

Research and Teaching Statement

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Part I – Research Statement

Overview

My completed research falls into three areas. One set of studies uses newly developed data sets and methods to address the long-term effects of job displacements, including long-run impacts on earnings, job stability, and health (such as Sullivan and von Wachter 2009, Quarterly Journal of Economics, Schmieder and von Wachter 2010, American Economic Journal, and von Wachter, Song, and Manchester 2009). A second set of studies documents and attempts to understand the surprisingly persistent effects of labor market conditions at the beginning of a worker's career on subsequent career trajectories (e.g., von Wachter and Bender 2006, American Economic Review and Oreopoulos, von Wachter, and Heisz 2012, American Economic Journal). The third set of papers is concerned with the interactions between job displacements and social support programs, particularly unemployment insurance, but also disability insurance and Social Security (e.g., von Wachter, Song, and Manchester 2011, American Economic Review, Schmieder, von Wachter, and Bender 2012, Quarterly Journal of Economics). In addition, a series of ongoing projects analyzes the sources of persistence in worker and firm behavior, and the implications for long-term unemployment and the macro economy.

In the course of this research, I have become the leading expert on questions related to job displacement, unemployment, and the evolution of workers' careers. To the best of my knowledge, in my cohort and adjacent cohorts, I am the only applied micro economist specialized in these areas crucial to the understanding of the current recessionary environment in the labor market and its impact on affected workers. Based on this expertise, I have been invited to prepare a review of the effects of job displacement and of the effects of unemployment on young workers for the prestigious Journal of Economic Literature and Journal of Economic Perspectives, respectively. My research agenda has been supported by grants from the National Institute of Aging, the National Science Foundation, the Sloan Foundation, the Russell Sage Foundation, the Social Security Administration, and the German Science Foundation, and I have been invited to spend a year as visiting fellow at the Russell Sage Foundation. I have served as an expert witness for four Committees of Congress on the sources and consequences of unemployment. I am also a member of the technical panel overseeing the current evaluation of reforms of the U. S. unemployment insurance system, and have been consultant to the International Monetary Fund and to the Organization for Economic Cooperation and Development on the human costs of job displacements and recessions. My work has also been part of the public debate on the cost of unemployment, as featured in numerous articles in the popular press, such as the New York Times and the Wall Street Journal.

The findings from my research indicate that short-term labor market shocks such as job displacement can have substantial and long-lasting effects on a wide range of worker outcomes including earnings, job stability, and mortality. Similarly, labor market conditions at college graduation can have persistent effects on the careers of young workers, including wages and job stability. This is an important contribution that demonstrates how adverse labor market shocks, in particular during recessions, can have long-term consequences for large groups of workers. My work also shows that a typical policy response to aid unemployed workers in recessions, the extension of unemployment insurance benefits, leads to an increase in coverage without a rise in disincentive effects. Yet, the earnings losses at job loss I find last well beyond these extensions. Correspondingly, my work shows that labor market shocks lead to a potentially costly rise in applications to disability insurance, and earlier claiming of Social Security benefits. This provides important evidence on how job loss can affect government programs and how these programs in turn affect individual behavior.

To establish these findings, most of my research has analyzed new large longitudinal data sources on both workers and firms, many heretofore unavailable for academic research. To access this data, I have invested into ongoing and inter-disciplinary collaborations with the Social Security Administration, the German Social Security Administration, and the Census Bureau. My work uses this data to isolate specific exogenous mechanisms affecting workers' careers and incentives, and to deal with sorting and selection in the labor market I explore alternative statistical approaches. To interpret my findings and formulate hypotheses about the mechanisms of labor market shocks and their interactions with government programs, I integrate current theories of labor market dynamics into my work.

The remainder of this research statement describes my past and ongoing work in more detail. To give a better overview, the three broad research areas mentioned at the outset are divided into six research topics:

- 1) The Long-Term Effects of Job Displacement on Earnings
- 2) The Long-Term Effects of Job Displacement on Health
- 3) Mechanisms behind of the Effects of Job Displacement
- 4) Persistent Effects of Labor Market Conditions for Young Workers
- 5) The Effect of Extensions in Unemployment Insurance in Recessions
- 6) Labor Market Conditions and Disability Insurance and Old-Age Survivor Insurance

At the end, a brief overview is given of other published research outside these areas and of further work in progress.

