

**Testimony of**

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**Before the**

**House Committee on Energy and Commerce**

**Subcommittee on Commerce, Manufacturing and Trade**

**United States House of Representatives**

**HEARING: Where the Jobs Are: Employment Trends and Analysis**

**Room 2123 Rayburn House Office Building**

**9:30am**

**February 15, 2012**

Thank you, Chairman Bono Mack, Ranking Member Butterfield, and distinguished Members of the Committee. It is a pleasure to appear before you today to discuss the subject “Where the Jobs Are: Employment Trends and Analysis.”

My Cornell colleague Lars Vilhuber, Executive Director of the Labor Dynamics Institute, and I have prepared a briefing for you today on the trends in employment and wages that we have constructed from newly-released local labor market data prepared by the U.S. Census Bureau’s Local Employment Dynamics federal/state partnership. These data are called the Quarterly Workforce Indicators (QWI).

It is no secret that the recession of 2007-2009 caused enormous displacement and pain in labor markets across the country. As is common in recessions, labor market movements lagged movements in the overall economy. Specifically, most local labor markets began to have substantial recession-related losses of employment in the second half of 2008, well after the recession had begun, and many did not bottom-out until 2010 or later. Many economists recognize that one of the roles a recession plays in the economy is to facilitate the reallocation of employment and capital from businesses that are no longer

profitable to businesses that are more profitable or with better future prospects for profitability. This reallocation activity is masked when one considers only net employment growth, but it is an essential part of the labor market's adjustment and promotes future employment growth.

To focus attention on the gross flows in the labor market and their role in economic reallocation, economists distinguish between movements of individuals (gross worker flows) and those associated with businesses (gross job flows). The gross worker flows are accessions (hiring and recalls) and separations (quits, layoffs, retirements, and firings). The gross job flows are creations (increases in the employment of a given business establishment) and destructions (decreases in employment of a given business establishments). Gross worker and job flows are tied together by a simple arithmetic relation. The difference between accessions and separations must equal the difference between creations and destructions, and both of these differences are equal to the net change in employment between the beginning and ending of the period to which the gross flows apply. We call the difference between employment at the end of the period and employment at the beginning of the period net job growth. It is the net number of new jobs created (or destroyed, if the difference is negative). When net job growth is positive, total employment is increasing.

Both types of gross worker flows are necessary to reallocate individuals to new employment opportunities. The worker reallocation rate measures the overall pattern of worker movements by stating the sum of accessions and separations as a percentage of average employment in the period. Similarly, both types of gross job flows contribute to the reallocation of employment. The job reallocation rate reflects this by stating the sum of creations and destructions as a percentage of average employment in the period.

The worker reallocation rate always exceeds the job reallocation rate. The reason is that there is a natural level of turnover of employees even when a business is neither growing nor shrinking. Some hiring is necessary to replace the employees who separate even when the business is not changing size.

Indeed, if this did not happen, businesses would shrink whenever an employee left. It turns out that this affluence of worker movements is good for the economy. Churning, the excess reallocation rate, measures the difference between the worker and job reallocation rates. Churning is not particularly cyclically sensitive. But in the 2007-2009 recession, churning declined sharply, and has only weakly recovered although there are some promising signs.

The Quarterly Workforce Indicators permit economists to study the dynamics of local labor market adjustments in great detail: geography, industry, age, gender, race, ethnicity, and education can all be controlled and studied separately, or in combination. The briefing that we have prepared for you today shows graphically how the labor market evolved over the period from 2004Q4 to 2010Q4, the latest available data.<sup>1</sup>

The QWIs also permit, for the first time in our national statistical system, the study of the dynamics of longer duration jobs. These jobs are called stable jobs because, in order to be recorded in the data, the job must have lasted at least one full calendar quarter. Statistically, such jobs have an expected length of at least six months. Even more importantly, stable jobs correspond to the intuitive notion of a “good” job—reliable work generating steady earnings. Employment, accessions, separations, job creations, job destructions, and all the reallocation rates can be measured in the QWIs for stable jobs, as well as for all jobs. Stable jobs are also used to produce monthly earnings measures that correspond to the earnings of workers with full-quarter attachment to the labor force.

The beginning quarter of our analysis, 2004Q4, serves as a reference period, chosen because it is approximately midway between the official onset of the 2001 and 2007-2009 recessions. The Census

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<sup>1</sup> It may seem unusual that the current data end in last quarter of 2010, but this occurs because the QWIs are based on administrative reports from the unemployment insurance records of participating states. The data are reported to the Census Bureau six months after the completion of a calendar quarter. The QWIs are released one quarter later. Hence, the data that we are using for this report were released by the Census Bureau in January, 2012, and are based on administrative records through 2011Q1. Many variables in our analysis cannot be computed for 2011Q1 because they require input data from 2011Q2. The latest QWI data can be found on the Census Bureau’s web site at <http://lehd.did.census.gov/led/datatools/qwiapp.html>. The Labor Dynamics Institute at Cornell provides a comprehensive ensemble of all QWI data for all available states, which is also updated every quarter, on the Cornell VirtualRDC at <http://www.vrdc.cornell.edu/qwipu/>.

Bureau does not seasonally adjust the QWIs, so we have focused on the fourth quarter of each year in order to minimize the influence of seasonal factors and still show you the latest data. We will be summarizing more than 94 million data points using animated maps of the United States. Each map shows every county in the U.S. for which data are available on a thermal scale that is based on the data for the reference quarter (2004Q4). Counties that are around the median value of a particular indicator for the reference quarter are uncolored (white). Counties that are above the median for the reference quarter are shaded in increasing green intensities. Those that are below the median are shaded in increasing brown intensities. When the labor market is performing at about the same level and distribution as in 2004Q4, the maps show varying intensities of green and brown. When the labor market improves nationally, the maps become primarily green. When the labor market deteriorates nationally, the maps become primarily brown.

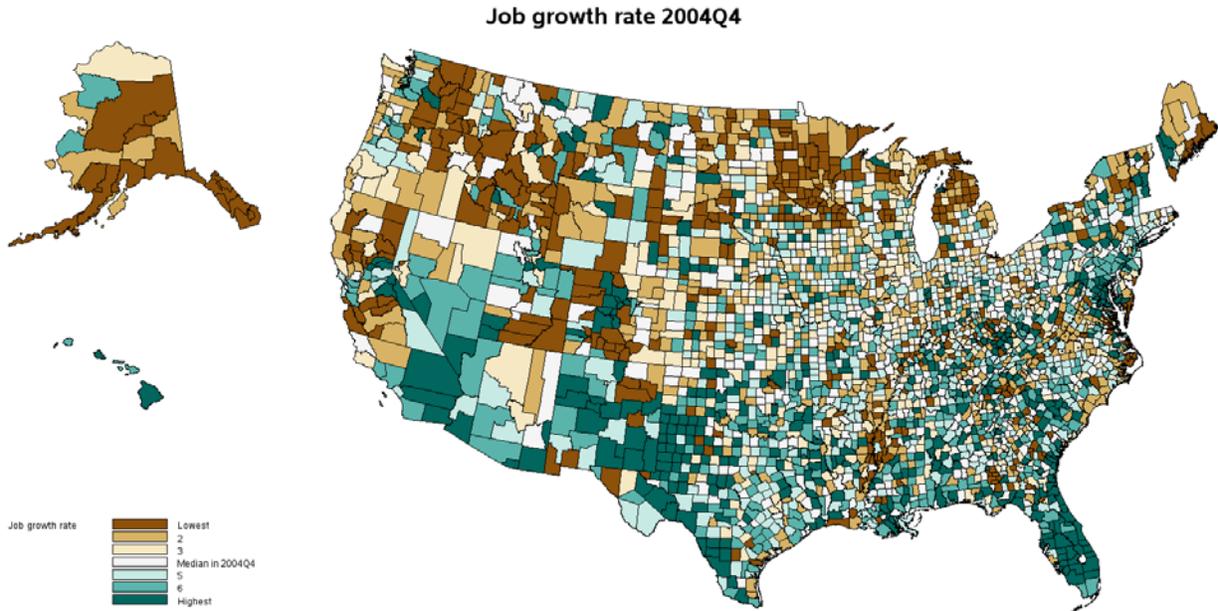
### ***The Overall Level of Employment and the Net Job Growth Rate***

Figure 1 maps the net growth rate in overall employment over time. The initial labor market picture, from 2004Q4, shows that the highest net employment growth rates at that time were in the South, Southwest, and in the middle Atlantic along the coast. The lowest employment growth rates at that time were in the upper Midwest and Northwest. The rest of the map is a patchwork of light green (mildly higher growth rates) and light brown (mildly lower growth rates). The benchmark is the median county net employment growth in 2004Q4. Areas that are white had median net job growth rates.<sup>2</sup> Now watch the labor market evolve over time (click the figure to launch the animation). Employment growth improves in 2005Q4 (more areas are dark green), slows in 2006Q4 (more of a patchwork of light greens and browns), and improves in some areas and worsens in others by 2007Q4 (the 2007-2009 recession begins officially in December 2007). Then, in 2008Q4, the bottom falls out (vast areas of dark

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<sup>2</sup> There are no QWI data for Massachusetts, New Hampshire, and Washington, DC. Those states and the District of Columbia have joined the Local Employment Dynamics federal/state partnership, but their data were not yet available as of February 12, 2012.

and light brown; very little green of any shade). The situation is not much better in 2009Q4 (the recession officially ended in June 2009), nor in 2010Q4. Over most of the country net employment growth was very substantially lower than it was in 2004Q4 for more than three years from 2007Q4 to 2010Q4.

