has changed over time, characterizes the distribution of wages in this industry and how it has changed over time, and analyzes relationships between changes in hierarchies and changes in the wage distribution. The latter will lead to a better understanding of wage inequality not only in legal services, but also in human-capital-intensive sectors (such as services) more broadly.

COMPARISON OF THE DISTRIBUTIONS OF PRODUCTION AND ENERGY EFFICIENCY IN MANUFACTURING: PHASE 3

Gale A. Boyd—Duke University

This project extends the time frame and scope of the projects Comparison of the Distributions of Production and Energy Efficiency in Manufacturing: Phase 1 and Phase 2, respectively. Those projects successfully implemented the methods described in prior project proposals for a few selected industrial sectors. This project will continue to expand the scope of phases 1 and 2 via additional industry-specific analysis. The principal analytic approach is the application of the frontier production function. The project will enhance the Census Bureau's knowledge base regarding the specific area of investigation, which is the distribution of energy output ratios specifically and in relationship to the distribution of total factor productivity. This understanding could lead to improved editing and screening procedures, ultimately improving the overall Economic Census program. This project will compare energy-related data, including census materials and product data, with external sources of information, including industry and trade group data and process specific information. The expanded project scope will include a wide range of industrial sectors including, but not limited to, pulp/paper/paperboard and petrochemicals sector.

ESTIMATING HOUSEHOLD SIZE

Warren A. Brown—Cornell University
Jan K. Vink—Cornell University
Jason E. Devine—U.S. Census Bureau

The Census Bureau produces population estimates at the national, state, county, and subcounty levels and housing unit estimates at the state and county levels. The estimates are used to distribute federal funds, by state and local governments, and as controls for Census Bureau and other surveys. As part of an effort to develop county-level housing unit-based population estimates, the Census Bureau is undertaking a series of research projects. These research projects are being coordinated by members of Population Division as part of the Housing Unit-Based Estimates Research Team (HUBERT). This research will provide input into the overall HUBERT research project that will be used by the Census Bureau to make decisions about the methodology that will be used to produce an experimental series of housing unit-based population estimates.

Appendix 3.

CENTER FOR ECONOMIC STUDIES (CES) DISCUSSION PAPERS 2007

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

07-33 "Democratizing Entry: Banking Deregulations, Financing Constraints, and Entrepreneurship," by William Kerr and Ramana Nanda, 12/07.

07-32 "The Role of Financial Conglomerates in Industry Formation: Evidence From Early Modern Japan," by John P. Tang, 12/07.

07-31 "Regional Industrial Dominance, Agglomeration Economies, and Manufacturing Plant Productivity," by Joshua Drucker and Edward Feser, 12/07.

07-30 "Crime's Impact on the Survival Prospects of Young Urban Small Businesses," by Timothy Bates and Alicia Robb, 10/07.

07-29 "Diversification, Organizational Adjustment, and Firm Performance: Evidence From Microdata," by Evan Rawley, 10/07.

07-28 "Electricity Pricing to U.S. Manufacturing Plants, 1963–2000," by Steven J. Davis, Cheryl Grim, John Haltiwanger, and Mary Streitwieser, 10/07.

07-27 "A Unified Framework for Measuring Preferences for Schools and Neighborhoods," by Patrick Bayer, Fernando Ferreira, and Robert McMillan, 10/07.

07-26 "The Dynamics of Market Structure and Market Size in Two Health Services Industries," by Timothy Dunne, Shawn D. Klimek, Mark J. Roberts, and Yi Xu, 10/07.

07-25 "Access Methods for United States Microdata," by Daniel H. Weinberg, John M. Abowd, Sandra K. Rowland, Philip M. Steel, and Laura Zayatz, 8/07.

07-24 "Lessons for Targeted Program Evaluation: A Personal and Professional History of the Survey of Program Dynamics," by Daniel H. Weinberg, 8/07.

07-23 "Long-Term Effects of Vietnam-Era Conscription: Schooling, Experience, and Earnings," by Joshua D. Angrist and Stacey H. Chen, 8/07.

07-22 "International Trade and the Changing Demand for Skilled Workers in High-Tech Manufacturing," by Julie A. Silva, 8/07.

07-21 "Labor Market Rigidities and the Employment Behavior of Older Workers," by David Blau and Tetyana Shvydko, 7/07.

07-20 "Issues and Challenges in Measuring Environmental Expenditures by U.S. Manufacturing: The Redevelopment of the PACE Survey," by Randy A. Becker and Ronald J. Shadbegian, 7/07. Forthcoming. *Proceedings of the Third International Conference on Establishment Surveys*.

07-19 "Leasing, Ability to Repossess, and Debt Capacity," by Andrea L. Eisfeldt and Adriano Rampini, 6/07. Forthcoming. *Review of Financial Studies*.