1) The Long-Term Effects of Job Displacement on Earnings

The effect of job loss is a recurring question with important implications for public policy, labor economics, and macroeconomics. An extensive literature has documented that job displacement can have substantial short-term costs for affected workers on a range of outcomes. However, little is known about the long-term costs of job displacement. This partly due to lack of

data spanning a long period of time for a large sample of displaced workers, and due to the difficulty of isolating an exogenous shock triggering displacement. Another potential concern with the existing literature is that analyses based on different data sources and definitions of job loss give sometimes contrasting but hard-to-compare results.

I have tried to address these shortcomings in several studies. This work is well represented by the paper **“Long-Term Earnings Losses due to Mass-Layoffs During the 1982 Recession: An Analysis Using U.S. Administrative Data from 1974 to 2004”** (2009, joint with Jae Song and Joyce Manchester), which is the first paper to use nationally representative data on workers and their employers to estimate the effect of job displacement at mass-layoffs for over 20 years. To isolate mass-layoffs, I helped to construct a new data base containing firm size of all U.S. employers for over 30 years. The paper’s main result is that workers displaced during the early 1980s recession suffer from large and persistent earnings losses lasting 20 years. We also find that earnings and job instability rises for ten years. These effects hold for a wide range of workers and are not confined to the early 1980s recession. The paper extends important previous papers which had only access to state level data for limited periods of time and which mainly focused on high tenured workers.

These estimates confirm the larger range of shorter-term estimates from the previous literature, and imply that substantial groups of workers can bear large and lasting costs from displacement, in particular, but not only, in recessions. Thereby, the paper significantly extends our knowledge about the consequences of job displacement. Although still in process for publication, the paper is already widely quoted as one of the main studies on the effects of job loss (e.g., by Alan Manning’s forthcoming article for the Handbook of Labor Economics) and is on the graduate reading list of top economics departments. As indicated by the several congressional testimonies I was asked to give, this work has also received attention in recent policy and public discourse for its potential implications of assessing the costs of widespread layoffs during recessions.¹

In **“Recessions and the Cost of Job Loss”** (*Brookings Papers on Economic Activity*, 2011, Joint with Steve Davis) I present new estimates on the life-time earnings losses from layoffs during recessions, and show that layoff can lead to a loss in life-time earnings of 20%, double the loss occurring in booms. I also document that workers perceive the risk of layoff and unemployment as a significant threat. I then assess the ability of typical macroeconomic models of the business cycle to explain large and lasting earnings losses for displaced workers. The result suggests that standard models typically used to model the aggregate dynamics of unemployment are not able to explain the size of earnings losses that increases in unemployment in recession tend to involve. This has quickly become a highly visible and frequently cited paper on the impact of layoffs during recessions on workers and the importance to understand these losses in an integrated economic framework.

¹ This work was also quoted in other congressional testimonies (e.g., by the director of the Congressional Budget Office (CBO) Douglas Elmendorf on September 28th 2010 in front of the Senate Budget Committee), in several of CBO’s policy briefs (such as the costs of environmental legislation), in the Joint Economic Committee’s response to the 2010 Economic Report of the President, and in several policy analyses and proposals by think tanks (such as “An Economic Strategy to Renew American Communities” by Michael Greenstone and Adam Looney for the Hamilton Project).