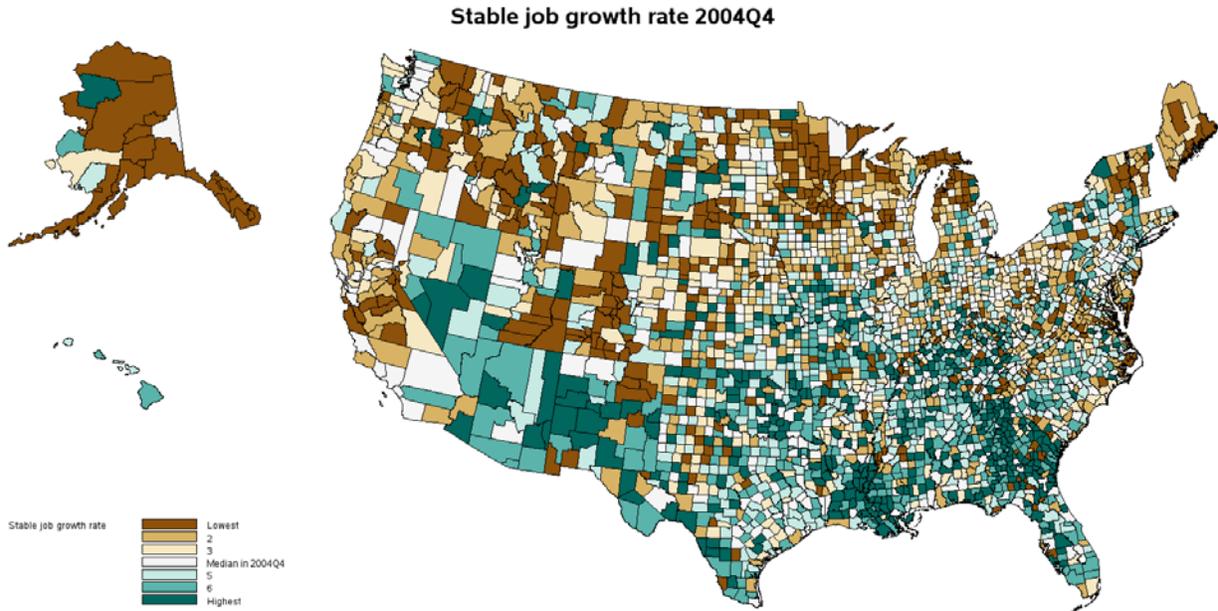


**Figure 1 Animated Map of the Local Job Net Growth Rate  
(Click to play animation. Windows Media Player)**

### ***The Growth Rate of Stable Jobs and the Earnings of Stable Job Holders***

Stable jobs last at least one full calendar quarter and are expected to last much longer than that statistically. Figure 2 is the animated map of stable job growth rates. At the starting point in 2004Q4, stable jobs grow at rates show mostly gentle local variation. Most of the map is light brown, white, or light green. There are a few large patches of dark green, most notably in the southwest and around the Gulf of Mexico. Watch what happens in Gulf when Katrina strikes before 2005Q4. The dark green becomes a large patch of brown—lots of stable jobs were interrupted by Hurricane Katrina. Otherwise, the labor market is about the same as it was one year earlier. By 2006Q4, stable job growth in the Gulf has largely recovered, and the stable job growth rates in the rest of the country are slightly lower than

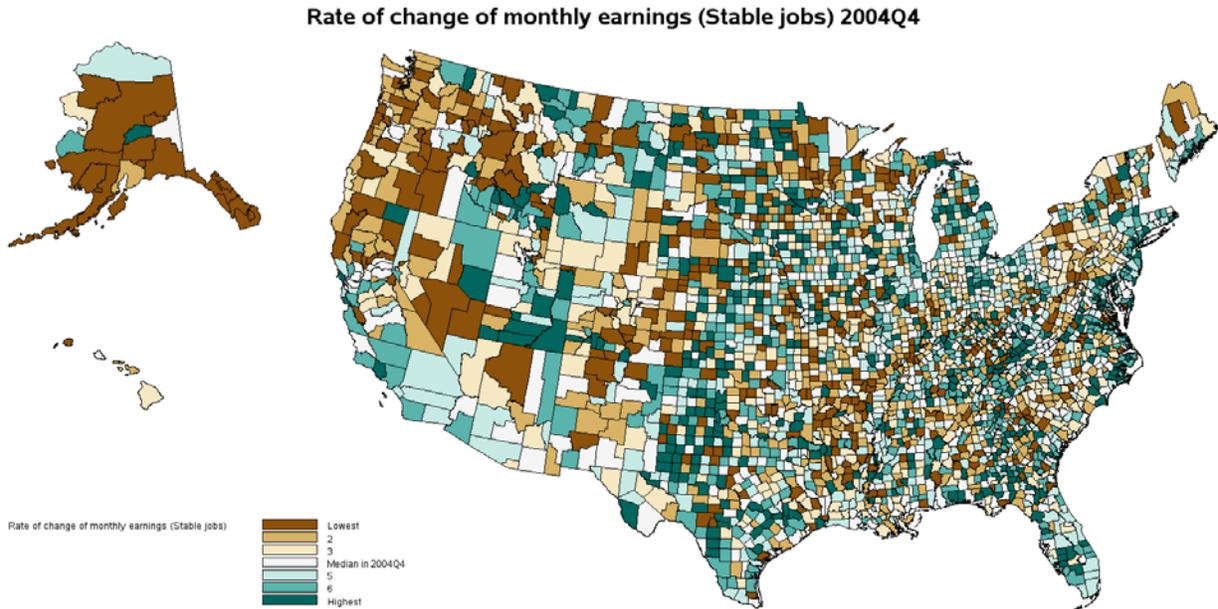
they were the year before (the graph has a stronger brown shade). Further deterioration can be seen in the 2007Q4 map. Then, in 2008Q4 the bottom falls out, and the map goes mostly brown. It continues to be mostly brown in 2009Q4 and 2010Q4. Stable jobs have simply not recovered by 2010Q4 in most of the country.



**Figure 2 Animated Map of the Local Stable Job Growth Rate  
(Click to play animation. Windows Media Player)**

Stable job growth matters because such jobs provide predictable monthly earnings that grow over time at rates that are largely independent of the business cycle. This isn't a profound point. I'm simply saying that a person who has a reliable (read: stable) job can do financial planning and can reasonably expect to have the income that is consistent with the planned consumption even if there is a recession. The bigger risk is losing one's stable job, not suffering a profound earnings cut. Figure 3 provides the animated map of the rate of change of the monthly earnings of stable job holders. You can see that it is just as green in 2010Q4 as it was in 2004Q4, 2007Q4, and 2008Q4, and it is most green in 2009Q4—just after the economy came out of the 2007-2009 recession. The map is brownest in 2005Q4 and 2006Q4. It might seem strange at first, but all the graphic is showing is that those who retained

their stable jobs, did a bit better in 2009Q4 than those who retained their stable jobs in 2004Q4. We already saw in Figure 2 that the growth rate of stable jobs was very low during the period from 2007Q4 on. We'll see in a few minutes that the situation was even worse than those growth rates imply.

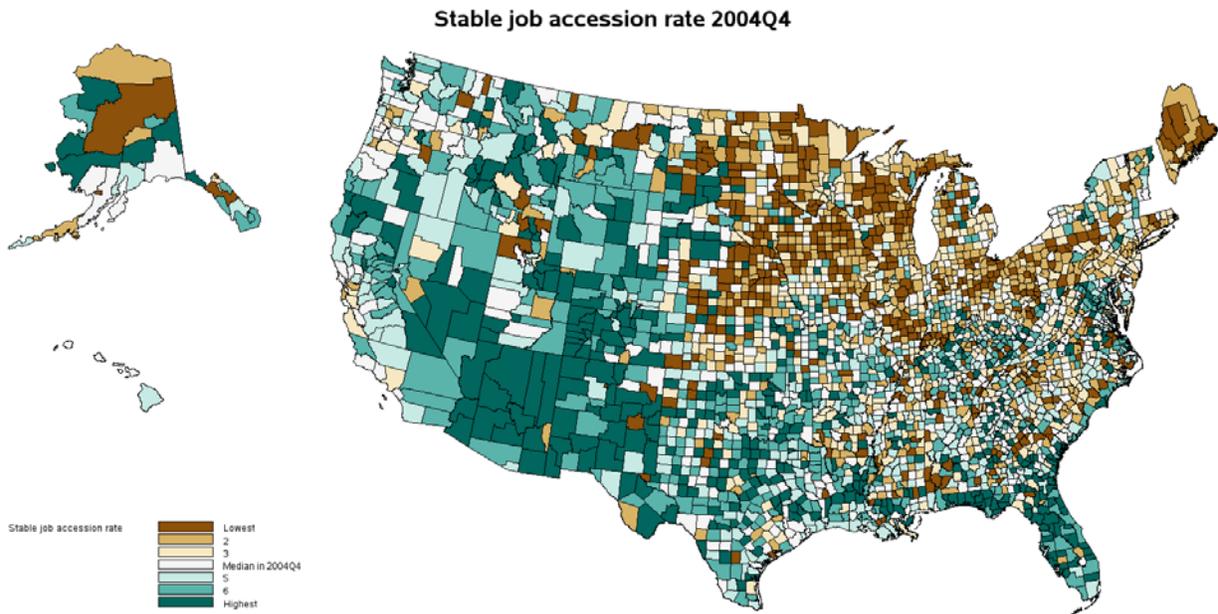


**Figure 3 Animated Map of the Growth Rate of Monthly Earnings of Stable Job Holders  
(Click to play animation. Windows Media Player)**

### ***The Gross Flows of Workers and Jobs: Stable Job Accessions and Creations***

An individual can't enjoy a stable job unless that person is hired into one. The accession rate for stable jobs tells a very dramatic story. As the animation in Figure 4 shows, in 2004Q4 employers were hiring above the median rate for that quarter along the Atlantic coast in the South, along the Gulf coast and in the Southwest. In most of the rest of the country, the rates were either at the median or mildly nearby (light brown, white, and light green). Only the upper Midwest and upper Northeast were the rates substantially below the median. The situation improves substantially in 2005Q4 (much more green), and levels off in 2006Q4 (about the same as in 2004Q4). Then, the stable job accession rate starts to deteriorate markedly in 2007Q4, as the recession starts. By 2008Q4, brown dominates most of the map (worse performance compared to 2004Q4). And in 2009Q4, the country is a sea of dark brown.