07-18 "The Adoption and Diffusion of Organizational Innovation: Evidence for the U.S. Economy," by Lisa M. Lynch, 6/07.

07-17 "Using the P90/P10 Index to Measure U.S. Inequality Trends With Current Population Survey Data: A View From Inside the Census Bureau Vaults," by Richard V. Burkhauser, Shuaizhang Feng, and Stephen P. Jenkins, 6/07.

07-16 "Spatial Mismatch or Racial Mismatch?," by Judith Hellerstein, David Neumark, and Melissa McInerney, 6/07.

07-15 "Changes in Workplace Segregation in the United States Between 1990 and 2000: Evidence From Matched Employer-Employee Data," by Judith Hellerstein, David Neumark, and Melissa McInerney, 6/07.

07-14 "Firms in International Trade," by Andrew B. Bernard, J. Bradford Jensen, Stephen J. Redding, and Peter K. Schott, 5/07.

07-13 "What Causes Industry Agglomeration? Evidence From Coagglomeration Patterns," by Glenn Ellison, Edward L. Glaeser, and William Kerr, 4/07.

07-12 "Older Workers' Access to Employer-Sponsored Retiree Health Insurance, 2000–2004," by Christine Eibner, Alice M. Zawacki, and Elaine M. Zimmerman, 4/07.

07-11 "Measuring U.S. Innovative Activity," by B.K. Atrostic, 3/07, revised version published as "Measuring U.S. Innovative Activity: Business Data at the U.S. Census Bureau," April 2008, *Journal of Technology Transfer*, 33(2): 153–171.

07-10 "Resident Perceptions of Crime: How Similar Are They to Official Crime Rates?," by John R. Hipp, 3/07.

07-09 "How Does Geography Matter in Ethnic Labor Market Segmentation Process? A Case Study of Chinese Immigrants in the San Francisco CMSA," by Qingfang Wang, 3/07.

07-08 "Mergers and Acquisitions, Employment, Wages, and Plant Closures in the U.S. Meat Product Industries: Evidence From Micro Data," by Sang V. Nguyen and Michael Ollinger, 3/07.

07-07 "Estimating the Distribution of Plant Level Manufacturing Energy Efficiency With Stochastic Frontier Regression," by Gale A. Boyd, 3/07.

07-06 "Geographic Redistribution of the U.S. Manufacturing and the Role of State Development Policy," by Yoonsoo Lee, 3/07.

07-05 "The Importance of Reallocations in Cyclical Productivity and Returns to Scale: Evidence From Plant-Level Data," by Yoonsoo Lee, 03/07.

07-04 "Do Employment Protections Reduce Productivity? Evidence From U.S. States," by David H. Autor, William R. Kerr, and Adriana D. Kugler, 3/07.

07-03 "Identifying Individual and Group Effects in the Presence of Sorting: A Neighborhood Effects Application," by Patrick Bayer and Stephen L. Ross, 1/07. NBER Working Paper Series 12211, May 2006.

07-02 "Workplace Segregation in the United States: Race, Ethnicity, and Skill," by Judith Hellerstein and David Neumark, 1/07.

07-01 "The Return to Knowledge Hierarchies," by Luis Garicano and Thomas N. Hubbard, 1/07.

Appendix 4.

NEW DATA AVAILABLE THROUGH RESEARCH DATA CENTERS (RDCs) IN 2007*

Data product	Description	New or updated years
Annual Capital Expenditures survey and Information and Communication Technology survey	The Annual Capital Expenditures (ACE) survey is a firm-level survey designed to collect industry-level data on capital investment in new and used structures and equipment. The sample typically consists of large employers, small employers, and nonemployers. Additionally, expense data are available from the Information and Communication Technology (ICT) survey. ICT is a supplement to ACE. It collects technology investment figures falling below a company's capitalization threshold.	2004, 2005
American Community Survey**	The American Housing Survey collects data on the nation's housing, including apartments, single-family homes, mobile homes, vacant housing units, household characteristics, income, housing and neighborhood quality, housing costs, equipment and fuels, size of housing unit, and recent movers. National data are collected in odd-numbered years, and data for each of 47 selected metropolitan areas are collected about every 4 years, with an average of 12 metropolitan areas included each year.	2005
Annual Survey of Manufactures	The Annual Survey of Manufactures provides statistics on employment, payroll, worker hours, payroll supplements, cost of materials, value added by manufacturing, capital expenditures, inventories, and energy consumption. It also provides estimates of value of shipments for over 1,800 classes of manufactured products.	2003–2005
Census of Construction Industries	The Census of Construction Industries is conducted every 5 years as part of the economic census program. These data are the primary source of detailed facts about the nation's construction industry.	2002
Census of Manufactures	The Census of Manufactures is the major source of information about the structure and functioning of the manufacturing sector. It provides essential information for government, business, industry, and the general public.	2002
Census of Mining	The Census of Mining is the major source of information about the structure and functioning of the mining sector. All mining establishments of companies with one or more paid employees are covered.	2002