To further study the robustness and properties of estimates of the cost of job loss, in a series of related papers I use several new matched data sources, also previously unavailable for research. Using a unique matched data set between the Displaced Worker Survey (DWS) and the Unemployment Insurance Base Wage (UI-BW) file for California, **“Estimating the 'True' Cost of Job Loss: Evidence Using Matched Data from California 1991-2000”** (2008, joint with [Elizabeth Handwerker](#) and [Andrew Hildreth](#)) is the only study to assess robustness of measures of cost of job loss in administrative data, to document measurement error in recall of job loss and past earnings in the survey data, and to reconcile disparate findings on the effect of job loss found in the previous literature using survey data and administrative data. In **“Variation in the Cost of Job Loss by Worker Skill: Evidence Using Matched Data from California, 1991-2000”** (2009, joint with [Elizabeth Handwerker](#)) I use a rare merge between education and occupation data from the March Current Population Survey and wage records from the unemployment insurance system from California to show that in regular economic times the cost of job loss is large and persistent for middle-skilled workers, whereas it is short-lasting for both high and low skilled workers. These new findings echo results from labor market entrants discussed below, and provide evidence that higher education is not uniformly protective. **“The Long-Term Impact of Job Displacement in Germany During the 1982 Recession on Earnings, Income, and Employment”** (2009, joint with [Johannes Schmieder](#) and [Stefan Bender](#)) I use comparable German administrative data to show that for 20 years after job loss, the earnings consequences are of similar magnitude and persistence as in the U.S. Moreover, the more detailed German data allows me to show that most of the effect is through declines in wages, not a reduction in work days, a key question unanswerable with U.S. administrative data. Overall, the series papers underscore my commitment to measure and understand the earnings consequences of job loss and to advance the existing literature with new data sets, detailed statistical analyses, and new findings.

2) The Long-Term Effects of Job Displacement on Health

The large and persistent earnings-consequences I find suggest that job displacements can be very stressful and life-altering events for affected workers. Thus, it is likely that workers' health is reduced as well. Yet, this is a difficult question to study both because health events are hard to measure and typically not contained in data sets used by labor economists, and because concerns with reverse causality and omitted variable bias are more difficult to address.

The paper **“Job Displacement and Mortality: An Analysis using Administrative Data”** (*Quarterly Journal of Economics*, 2009, joint with [Daniel Sullivan](#)) is the first and only study to analyze long-term effect of job displacement on mortality. The paper finds that for high-seniority male workers, mortality rates exhibit a sharp increase in the years after displacement, and remain significantly higher even 15-20 years after job loss. If such increases were sustained indefinitely, they would imply a loss in life expectancy of 1.0-1.5 years for a worker displaced at age 40. The paper uses administrative data on the quarterly employment and earnings of a large sample of Pennsylvanian workers in the 1970s and 1980s matched to Social Security Administration death records covering 1980-2006 to estimate the effects of job displacement on mortality. To address

concerns of reverse causality and omitted variable bias, it analyzes workers displaced at mass-layoffs, and uses firm-level estimates unaffected by selection.

That job loss can have long-term effects on mortality is an important finding, since health can be viewed as a more direct measure of well-being than earnings, whose fluctuations do not always affect income and consumption. According to these findings, a job displacement in a difficult economic environment can have truly wide-reaching consequences for men in stable employment, and I am the first to document this long-term effect. For this reason, the finding has received attention in both the academic literature, where it has been cited by numerous other studies concerned with the potential costs of job loss, and by policy research (e.g., in a background paper of the International Monetary Fund illustrating the potential human cost of recessions).

Although it is difficult to study the mechanisms behind this finding, I provide additional evidence on the circumstances in which these health effects occur using the high-quality data at my disposition. In my Quarterly Journal of Economics paper, I show that workers who have higher earnings losses because they came from high-wage industries or firms also have higher increases in mortality. While the relationship is suggestive, I am careful in claiming causality here. I also found that job loss causes persistent earnings instability. In the paper **“Average Earnings and Long-Term Mortality: Evidence from Administrative Data”** (*American Economic Review*, 2009, joint with Daniel Sullivan) I report novel results indicating that mid-career earnings instability is significantly correlated with long-term mortality, even conditional on the average level of long-term earnings. In my 2009 paper with Handwerker mentioned above, I also show that in the medium term job loss reduces access to health insurance, especially for low educated workers, and reduces homeownership. The findings I obtain indicate that job losses may affect long-run health by lasting declines in life-styles, increased instability, and lower health insurance. To learn more about these channels, I analyze the cause of death after job loss in ongoing work funded by the National Institute of Health.

3) Mechanisms behind the Effects of Job Displacement

The large reductions in earnings at job displacement represent a loss to the affected worker. Whether these losses represent a loss to society and what they imply for economic models of the labor market depends crucially on their sources. In several papers, I have assessed alternative mechanisms behind the earnings effects of job loss I find. This comprises the role of selection and sorting into layoff by worker ability, but also mechanisms of true earnings losses at the firm or industry level.