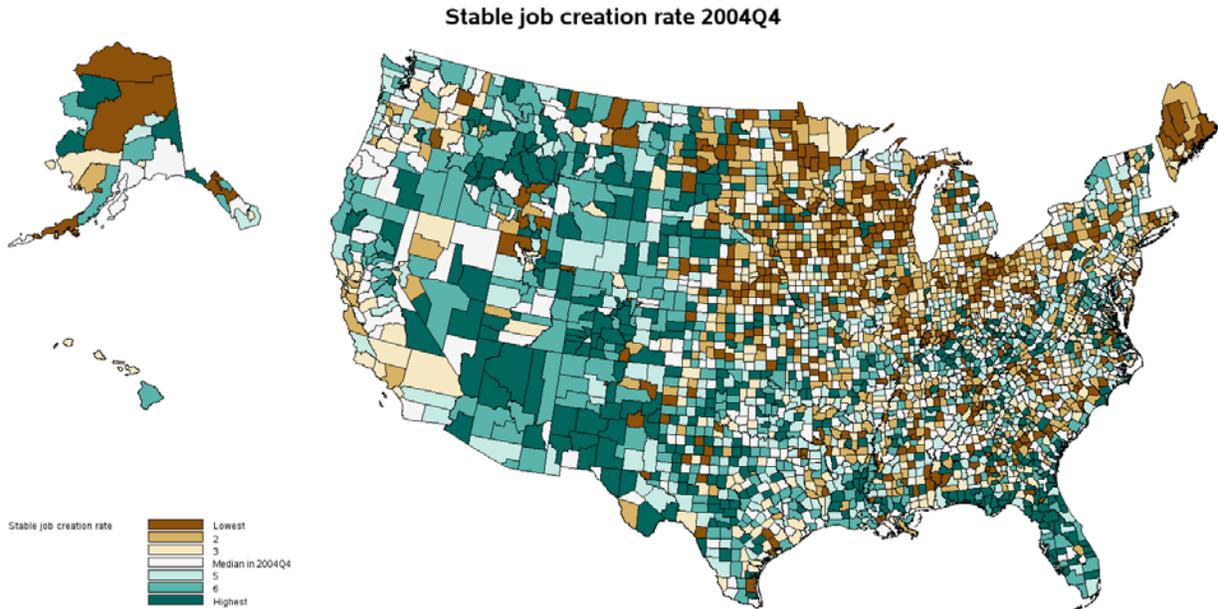
The stable job accession rate has plummeted by this time. Employers are simply not hiring workers and keeping them around very long. The situation has improved by 2010Q4, there is still much more brown (worse performance than the median in 2004Q4). The improvement is a hopeful sign, but there is still a long way to go. From the workers' viewpoint, it remained very difficult to get hired into a stable job in 2010Q4.



**Figure 4 Animated Map of the Local Stable Job Accession Rate  
(Click to play animation. Windows Media Player)**

From the employers' viewpoint, the story is very similar. Figure 5 provides an animated map of the stable job creation rate. From 2004Q4 through 2007Q4, employers created stable jobs at rates that were very similar over time with geographic variation that was also stable across the country. Then, in 2008Q4, the stable job creation rate fell in most local markets to levels below the 2004Q4 baseline (preponderance of light brown in the map). In 2009Q4, the employers created scarcely any jobs compared to the rates in 2004Q4 (preponderance of dark brown in the map). The last quarter of 2010 shows some recovery—the stable job creation rates were increasing, and the map shows rates (and thermal color patterns) that are much closer to those of the baseline period. Recovery of the stable job

creation rate is essential to recovery in the labor market. It puts a floor on the stable job accession rate because a growing business must usually hire more than one person into a stable job to create a new one.

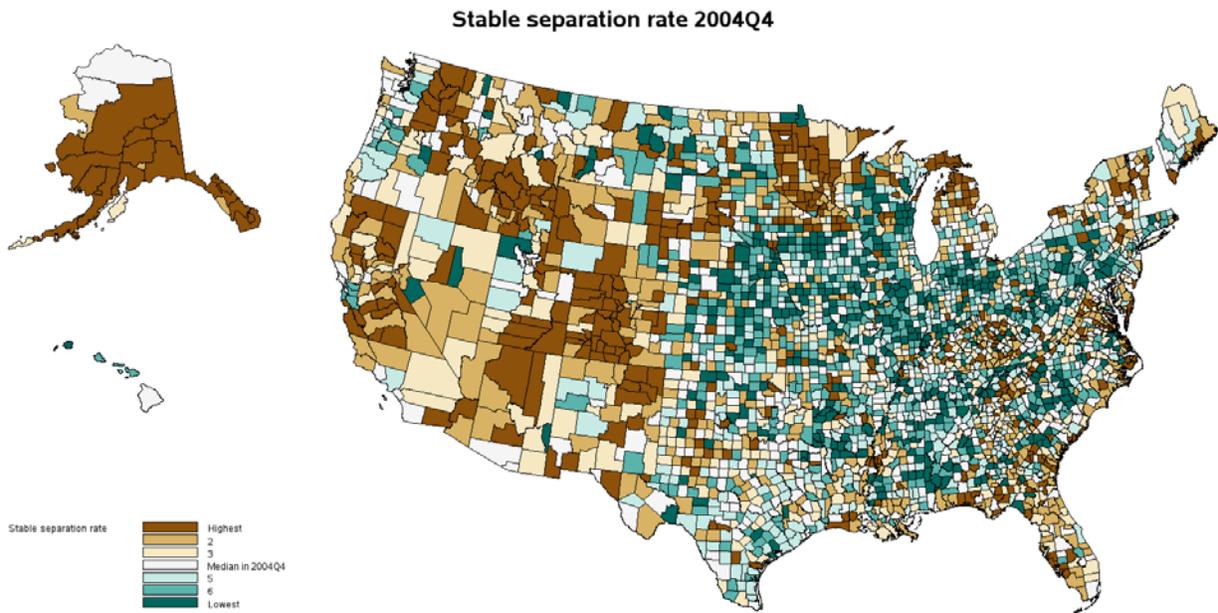


**Figure 5 Animated Map of the Local Stable Job Creation Rate  
(Click to play animation. Windows Media Player)**

***The Gross Flows of Workers and Jobs: Stable Job Separations and Destructions***

Pay very close attention to the information in Figure 6, which shows the pattern of separations from stable jobs (worker flows) and Figure 7, which shows the pattern of stable job destructions (job flows), again with reference to the situation in 2004Q4. In order to make these figures comparable to the other figures in this briefing, the graphs get greener when the separation and job destruction rates go down, not up. They get browner when the separation and job destruction rates increase, not decrease. This is because separations and job destructions have the opposite effect on net employment growth from accessions and job creations. All other factors constant, if separations decline then employment grows, and similarly for job destructions.

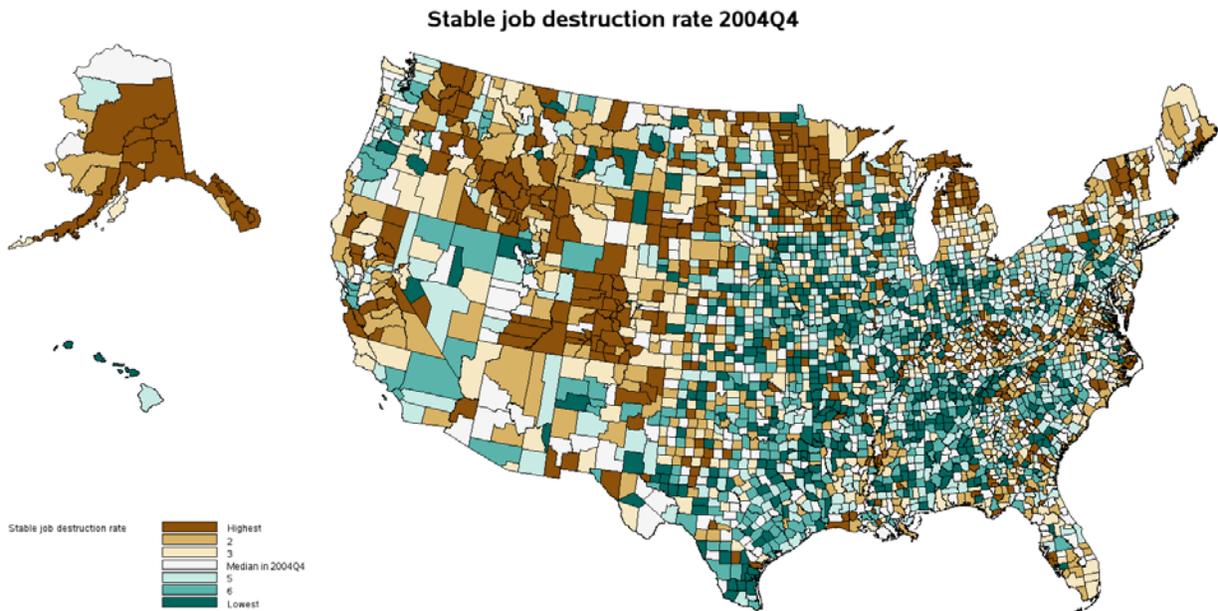
Your eyes are not tricking you. The greenest year in Figure 6 is 2009Q4, right after the recession ended, other years have a mix of brown and green that is quite similar to the reference period 2004Q4. What happened? Separations did indeed slow down during the recession, implying that, from a worker flow viewpoint, much more of the decline in stable employment was due to reduced hiring than increased separations. Other data, primarily from the Current Population Survey and the Job Openings and Labor Turnover Survey, show that the decline in separations occurred because of a decline in quits, while the rate of firing actually increased. Nevertheless, from a worker flow accounting viewpoint, the decline in stable job employment was primarily due the massive decline in stable job accessions documented above.



**Figure 6 Animated Map of the Local Stable Job Separation Rate  
(Click to play animation. Windows Media Player)**

Stable job destructions, as shown in Figure 7, also did not rise precipitously during the recession, although they did rise somewhat after the recession, as shown by the fact that 2010Q4 has more brown shading than the other years. As we saw with the worker flows, it was the precipitous decline in job

creations, and not a large rise in job destructions, that brought about the massive decline in stable jobs that occurred during the recession.