Data product	Description	New or updated years
Census of Puerto Rico	The Economic Census of Puerto Rico is designed to provide periodic and comprehensive data on Puerto Rico's economic activity and structure.	1992, 1997
Current Population Survey**	The Current Population Survey Annual Social and Economic Supplement (CPS ASEC) collects data concerning work experience, several sources of income, migration, household composition, health insurance coverage, and receipt of noncash benefits.	2002–2005
Longitudinal Business Database	The Longitudinal Business Database (LBD) is a research dataset constructed at the Center for Economic Studies (CES). Currently, the LBD contains the universe of all U.S. business establishments with paid employees from 1976 to 2005. The LBD is invaluable to researchers examining entry and exit, gross job flows, and changes in the structure of the U.S. economy. The LBD can be used alone or in conjunction with other Census Bureau surveys at the establishment and firm level of microdata.	1976–2005
Foreign Trade Transaction Import Data	Foreign Trade Transaction Import Data contain information on U.S. imports of merchandise compiled primarily from automated data submitted through the U.S. Customs' Automated Commercial System. The data are also compiled from import entry summary forms, warehouse withdrawal forms, and Foreign Trade Zone documents required by law to be filed with U.S. Customs and Border Protection. Data on imports of electricity and natural gas from Canada are obtained from Canadian sources.	1992–2005
Foreign Trade Transaction Export Data	Foreign Trade Transaction Export Data contain information on U.S. exports of merchandise from the United States to all countries except Canada. The data are compiled from copies of Shipper's Export Declarations (SEDs) from qualified exporters, forwarders, and carriers. Each SED represents a shipment of one or more kinds of merchandise from one exporter to one foreign importer on a single carrier.	1992–2005
Exporter Database	The Exporter Database (EDB) is created from trade data and Business Register data by matching yearly export transaction records to the company information from the Business Register. The EDB is a set of seven SAS files used to create a profile of U.S. exporting companies.	1987, 1992, 1996–2004
Medical Expenditure Panel Survey–Insurance Component	The Medical Expenditure Panel Survey-Insurance Component collects data on health insurance plans obtained through employers. Data collected include the number and type of insurance plans offered, benefits associated with these plans, premiums, contributions by employers and employees, eligibility requirements, and employer characteristics.	2005

Data product	Description	New or updated years
National Longitudinal Survey**	The National Longitudinal Surveys (NLS) are a set of surveys sponsored by the Bureau of Labor Statistics, U.S. Department of Labor. These surveys collect information at multiple points in time on the labor market experiences of diverse groups of men and women. For the NLS of Young Men and Older Men, geographic variables are available at both the state and county levels, and the primary sampling unit used in the 1966 surveys is also available. For the NLS of Young Women and Mature Women, more detailed geographic information is available. Geographic variables include state, county, census track, block group, latitude, longitude, and the names and locations of universities the respondents attended.	
	The Young Women's NLS includes women who were aged 14 to 24 when first interviewed in 1968 and was discontinued in 2003.	1968–2003
	The Mature Women's NLS includes women who were aged 30 to 44 when first interviewed in 1967 and was discontinued in 2003.	1967–2003
	The Young Men's NLS includes men who were aged 14 to 24 when first interviewed in 1966 and was discontinued in 1981.	1966–1981
	The Older Men's NLS includes men who were aged 45 to 59 when first interviewed in 1966 and was discontinued in 1990.	1966–1990
National Longitudinal Mortality Survey**	The National Longitudinal Mortality Study (NLMS) consists of a database developed for the purpose of studying the effects of demographic and socioeconomic characteristics on differentials in U.S. mortality rates. The NLMS is a unique research database in that it is based on a random sample of the noninstitutionalized population of the United States. It consists of Census Bureau data from the CPS ASEC and 1980 census combined with death certificate information to identify mortality status and cause of death. The version available to RDC researchers corresponds to public-use NLMS Release 2 but with geographic detail. The NLMS Release 2 is centered around 1980 and weighted to reflect a sample from the U.S. population for 1980.	Centered on 1980
Survey of Income and Program Participation Panels**	The Survey of Income and Program Participation collects information on source and amount of income, labor force information, program participation and eligibility data, and general demographic characteristics to measure the effectiveness of existing federal, state, and local programs; to estimate future costs and coverage for government programs, such as food stamps; and to provide improved statistics on the distribution of income in the country.	1996