A typical difficulty in estimating the cost of job loss is controlling for unobserved worker characteristics. This is a particular problem for labor market entrants, for whom career histories prior to layoff are too short to be used to control for permanent ability differences. Before my work, the main concern was that firms selectively lay off their least able workers. In the paper **“In the Right Place at the Wrong Time: The Role of Firms and Luck in Young Workers’ Careers”** (*American Economic Review*, 2006, joint with Stefan Bender) I show that another potential

source of bias arises if lower ability workers are sorted into firms with higher probability of layoff. In this case, the paper shows an instrumental variable estimator with firm fixed effects can identify the causal effect of job loss. To implement this data-intensive strategy, the paper uses within-firm fluctuations in the retention rate of young apprentices in Germany using the universe of data for several graduating cohorts from the apprenticeship program. A comparison of different estimators reveals that biases of both sorting and selection are present, but that once both sources of bias are controlled for, the earnings loss for laid-off apprentices fades after five years.

These findings represent an important contribution to our understanding in how job loss can affect labor market entrants. They are also an important methodological contribution to the existing literature, which relies on earnings histories prior to displacement to control for unobserved ability differences. My AER paper implies that in a data-rich environment, firm-level strategies require fewer assumptions. Thereby, the firm-level strategy has significantly raised the credibility of analyses of the effect of job displacement, be it on rare and non-standard outcomes such as mortality and disability, as in Sullivan and von Wachter (2009), or on earnings, such as in von Wachter, Song, and Manchester (2009). For these reasons, the paper has been added to numerous graduate reading lists of top economics departments.

To learn more about the economic mechanisms behind job loss, In a series of papers I examine the structure of earnings losses. A recurring hypothesis that has been difficult to test is that firms shed workers that earn above-market wages. Using the Displaced Worker Survey from 1984 to 2006, in the paper **“Does Wage Persistence Matter for Employment Fluctuations? Evidence from Displaced Workers”** (*American Economic Journal: Applied Economics*, 2010, joint with Johannes Schmieder) I am the first to show that wage gains associated with tight past labor market conditions, which have been widely documented in the literature, disappear at job loss. Another innovation of the paper is to show how workers with high wages due to tight past labor market conditions face higher risk of layoff. These results represent an important insight into firms’ layoffs decisions, which are rarely studied in the literature. They suggest that firms try to shed expensive workers, and that earnings reductions of job losers are partly due to the loss of job-specific wage premiums. These findings constitute an important contribution to our understanding of the nature of wage premiums related to past labor market conditions as well, and imply they represent true and persistent rigidities in the wage setting process. The paper **“Do Initial Conditions Persist Within Firms? An Analysis of Firm-Entry Cohort Effects and Job Losers”** (in: J. Lane, S. Bender, S. Bender, J. Lane, K. Shaw, F. Andersson, and T. von Wachter (eds.), "The Analysis of Firms and Employees: Quantitative and Qualitative Approaches," University of Chicago Press, 2008, joint with Stefan Bender) shows that displaced workers lose another source of job-specific wage components, highly persistent cohort-level earnings differences within firms unrelated to the business cycle. This confirms that in addition to commonly emphasized losses of firm-, occupation, or industry-components usually emphasized in the literature, the cost of job loss is also due to the loss of job-specific wage components workers received.

In ongoing work, I study what can explain the large-scale and persistent earnings losses in recessions. Preliminary results suggest that an important part of earnings losses appear to be driven

by losses in industry-specific skills. Yet, even workers immediately finding a stable job in the same industry suffer persistent earnings losses, a phenomenon that I show cannot be explained by losses in firm wage premiums. Instead, this work is the first to show that these losses have a substantial cyclical component. This confirms findings from my other papers that job quality and entry wages can fluctuate significantly in the labor market, and that this can lead to persistent wage differences.