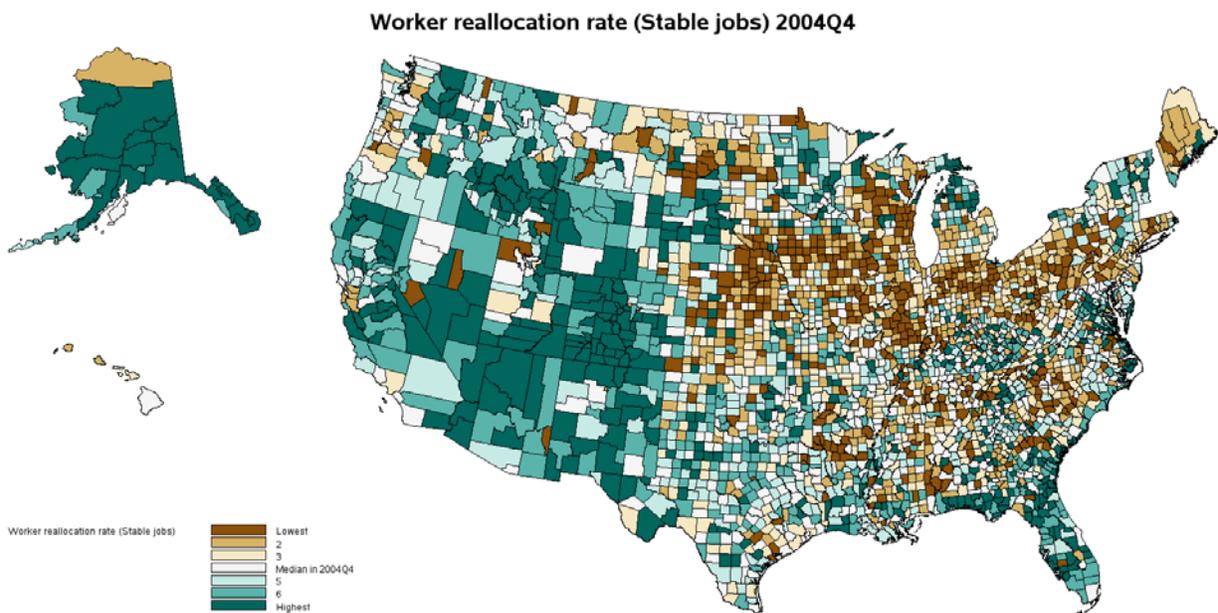
**Figure 7 Animated Map of the Local Stable Job Destruction Rate  
(Click to play animation. Windows Media Player)**

### ***Worker, Job and Excess Reallocation Rates***

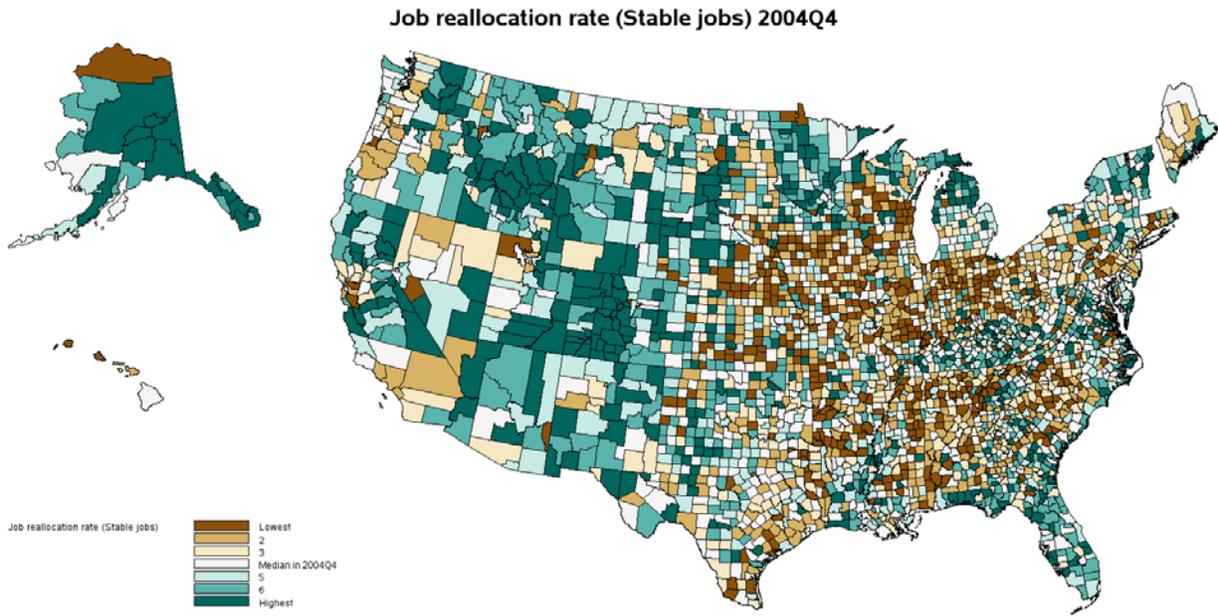
Figures 8, 9 and 10 display the stable job worker, job and excess (churning) reallocation rates. Reallocation rates are somewhat counterintuitive. The worker reallocation rate for stable jobs is the sum (not the difference) of the accession and separation rates for stable jobs. The job reallocation rate is the sum of the stable job creation and destruction rates. Finally, the stable job excess reallocation rate (churning) is the difference between the worker and job reallocation rates.

Figures 8 and 9 demonstrate that both the worker and job reallocation rates fell during the recession, with the declines in the worker reallocation rate being deeper. These two rates are not usually cyclically sensitive, although that view is based primarily on the job reallocation rate for manufacturing, which is the only reallocation rate for the U.S. that has been followed for decades. But look closely at Figure 10. The consequence of the worker reallocation rate falling more during the

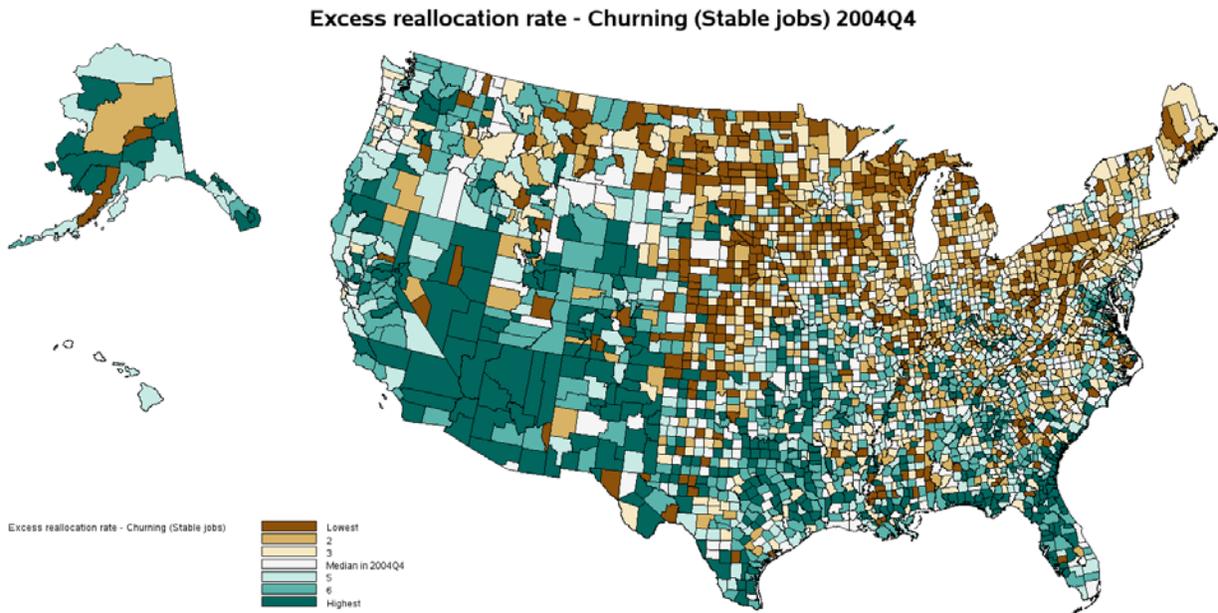
recession than the job reallocation rate, and across many local labor markets, was that churning fell precipitously. Even in 2010Q4 it is very low in many local labor markets (light and dark brown) compared to its level in 2004Q4. Churning is the grease that keeps labor markets flexible and able to adapt to changing conditions. In the U.S., workers and employers both rely on churning to speed adjustments and to allow individual workers to find good matches with employers. The substantial decline in churning that has continued even after the recession has ended is very likely an important contributor to the slow recovery of the labor market.



**Figure 8 Animated Map of the Local Worker Reallocation Rate (Stable Jobs)**  
**(Click to play animation. Windows Media Player)**



**Figure 9 Animated Map of the Local Job Reallocation Rate (Stable Jobs)**  
 (Click to play animation. Windows Media Player)



**Figure 10 Animated Map of the Local Excess Reallocation Rate—Churning (Stable Jobs)**  
 (Click to play animation. Windows Media Player)

## **Conclusion**

I have attempted in this testimony to describe and analyze what happened in the U.S. labor market both spatially and temporally from 2004Q4 to 2010Q4, the latest date for which the Census Bureau source data, the Quarterly Workforce Indicators, are complete enough to do the analysis. More recent data are released every quarter. Some labor market indicators, like the unemployment rate, which is released within weeks of being collected, suggest that this market is finally picking up. Some of the QWIs, following along with much greater delays, support this view. We are waiting to see if the stable job accession rate will continue to improve, since it has a long way to go in most parts of the country before it returns to its pre-recession levels. The stable job destruction rate, on the other hand, while not declining precipitously in most local labor markets during the recession, shows signs of increasing in 2010Q4 data. If this continued throughout 2011, the labor market could stay in its lack-luster state for much longer.

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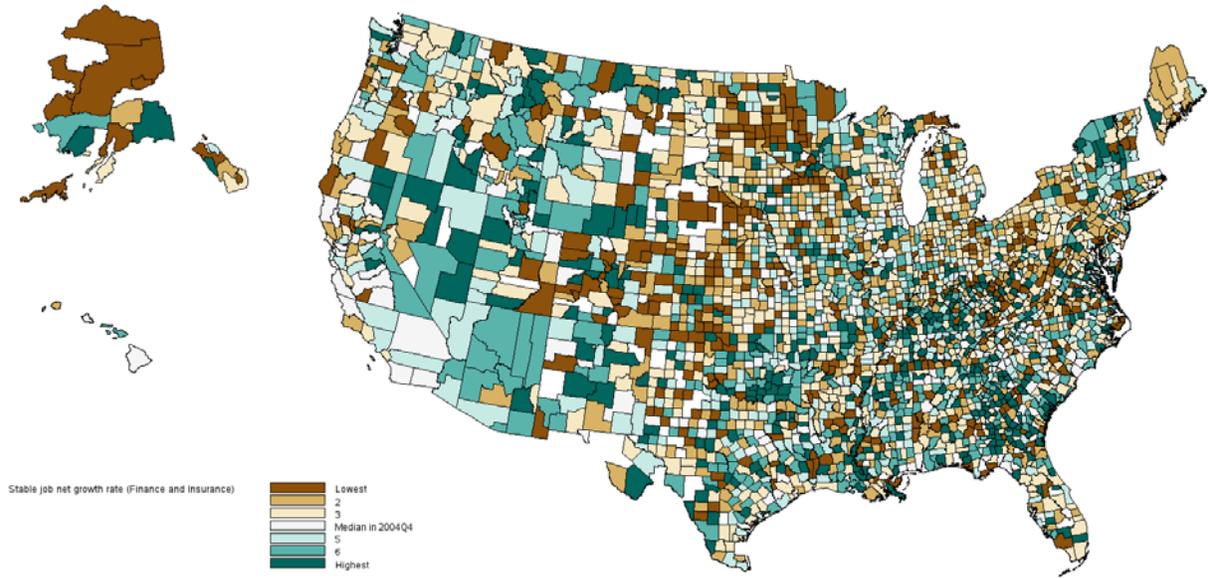
**Appendix: Additional Animated Maps**

This appendix contains maps of the stable job net growth rate for four NAICS sectors that figured prominently in the recession of 2007-2009: Manufacturing, Finance and Insurance, Wholesale and Retail Trade, and Construction.