Data product	Description	New or updated years
Standard Statistical Establishment Listing	Standard Statistical Establishment Listing files maintained at CES are created from the old Standard Statistical Establishment List (prior to 2002) and the new Business Register (2002 and forward).	2005
Survey of Plant Capacity Utilization	The Survey of Plant Capacity Utilization provides current data on the rates of capacity utilization in U.S. manufacturing plants. Data collected are for the fourth quarter and include number of days and hours worked, estimated value of production at full production capability, and estimated value of production achievable under national emergency conditions. Additional items include reasons why the plant may operate at less than full production, reasons why the estimate of full production capability changed from the prior year, and how quickly the plant could reach full production and national emergency levels of production.	2000–2005
Total Factor Productivity files	Total Factor Productivity files contain information for computing total factor productivity for firms in the Annual Survey of Manufactures and Census of Manufactures.	1972–2000

* This table does not include custom extract data made available to approved projects from the Longitudinal Employer-Household Dynamics program in 2007.

** These demographic or decennial files maintained at CES and for the RDCs are internal versions, and they provide researchers with variables and detailed information that are not available in the corresponding public-use files.

Appendix 5.

RESEARCH DATA CENTER (RDC) PARTNER INSTITUTIONS

Berkeley RDC
(Jon Stiles, Director of Research)

University of California, Berkeley

Boston RDC
(Wayne Gray, Executive Director)

National Bureau of Economic Research

CES RDC
(Ron Jarmin, Chief Economist and Chief, CES)

Administration for Healthcare Research and Quality
Bureau of Economic Analysis
Federal Reserve Board of Governors

Chicago RDC
(Bhash Mazumder, Executive Director)

Argonne National Laboratory
Federal Reserve Bank of Chicago
Northwestern University
University of Chicago
University of Illinois

Michigan RDC
(Margaret Levenstein, Executive Director)

University of Michigan
Michigan State University

New York RDC
(Sanders Korenman, Executive Director, Baruch College; Warren Brown, Research Director, Cornell University)

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

Triangle RDC
(Gale Boyd, Executive Director)

Duke University
East Carolina University
Elizabeth City State University
Fayetteville State University
North Carolina Agricultural & Technical State University
North Carolina Central University
North Carolina School of the Arts
North Carolina State University
University of North Carolina at Asheville
The University of North Carolina at Chapel Hill
University of North Carolina at Charlotte
University of North Carolina at Greensboro
University of North Carolina at Pembroke
University of North Carolina Wilmington
Western Carolina University
Winston-Salem State University

UCLA RDC
(Jon Stiles, Director of Research)

University of California, Los Angeles

Appendix 6.
CENTER FOR ECONOMIC STUDIES (CES) STAFF LISTING 2007

January 2008 CES Staff in **bold.**

Name	Position
CES Senior Staff	
Atrostic, B.K.	Senior Economist and Special Assistant to the Division Chief
Holly, Brian	Project Review Coordinator
Jarmin, Ron	Chief Economist and Chief, CES
Mildorf, Mark	Assistant Division Chief for Research Support
Weinberg, Daniel	Chief Economist and Chief, Center for Economic Studies
Weng, Shigui	Chief, Data Staff
CES Research Staff	
Akinyooye, Larry	Survey Statistician (detailed from Service Sector Statistics Division)
Bailey, Paul	Graduate Research Assistant
Becker, Randy	Senior Economist
Davis, Ronald	Research Assistant
Fort, Teresa	Graduate Research Assistant
Foster, Lucia	Senior Economist
Grim, Cheryl	Economist
Haltiwanger, John	Senior Economist
Handley, Kyle	Graduate Research Assistant
Hayes, Natalie	Research Assistant
Klimek, Shawn	Senior Economist
Krizan, C.J.	Economist
Luque, Adela	Economist
McCue, Kristin	Economist
McInerney, Melissa	Graduate Research Assistant
Miranda, Javier	Economist
Nguyen, Sang	Senior Economist
Reznek, Arnold	Disclosure Officer
Tang, John	Economist
Zawacki, Alice	Economist
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Andrus, Angela	Berkeley
Carter, J. Clint	Ann Arbor (Michigan)
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McKinney, Kevin	Los Angeles (UCLA)
Riggs, T. Lynn	Lead/Washington, DC (CES Headquarters)
Sedo, Stanley	Ann Arbor (Michigan)
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Administrative Staff

Anderson, Dawn	Division Chief Secretary
Cross, Henry	Student Intern
Schatzer, Ann	Secretary to the Project Review Coordinator
Turner, Rebecca	Secretary to the Assistant Division Chief for Research
Wright, Deborah	Secretary to the Assistant Division Chief for Research Support

Administrative Staff—Governments Division/CES Administrative Office

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Dennison, Marilyn	Lead Financial Assistant
Estep, Tasha	Reimbursable Team Lead
Kiatta, Cheryl	Administrative Officer
Schafer, Jackie	Administrative Assistant

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