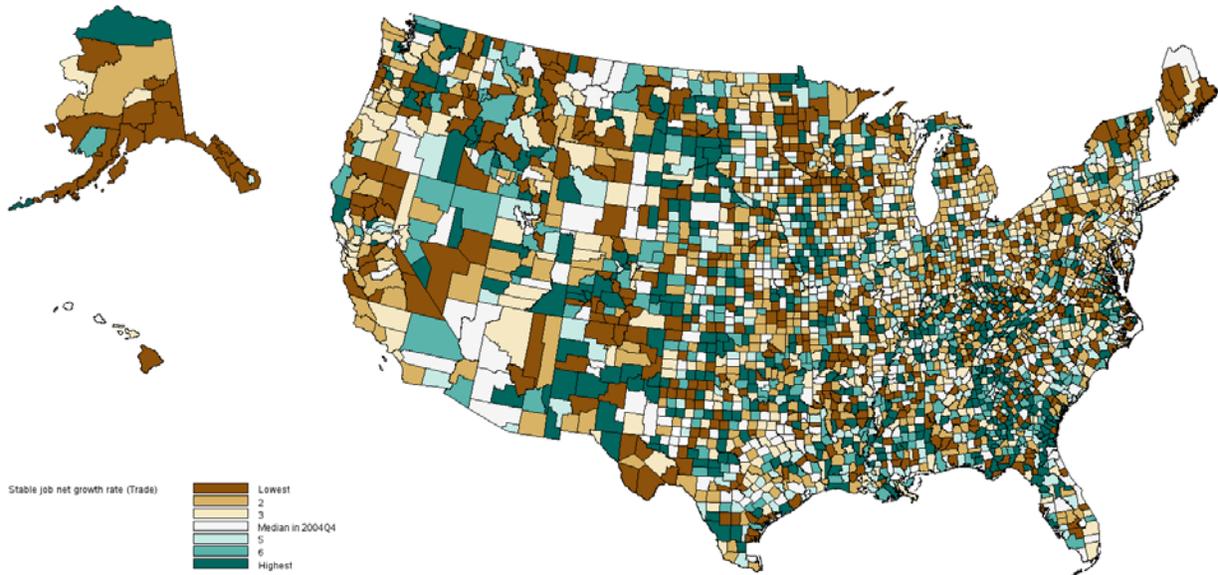
**Appendix Figure 1 Animated Map of the Local Stable Job Net Growth Rate for Manufacturing  
(Click to play animation. Windows Media Player)**

**Stable job net growth rate (Finance and Insurance) 2004Q4**



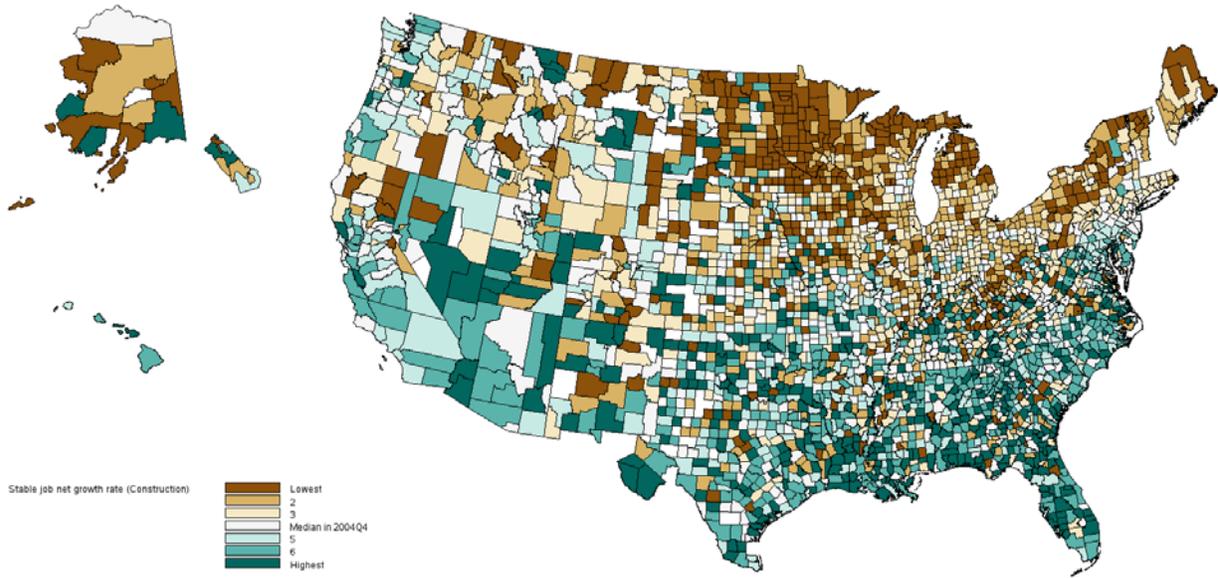
**Appendix Figure 2 Animated Map of the Local Stable Job Growth Rate for Finance and Insurance  
(Click to play animation. Windows Media Player)**

**Stable job net growth rate (Trade) 2004Q4**



**Appendix Figure 3 Animated Map of the Local Stable Job Growth Rate for Wholesale and Retail Trade  
(Click to play animation. Windows Media Player)**

**Stable job net growth rate (Construction) 2004Q4**



**Appendix Figure 4 Animated Map of the Local Stable Job Growth Rate for Construction  
(Click to play animation. Windows Media Player)**

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**February 2012**

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Associate Editor, **Journal of Business and Economic Statistics**, 1983 - 1989.

Editorial Board, **Journal of Applied Econometrics**, 1987 - 1989.

Associate Editor, **Journal of Econometrics**, 1987 - 1989.

**EDUCATION:**

Ph.D. Department of Economics  
University of Chicago, December 1977  
Thesis: An Econometric Model of the U.S.  
Market for Higher Education  
Arnold Zellner, chair.

A.M. Department of Economics  
University of Chicago, August 1975.

A.B. Department of Economics (with highest honors)  
University of Notre Dame, May 1973.

**LANGUAGES:** French (spoken and written)

**HONORS AND FELLOWSHIPS:**

Chair-elect (2012) Business and Economic Statistics Section American Statistical Association (Chair in 2013)

Second Vice President, Society of Labor Economists, 2011 (President in 2014)

Fellow, American Statistical Association, elected August 2009

Fellow, Society of Labor Economists, elected November 2006

La bourse de haut niveau du Ministère de la Recherche et de la Technologie, fellowship for research at the Institut National de la Statistique et des Etudes Economiques (INSEE) awarded by the French Government, September 1991 - February 1992.

National Institute of Mental Health postdoctoral fellow at NORC, September 1978 - August 1980.

National Institute of Mental Health pre-doctoral fellow at the University of Chicago, September 1973 - June 1976.

### **TEACHING EXPERIENCE:**

- Graduate:
- Seminar in Labor Economics I (Cornell)
  - Social and Economic Data (Cornell and other universities with RDCs)
  - Microéconométrie des Données Appariées (CREST, in French)
  - Microéconométrie du Travail (Université de Paris I, in French)
  - Economie du Travail (Université de Paris II, in French)
  - Seminar in Labor Economics III (Cornell)
  - Economics of Compensation and Organization (Cornell)
  - International Human Resource Management (Cornell)
  - Corporate Finance (Hautes Etudes Commerciales, Paris)
  - International Human Resource Management (HEC, Paris)
  - Seminar in Labor Economics II (Cornell)
  - Workshop in Labor Economics (Cornell)
  - Economics of Collective Bargaining (Cornell)
  - Executive Compensation (Cornell)
  - Labor Economics (MIT)
  - Labor and Public Policy (MIT)
  - Applied Econometrics I, II (Chicago)
  - Introduction to Industrial Relations (Chicago)
  - Econometric Theory I (Chicago)
  - Industrial Relations and International Business (Chicago)
  - Workshop in Economics and Econometrics (Chicago)
  - Econometric Analysis of Time Series (Princeton)
  - Mathematics for Economists (Princeton)
- Undergraduate:
- Social and Economic Data (Cornell)
  - Introductory Microeconomics (Cornell)
  - Economics of Employee Benefits (Cornell)
  - Economics of Wages and Employment (Cornell)

Corporate Finance (Cornell)  
Introduction to Econometrics (Princeton)  
Microeconomics (Princeton)

## **BIBLIOGRAPHY:**

Books: *The Microeconometrics of Human Resource Management*, special issue of *Annales d'économie et de statistique* 41/42 (Paris: ADRES, January/June 1996) co-editor with Francis Kramarz.

*Immigration, Trade and the Labor Market* (Chicago: University of Chicago Press for the National Bureau of Economic Research, 1991) co-editor with Richard B. Freeman.

Articles: “Did the Housing Price Bubble Clobber Local Labor Markets When It Burst?” *American Economic Review Papers and Proceedings* (May 2012): forthcoming. (with Lars Vilhuber)

“An Application of Differentially Private Linear Mixed Modeling,” PADM 2011. (a workshop of ICDM 2011, with Matthew Schneider)

“Towards Unrestricted Public Use Business Microdata: The Synthetic Longitudinal Business Database,” *International Statistical Review*, Vol. 79, No. 2 (2011):362-84, DOI: 10.1111/j.1751-5823.2011.00153.x. (with Satkartar K. Kinney (lead author), Jerome P. Reiter, Arnold P. Reznick, Javier Miranda, Ron S. Jarmin)

“National Estimates of Gross Employment and Job Flows from the Quarterly Workforce Indicators with Demographic and Industry Detail,” *Journal of Econometrics*, Vol. 161, (March 2011): 82-99, DOI: 10.1016/j.jeconom.2010.09.008. (with Lars Vilhuber)

“The LEHD Infrastructure Files and the Creation of the Quarterly Workforce Indicators” in T. Dunne, J.B. Jensen and M.J. Roberts, eds., *Producer Dynamics: New Evidence from Micro Data* (Chicago: University of Chicago Press for the National Bureau of Economic Research, 2009), pp. 149-230. (with Bryce Stephens, Lars Vilhuber, Fredrik Andersson, Kevin L. McKinney, Marc Roemer, and Simon Woodcock)

“The Link between Human Capital, Mass Layoffs, and Firm Deaths” in T. Dunne, J.B. Jensen and M.J. Roberts, eds., *Producer Dynamics: New Evidence from Micro Data* (Chicago: University of Chicago Press for the National Bureau of Economic Research, 2009), pp. 447-472. (with Kevin McKinney and Lars Vilhuber)

“How Protective are Synthetic Data,” in J. Domingo-Ferrer and Y. Saygun, eds., *Privacy in Statistical Databases*, (Berlin: Springer-Verlag, 2008), pp. 239-246. (with Lars Vilhuber)

“Econometric Analyses of Linked Employer-Employee Data,” in L. Mátyás and P. Sevestre, eds., *The Econometrics of Panel Data* (The Netherlands: Springer, 2008), pp. 727-760. (with Francis Kramarz and Simon Woodcock)

“Wage Structure and Labor Mobility in the United States,” in E. P. Lazear and K. L. Shaw, eds., *Wage Structure, Raises, and Mobility: International Comparisons of the Structure of Wages within and Across Firms* (Chicago: University of Chicago Press for the National Bureau of Economic Research, 2008), pp. 81-100. (with John Haltiwanger and Julia Lane)

“Privacy: Theory Meets Practice on the Map,” *International Conference on Data Engineering* (ICDE) 2008: 277-286. (with Ashwin Machanavajjhala, Daniel Kifer, Johannes Gehrke, and Lars Vilhuber)

“Human Capital and Worker Productivity: Direct Evidence from Linked Employer-Employee Data,” *Annales d’Economie et de Statistique*, No. 79/80, (Juillet/Décembre 2005): 323-338. (with Francis Kramarz)

“Using Mahalanobis Distance-Based Record Linkage for Disclosure Risk Assessment,” in J. Domingo-Ferrer and Luisa Franconi (eds.) *Privacy in Statistical Databases* (Berlin: Springer-Verlag, 2006), pp. 233-242. (with J. Domingo-Ferrer and V. Torra)

“Wages, Mobility and Firm Performance: Advantages and Insights from Using Matched Worker-Firm Data,” *Economic Journal*, Vol. 116, (June 2006): F245–F285. (with Francis Kramarz and Sébastien Roux)

“Heterogeneity in Firms’ Wages and Mobility Policies,” in H. Bunzel, B.J. Christensen, G.R. Neumann and J-M. Robin, eds., *Structural Models of Wage and Employment Dynamics*, (Amsterdam: Elsevier Science, 2006), pp. 237-268. (with Francis Kramarz and Sébastien Roux)

“The Sensitivity of Economic Statistics to Coding Errors in Personal Identifiers,” *Journal of Business and Economics Statistics*, Vol. 23, No. 2 (April 2005): 133-152, *JBES* Joint Statistical Meetings invited paper with discussion and “Rejoinder” (April 2005): 162-165 (with Lars Vilhuber).

“The Relation among Human Capital, Productivity and Market Value: Building Up from Micro Evidence,” in *Measuring Capital in the New Economy*, C. Corrado, J. Haltiwanger, and D. Sichel (eds.), (Chicago: University of Chicago Press for the NBER, 2005), Chapter 5, pp. 153-198. (with John Haltiwanger, Ron Jarmin, Julia Lane, Paul Lengermann, Kristin McCue, Kevin McKinney, and Kristin Sandusky)

“Multiply-Imputing Confidential Characteristics and File Links in Longitudinal Linked Data,” in J. Domingo-Ferrer and V. Torra (eds.) *Privacy in Statistical Databases* (Berlin: Springer-Verlag, 2004), pp. 290-297. (with Simon Woodcock)

“New Approaches to Confidentiality Protection: Synthetic Data, Remote Access and Research Data Centers,” in J. Domingo-Ferrer and V. Torra (eds.) *Privacy in Statistical Databases* (Berlin: Springer-Verlag, 2004), pp. 282-289. (with Julia Lane)

“Integrated Longitudinal Employee-Employer Data for the United States,” *American Economic Review Papers and Proceedings*, Vol. 94, No. 2 (May 2004): 224-229. (with John Haltiwanger and Julia Lane)

“The Costs of Hiring and Separations,” *Labour Economics*, Vol. 10, Issue 5 (October 2003): 499-530. (with Francis Kramarz)

“Unlocking the Information in Integrated Social Data,” *New Zealand Economic Papers*, 0077-9954, Vol. 36, No. 1 (June 2002): 9-31.

“Using Price Indices and Sale Rates to Assess Short Run Changes in the Market for Impressionist and Contemporary Paintings” in *The Economics of Art Auctions*, G. Masetto and M. Vecco (eds.), (Milan: F. Angeli Press, 2002). (with Orley Ashenfelter)

“Disclosure Limitation in Longitudinal Linked Data,” in *Confidentiality, Disclosure and Data Access: Theory and Practical Applications for Statistical Agencies*, P. Doyle, J. Lane, J. Theeuwes, and L. Zayatz (eds.), (Amsterdam: North Holland, 2001), 215-277. (with Simon Woodcock)

“Moment Estimation with Attrition: An Application to Economic Models,” *Journal of the American Statistical Association*, 96, No. 456 (December 2001): 1223-1231. (with Bruno Crépon and Francis Kramarz)

“The Relative Importance of Employer and Employee Effects on Compensation: A Comparison of France and the United States,” *Journal of the Japanese and International Economies*. Vol. 15, No. 4, (December 2001): 419-436. (with Francis Kramarz, David Margolis, and Kenneth Troske)

“Design and Conceptual Issues in Realizing Analytical Enhancements through Data Linkages of Employer and Employee Data” in the *Proceedings of the Federal Committee on Statistical Methodology*, November 2000. (with Julia Lane and Ronald Prevost)

“Politiques salariales et performances des entreprises : une comparaison France/Etats-Unis,” *Economie et Statistique*, No. 332-333 (2000): 27-38. [Corporate Wage Policies and Performances: Comparing France with the United States] (with Francis Kramarz, David Margolis and Kenneth Troske)

“Executive Compensation: Six Questions That Need Answering,” *Journal of Economic Perspectives*, 13 (1999): 145-168. (with David Kaplan)

“The Entry and Exit of Workers and the Growth of Employment: An Analysis of French Establishments” *Review of Economics and Statistics*, 81(2), (May 1999): 170-187. (with Patrick Corbel and Francis Kramarz)

“Econometric Analysis of Linked Employer-Employee Data,” *Labour Economics*, 6 (March 1999): 53-74. (with Francis Kramarz)

“Individual and Firm Heterogeneity in Compensation: An Analysis of Matched Longitudinal Employer-Employee Data for the State of Washington” in J. Haltiwanger *et al.* (eds.) *The Creation and Analysis of Employer-Employee Matched Data*, (Amsterdam: North Holland, 1999), pp. 3-24 (with Hampton Finer and Francis Kramarz).

“The Analysis of Labor Markets Using Matched Employer-Employee Data,” in O. Ashenfelter and D. Card (eds.) *Handbook of Labor Economics*, Volume 3(B), Chapter 40 (Amsterdam: North Holland, 1999), pp. 2629-2710. (with Francis Kramarz)

“High Wage Workers and High Wage Firms,” *Econometrica*, 67(2) (March 1999): 251-333. (with Francis Kramarz and David Margolis)

“Minimum Wages and Youth Employment in France and the United States,” in D. Blanchflower and R. Freeman (eds.) *Youth Employment and Joblessness in Advanced Countries* (Chicago: University of Chicago Press, 1999), pp. 427-472. (with Francis Kramarz, Thomas Lemieux, and David Margolis)

“Internal and External Labor Markets: An Analysis of Matched Longitudinal Employer-Employee Data” in J. Haltiwanger, M. Manser, and R. Topel (eds.) *Labor Statistics and Measurement Issues* (Chicago: University of Chicago Press, 1998), pp. 357-370. (with Francis Kramarz)

“The Relative Importance of Employer and Employee Effects on Compensation: A Comparison of France and the United States,” in *Comparaisons internationales de salaires* (Paris: Ministère du travail et des affaires sociales and INSEE, 1996), pp. 315-327. (with Francis Kramarz, David Margolis and Kenneth Troske)

“Compensation Structure and Product Market Competition,” *Annales d'économie et de statistique*, (January/June 1996, No. 41/42): 207-217. (with Laurence Allain)

“Product Quality and Worker Quality,” *Annales d'économie et de statistique*, (January/June 1996, No. 41/42): 300-322. (with Francis Kramarz and Antoine Moreau)

“The Microeconometrics of Human Resource Management: International Studies of Firm Practices, Introduction and Overview,” *Annales d'économie et de statistique*, (January/June 1996, No. 41/42): 1-9 (French), 11-19 (English). (with Francis Kramarz)

“Les Politiques Salariales : Individus et Entreprises” (Compensation Policies: Individuals and Firms), *Revue Economique* 47 (May 1996): 611-622. (with Francis Kramarz)

“The Economic Analysis of Compensation Systems: Collective and Individual” in Norman Bowes and Alex Grey, eds. *Job Creation and Loss: Analysis, Policy and Data Development* (Paris: OECD, 1996), pp. 47-54. (with Francis Kramarz)

“International Differences in Executive and Managerial Compensation” in R.B. Freeman and L. Katz, eds. *Differences and Changes in Wage Structures* (Chicago: NBER, 1995), pp. 67-103. (with Michael Bognanno)

“The Effects of Product Market Competition on Collective Bargaining Agreements: The Case of Foreign Competition in Canada,” *Quarterly Journal of Economics* 108 (November 1993): 983-1014. (with Thomas Lemieux)

“A Test of Negotiation and Incentive Compensation Models Using Longitudinal French Enterprise Data,” in J.C. van Ours, G.A. Pfann and G. Ridder, eds. *Labour Demand and Equilibrium Wage Formation Contributions to Economic Analysis* (Amsterdam: North-Holland, 1993), pp. 111-46. (with Francis Kramarz)

“The Internationalization of the U.S. Labor Market,” in J.M. Abowd and R.B. Freeman, eds. *Immigration, Trade and the Labor Market* (Chicago: NBER, 1991), pp. 1-25. (with Richard Freeman)

“The Effects of International Competition on Collective Bargaining Outcomes: A Comparison of the United States and Canada,” in J.M. Abowd and R.B. Freeman, eds. *Immigration, Trade and the Labor Market* (Chicago: NBER, 1991), pp. 343-67. (with Thomas Lemieux)

“The NBER Trade and Immigration Data Files,” in J.M. Abowd and R.B. Freeman, eds. *Immigration, Trade and the Labor Market* (Chicago: NBER, 1991), pp. 407-21.

“Does Performance-based Compensation Affect Corporate Performance?” *Industrial and Labor Relations Review* 43:3 (February 1990): 52S-73S. Reprinted in *Do Compensation Policies Matter?* R.G. Ehrenberg, ed. (Ithaca, NY: ILR Press, 1990), pp. 52-73.

“The Effects of Human Resource Management Decisions on Shareholder Value,” *Industrial and Labor Relations Review* 43:3 (February 1990): 203S-236S. (with George Milkovich and John Hannon) Reprinted in *Do Compensation Policies Matter?* R.G. Ehrenberg, ed. (Ithaca, NY: ILR Press, 1990), pp. 203-236.

“The Effect of Wage Bargains on the Stock Market Value of the Firm,” *American Economic Review* 79:4 (September 1989): 774-800. (working paper title: “Collective Bargaining and the Division of the Value of the Enterprise.”)

“Market Structure, Strike Activity, and Union Wage Settlements,” *Industrial Relations* 57:2 (Spring 1989): 227-50. (with Joseph Tracy)

“On the Covariance Structure of Earnings and Hours Changes,” *Econometrica* 57:2 (March, 1989): 411-45. (with David Card)

“Disaggregated Wage Developments,” *Brookings Papers on Economic Activity* (1:1988): 313-46. (with Wayne Vroman)

“Intertemporal Labor Supply and Long Term Employment Contracts,” *American Economic Review* 77:1 (March 1987): 50-68. (with David Card)

“Abandoning the Myth of the Modern MBA Student,” *Selections The Magazine of the Graduate Management Admission Council* (Autumn 1986): 9-21. (with Ross Stolzenberg and Roseann Giarusso)

“New Development in Longitudinal Data Collection for Labor Market Analysis: Collective Bargaining Data,” *American Statistical Association 1985 Proceedings of the Business and Economic Statistics Section* (Washington, DC: ASA, 1985). (invited paper)

“Estimating Gross Labor Force Flows,” *Journal of Business and Economic Statistics* 3 (July 1985): 254-283. (with Arnold Zellner)

“Application of Adjustment Techniques to U.S. Gross Flow Data,” *Gross Flows in Labor Force Statistics*, edited by Paul Flaim and Carma Hogue, Bureau of the Census/Bureau of Labor Statistics Conference Volume (Washington, DC: GPO, 1985). (with Arnold Zellner)

“Employment, Wages, and Earnings of Hispanics in the Federal and Nonfederal Sectors: Methodological Issues and Their Empirical Consequences,” in *Hispanics in the U.S. Economy*, edited by G. Borjas and M. Tienda (New York: Academic Press, 1985), pp. 77-125. (with Mark Killingsworth)

“Economic and Statistical Analysis of Discrimination in Job Assignment,” *Industrial Relations Research Association Proceedings of the Thirty-Sixth Annual Meetings* (Madison, WI: IRRA, 1984), pp. 34-47. (invited paper)

“Do Minority/White Unemployment Differences Really Exist,” *Journal of Business and Economic Statistics* 2 (January 1984): 64-72. (with Mark Killingsworth)

“Estimating Gross Labor Force Flows,” *American Statistical Association 1983 Proceedings of the Business and Economic Statistics Section* (Washington, DC: ASA, 1983), pp. 162-67. (with Arnold Zellner)

“Sex Discrimination, Atrophy and the Male-Female Wage Differential,” *Industrial Relations* 22 (Fall 1983): 387-402. (with Mark Killingsworth)

“Job Queues and the Union Status of Workers,” *Industrial and Labor Relations Review* 35 (April 1982): 354-67. (with Henry Farber)

“Anticipated Unemployment, Temporary Layoffs and Compensating Wage Differentials,” in *Studies in Labor Markets*, edited by S. Rosen (Chicago: University of Chicago Press for the NBER, 1981), pp. 141-170. (with Orley Ashenfelter)

“An Econometric Model of Higher Education,” in *Managing Higher Education: Economic Perspectives*, A Monograph of the Center for the Management of Public and Nonprofit Enterprises (Chicago: University of Chicago Press, 1981), pp. 1-56.

“Estimating the Union/Nonunion Wage Differential: A Statistical Issue,” *Economica*, 47 (February 1980): 73-79. (with Charles Mulvey)

“Teenage Mothers, Labor Force Participation, and Wage Rates,” *Canadian Studies in Population* (1980): 33-48. (with T. James Trussell)

## Monographs:

*Final Report to the Social Security Administration on the SIPP/SSA/IRS Public Use File Project*, November 2006, available online at <http://www.bls.census.gov/sipp/SSAfinal.pdf>, cited May 15, 2008. (with Martha Stinson and Gary Benedetto)

“The Center for Advanced Human Resource Studies Managerial Compensation Database: User’s Guide,” March 1991 (with Michael Bognanno).

“The Center for Advanced Human Resource Studies Managerial Compensation Database: Technical Guide,” March 1991 (with Michael Bognanno).

*An Econometric Model of the U.S. Market for Higher Education* (New York: Garland Press, 1984).

“Employment, Wages, and Earnings of Hispanics in the federal and Nonfederal Sectors,” in *Hispanics in the Labor Force: A Conference Report*, edited by G. Borjas and M. Tienda. Final Report to the National Employment Policy commission (Washington, DC: GPO, 1982). (with Mark Killingsworth)

“Program Evaluation: New Panel Data Methods for Evaluating Training Effects,” in *Program Evaluation Final Report to the U.S. Department of Labor* (Contract No. 23-17-80-01) (Washington, DC: NTIS, 1983)

“Minority Unemployment, Compensating Differentials and the Effectiveness of the EEOC,” in *Issues in Minority and Youth Unemployment final Report to the U.S. Department of Labor* (Contract No. 20-17-80-44) (Washington, DC: NTIS, 1982)

“Structural Models of the Effects of Minimum Wages on Employment by Age Groups,” *Final Report of the Minimum Wage Study Commission*, Volume 5 (Washington, DC: GPO, 1981). (with Mark Killingsworth)

“An Analysis of Hispanic Employment, Earnings and Wages with Special Reference to Puerto Ricans,” *Final Report to the U.S. Department of Labor* (Grant 21-36-78-61) (Washington, DC: NTIS, 1981). (with Mark Killingsworth)

## Miscellany:

“Science, Confidentiality, and the Public Interest,” *Chance*, Vol. 24, No. 3 (Fall 2011): 58-62. (with Lars Vilhuber)

“OnTheMap: Block-level Job Estimates Based on Longitudinally Integrated Employer-Employee Micro-data,” *Association of Public Data Users Newsletter* Vol. 33, No. 2 (March/April 2010): 10-19.

“First Issue Editorial” *Journal of Privacy and Confidentiality*, Vol. 1, No. 1 (2009): 1-6. (with Kobbi Nissim and Chris Skinner)

“Comments on “Regional difference-in-differences in France using the German annexation of Alsace-Moselle in 1870-1918” by Matthieu Chemin and Etienne Wasmer” *NBER International Seminar on Macroeconomics* (2008): 306-309.

“Synthetic Data for Administrative Record Applications at LEHD,” (2008) available online in the LEHD Presentations Library at <http://lehd.did.census.gov/led/library/presentations/Wu-Abowd-20070831.pdf>. (with Jeremy Wu)

“The Economics of Data Confidentiality,” *ICP Bulletin*, Volume 4, No. 2 (August 2007): 1, 18-21. (with Julia Lane)

“Rapporteur comments: International Symposium on Linked Employer-Employee Data, Econometric Issues” *Monthly Labor Review*, 121:7 (July, 1998): 52-53.

“Discussion of ‘How much do immigration and trade affect labor market outcomes?’ by George J. Borjas, Richard B. Freeman and Lawrence F. Katz,” *Brookings Papers in Economic Activity* (1997): 76-82.

“Discussion of Discussion of ‘Gross Worker and Job Flows in Europe’ by M. Burda and C. Wyplosz.” *European Economic Review* (1994): 1316-1320.

“Discussion of ‘The Quality Dimension in Army Retention’ by Charles Brown.” in A. Meltzer (ed.) *The Carnegie-Rochester Conference on Public Policy* 33 (1990).

“Immigration, Trade, and Labor Markets in Australia and Canada,” in *Immigration, Trade, and the Labor Market*, edited by R.B. Freeman (Cambridge, Mass: NBER, 1988), pp. 29-34.

“Discussion of ‘Public Sector Union Growth and Bargaining Laws: A Proportional Hazards Approach with Time-Varying Treatments’ by c. Ichniowski.” in *Public Sector Unionism*, edited by R. Freeman (Chicago: University of Chicago Press for the NBER, 1988).

“The Bayesian Regression Analysis Package: BRAP User’s Manual Version 2.0,” H.G.B. Alexander Research Foundation, Graduate School of Business, University of Chicago, 1985. (with Brent Moulton and Arnold Zellner)

“The Minimum Wage Law Winners and Losers,” *The Wall Street Journal* (August 1981). (with Mark Killingsworth)

- Working Papers: “Dynamically Consistent Noise Infusion as Confidentiality Protection,” Federal Committee on Statistical Methodology Conference January 2012. (with Kaj Gittings, Kevin L. McKinney, Bryce Stephens, Lars Vilhuber, and Simon Woodcock)
- “Estimating Measurement Error in SIPP Annual Job Earnings: A Comparison of Census Bureau Survey and SSA Administrative Data,” May 2011 (with Martha H. Stinson).
- “A Formal Test of Assortative Matching in the Labor Market,” April 2010. (with Francis Kramarz, Sébastien Perez-Duarte, and Ian Schmutte)
- “Access Methods for United States Microdata” August 2007. (with Daniel Weinberg, Samuel Rowland, Philip Steel and Laura Zayatz)
- “Technology and Skill: An Analysis of Within and Between Firm Differences” March 2007. (with John Haltiwanger, Julia Lane, Kevin McKinney and Kristin Sandusky)
- “Minimum Wages and Employment in France and the United States,” July 2006. (with Francis Kramarz and David Margolis and Thomas Philippon)
- “Persistent Inter-Industry Wage Differences: Rent Sharing and Opportunity Costs” July 2005. (with Francis Kramarz, Paul Lengermann, and Sébastien Roux)
- “Who You Are vs. Where You Work: Using a Mixed-Effects Model to Decompose Wages” January 2005. (with Robert Creecy and Kevin McKinney)
- “The Measurement of Human Capital in the U.S. Economy,” March 2003. (with Paul Lengermann and Kevin McKinney)
- “Computing Person and Firm Effects Using Linked Longitudinal Employer-Employee Data,” March 2002. (with Robert Creecy and Francis Kramarz)

#### **MAJOR GRANTS AND RESEARCH CONTRACTS:**

NCRN-MN: Cornell NSF-Census Research Node: Integrated Research Support, Training and Data Documentation, National Science Foundation Grant SES [1131848](#) awarded to Cornell University, October 1, 2011—September 30, 2016, \$2,999,614. (with William Block, Ping Li, and Lars Vilhuber)

A Census-Enhanced Health and Retirement Study: A Proposal to Create and Analyze an HRS Dataset Enhanced with Characteristics of Employers, Alfred P. Sloan Foundation grant awarded to the Institute for Social Research, University of Michigan with a subcontract to Cornell University, September 1, 2011—August 31, 2014, Cornell component \$349,608. (Margaret Levenstein, lead PI; other co-PIs: Matthew Shapiro, Kristin McCue and David Weir)

Synthetic Data User Testing and Dissemination, National Science Foundation Grant SES [1042181](#) awarded to Cornell University, September 15, 2010—September 14, 2013, \$197,170. (with Lars Vilhuber)

CDI-Type II: Collaborative Research: Integrating Statistical and Computational Approaches to Privacy, National Science Foundation Grant BCS [0941226](#) awarded to Cornell University, September 1, 2010—August 31, 2014, \$409,296. (with Aleksandra B Slavkovic, Stephen E. Fienberg Sofya Raskhodnikova, and Adam Smith)

TC:Large: Collaborative Research: Practical Privacy: Metrics and Methods for Protecting Record-level and Relational Data, National Science Foundation Grant TC [1012593](#) awarded to Cornell University, July 15, 2010 to July 14, 2015, \$1,326,660. (with Johannes Gehrke, Gerome Miklau, and Jerome Reiter)

[The Longitudinal Employer-Household Dynamics Program](#), U.S. Bureau of the Census, Interagency Personnel Act (IPA) with Cornell University, September 18, 1998 – September 17, 2000, \$260,000; renewed September 14, 2000—September 13, 2002, \$320,000; contract renewed as consultant September 14, 2002—September 13, 2003 (\$120,000); renewed as IPA September 15, 2003—September 14, 2005 (\$384,590); renewed as IPA September 15, 2005—September 14, 2007 (\$425,215); new September 15, 2008—September 14, 2010 (\$497,897); renewed September 15, 2010—September 14, 2012 (\$532,893).

Social Science Gateway to TeraGrid, National Science Foundation Grant SES [0922005](#) awarded to Cornell University, July 1, 2009 to June 30, 2012, \$393,523. (with Lars Vilhuber)

Joint NSF-Census-IRS Workshop on Synthetic Data and Confidentiality Protection, July 2009 Washington, DC, National Science Foundation Grant SES [0922494](#) awarded to Cornell University, July 1, 2009 to June 30, 2011, \$18,480. (with Lars Vilhuber, Jerome Reiter, and Ron Jarmin)

The Economics of Mass Layoffs: Displaced Workers, Displacing Firms, Causes and Consequences, National Science Foundation Grant SES-[0820349](#) awarded to Cornell University, October 1, 2008 to September 30, 2010, \$245,950. (with Lars Vilhuber)

LEHD Developmental and Confidentiality Research, Census Bureau Contract to Abt Associates with subcontract awarded to Cornell University, August 1, 2007 to September 30, 2008, \$358,270.

CT-T: Collaborative Research: Preserving Utility While Ensuring Privacy for Linked Data, National Science Foundation Grant CNS [0627680](#) awarded to Cornell University, September 5, 2006 to August 31, 2009, \$736,132. (with Johannes Gehrke)

LEHD Confidentiality Research, Census Bureau Contract to Abt Associates with subcontract awarded to Cornell University, October 1, 2004 to September 30, 2005, \$230,155.

ITR-(ECS+ASE)-(dmc+int): Info Tech Challenges for Secure Access to Confidential Social Science Data, National Science Foundation Grant SES [0427889](#) awarded to Cornell University, October 1, 2004 to September 30, 2009, \$2,938,000. (with Matthew D. Shapiro, Ronald Jarmin, Stephen F. Roehrig, and Trivellore Raghunathan)

EITM: Developing the Tools to Understand Human Performance: An Empirical Infrastructure to Foster Research Collaboration, National Science Foundation Grant SES [0339191](#) awarded to Cornell University, October 1, 2004 to September 30, 2008, \$337,455. (with John Haltiwanger and Ron Jarmin)

The New York Research Data Center, National Science Foundation Grant SES [0322902](#) awarded to the NBER, August 1, 2003 to July 31, 2008, \$300,000. (with Neil G. Bennett, Bart Hobijn, Erica L. Groshen, Robert E. Lipsey)

Workshop on Confidentiality Research, National Science Foundation Grant SES [0328395](#) awarded to the Urban Institute, June 1, 2003 – May 31, 2004, \$43,602. (with Julia Lane)

Firms, Workers and Workforce Quality: Implications for Earnings Inequality and Economic Growth, Alfred P. Sloan Foundation Grant 22319-000-00 awarded to the Urban Institute, January 2003—January 2006, \$1,400,000. (with John Haltiwanger, Julia Lane, J. Bradford Jensen, Fredrick Knickerbocker, and Ronald Prevost)

The Demand for Older Workers: Using Linked Employer-Employee Data for Aging Research, National Institute on Aging, R01-AG18854-01 to Cornell University, July 1, 2002 – April 30, 2008, \$1,753,637. (with John Haltiwanger, Andrew Hildreth, and Julia Lane)

Workers and Firms in the Low-wage Labor Market: Interactions and Long Run Dynamics, Russell Sage Foundation, Rockefeller Foundation, and Department of Health and Human Services (ASPE) to the Urban Institute \$700,000, September 1, 2001 August 31, 2003. (with John Haltiwanger, Harry Holzer, and Julia Lane)

From Workshop Floor to Workforce Clusters: A New View of the Firm, Alfred P. Sloan Foundation, 99-12-12 to the Urban Institute, March 1, 2000 – March 31, 2002, \$314,604. (with John Haltiwanger and Julia Lane)

Dynamic Employer-Household Data and the Social Data Infrastructure, National Science Foundation, SES [9978093](#) to Cornell University, September 28, 1999 – September 27, 2005, \$4,084,634. (with John Haltiwanger and Julia Lane)

The Longitudinal Employer-Household Dynamics Program, National Institute on Aging, interagency funding to the United States Census Bureau, September, 1999 – August, 2001, \$490,000. Renewed September 2001– August 2004, \$750,000 (with John Haltiwanger and Julia Lane)

Individual and Firm Heterogeneity in Labor Markets: Studies of Matched Employee-Employer Data, National Science Foundation SBR [9618111](#) to the NBER, March 15, 1997 – February 28, 2002, \$243,361.

Creation of an Employer Identification Link File and Addition of Employer Information to the National Longitudinal Survey of Youth 1979 Cohort, Bureau of Labor Statistics (subcontracted by NORC, University of Chicago, Chicago, IL 60637), July 1, 1995 - December 31, 1997, \$82,946.

Employment and Compensation Policies: Studies of American and French Labor Markets Using Matched Employer-Employee Data, National Science Foundation SBR [9321053](#) to the NBER, July 1, 1994 - June 31, 1997, \$ 185,257. (with David Margolis and Kenneth Troske)

Compensation System Design, Employment and Firm Performance: An Analysis of French Microdata and a Comparison to the United States, National Science Foundation, SBR [9111186](#) to Cornell University, July 1, 1991 - December 30, 1994, \$174,565.

The Effects of Collective Bargaining and Threats of Unionization on Firm Investment Policy, Return on Investment, and Stock Valuation, National Science Foundation, SES [8813847](#) to the NBER, July 1, 1988 - June 30, 1990, \$81,107.

Improving the Scientific Research Utility of Labor Force Gross Flow Data, National Science Foundation, SES [8513700](#) to the NBER, April 15, 1986 – March 31, 1988, \$69,993.

Program Evaluation: New Panel Data Methods for Evaluating Training Effects, U.S. Department of Labor Contract 23-17-80-01 to NORC at the University of Chicago, 1983.

Minority Unemployment, Compensating Differentials and the Effectiveness of the EEOC, U.S. Department of Labor Contract 20-17-80-44 to NORC at the University of Chicago, 1982.

An Analysis of Hispanic Employment, Earnings and Wages with Special Reference to Puerto Ricans, U.S. Department of Labor Grant 21-36-78-61, 1981.

### **PROFESSIONAL SERVICE, SURVEYS, AND DATA COLLECTION:**

The National Academies, [Committee on National Statistics](#) (CNSTAT) 2010-2013.

National Academy of Sciences, CNSTAT, [Panel on Measuring Business Formation, Dynamics, and Performance](#), 2004-2007.

National Academy of Sciences, CNSTAT, [Panel on Access to Research Data](#), 2002 -2005.

Executive Committee, Conference on Research in Income and Wealth 2002-.

Distinguished Senior Research Fellow, U.S. Bureau of the Census, Department of Commerce, October 1998-2007; 2008-.

Review Panel Canadian Social Science and Humanities Research Council Major Grants Program, 1997-98.

Technical Advisory Board for the National Longitudinal Surveys of the Bureau of Labor Statistics, 1988-90, 1992-2001, Chair 1999-2001

Economics Panel, National Science Foundation, 1990-91, 1992-93; KDI Panel 1999; Infrastructure Panel 2000; CDI Panel 2008; CDI Panel 2009.

Principal Investigator, Center for Advanced Human Resource Studies Managerial Compensation Database, sponsored by the Cornell University Center for Advanced Human Resource Studies, 1989-95.

Principal Investigator, Longitudinal Database of Collective Bargaining Agreements, sponsored by the Bureau of National Affairs and the University of Chicago Graduate School of Business, 1985.

**PROFESSIONAL ORGANIZATIONS:**

American Economic Association  
American Statistical Association  
Econometric Society  
Society of Labor Economists  
American Association of Wine Economists