4) Persistent Effects of Labor Market Conditions for Young Workers

An increasing literature documents that the careers of labor market entrants can be affected by adverse labor market conditions. However, neither the overall magnitude, nor the mechanisms behind such persistence are well understood. This is partly because of a lack of suitable data providing longitudinal information on detailed career outcomes for a sufficient number of cohorts of labor market entrants.

To address this shortcoming, in **“The Short- and Long-Term Career Effects of Graduating in a Recession: Hysteresis and Heterogeneity in the Market for College Graduates,”** (*American Economic Journal: Applied Economics, 2012*, joint with Phil Oreopoulos and Andrew Heisz) I extend this literature by using an unusual merge of administrative data from Canada containing longitudinal information on earnings, employers, majors, and schools for over two thirds of all college graduates for the last 20 years. Using this exceptional data, the paper finds that the average student graduating in a recession suffers negative consequences lasting 10 years. The paper is the first study to show that this loss is very heterogeneous, with the least advantaged students not fully recovering after ten years, while those coming from top schools and majors only suffer short-term effects. It is also the first study able to analyze the long-term recovery process in depth, showing that graduates are initially downgraded to lower paying firms and recover partly by moving to better employers, and that this recovery process is again very different among more and less advantaged graduates.

These findings have important implications, beginning with the fact that graduates from unlucky cohorts will experience lower returns from their investment into higher education, and that this loss differs substantially by college and major. The paper contributes to our understanding of career development by providing direct estimates of the role of employer quality and job mobility in young workers’ careers. Finally, the fact that temporary labor market effects can have long-term effects for some graduates through persistent downgrading to lower paying firms has important implications for our understandings of frictions in the labor market, which the paper discusses along a theoretical model of job search. This paper has been widely quoted as one of the key studies of the costs of recessions for college graduates (e.g., by Michael Waldman’s forthcoming article for the Handbook of Organizational Economics or the 2010 Economic Report of the President), and its careful design has been replicated in other countries.

The role of unemployment and job mobility in young workers’ careers is also examined in **“Does a Persistently High Unemployment Rate Make a Difference? Wage Growth and Job Mobility in Germany, France, and the United States”** (*Journal of Economic Perspectives*,

2012, joint with Paola Giuliano), which shows that despite vastly different unemployment rates, average wage profiles and job mobility are very similar in these countries, and employment rates are similar by the time workers are in their late 20s. To do so, I use comparable micro data from labor market surveys from the 1990s to carefully compare career trajectories across countries. These findings confirm that early unemployment rates *on average* have only temporary effects for young workers, and that job mobility plays a key role in early careers.

5) The Effect of Extensions in Unemployment Insurance in Recessions

A typical policy in the United States to aid displaced and unemployed workers is to increase the duration of unemployment insurance (UI) benefits in recessions. Since my work has shown that earnings losses in recessions are particularly high, the well-known distortionary effect of UI benefits may be larger. Yet, since in the United States benefit duration varies with the business cycle, it is difficult to estimate how non-employment effects of UI vary with the business cycle. Another difficulty is that current theory gives little guidance on the welfare effect and optimal extent of UI extensions. My work addresses both of these issues.

In **“The Effects of Extended Unemployment Insurance Over the Business Cycle: Evidence from Regression Discontinuity Estimates Over 20 Years”** (Quarterly Journal of Economics, 2012, joint with Johannes Schmieider and Stefan Bender), I make two main contributions. First, I exploit the fact that the duration of UI benefits in Germany is a function of exact age that is invariant over the cycle, and thus does not face the same endogeneity problem. Using the universe of unemployment spells and career histories the paper implements a regression discontinuity strategy separately for twenty years and across industries and correlates the estimates with measures of the business cycle. The non-employment effects of UI extensions I find are at best somewhat declining in large recessions. Yet, the UI exhaustion rate, and therefore the additional coverage provided by UI extensions, rises substantially in recessions. The second contribution of the paper is to derive a new welfare formula in a model of job search with liquidity constraints that links the net social benefits from UI extensions to the exhaustion rate and the disincentive effect of UI. It thereby formalizes two rules of thumb in the literature linking the optimal extensions to either UI exhaustion rates or disincentive effects, but not both. Together with this result my empirical findings imply that the optimal UI benefit duration rises with the exhaustion rate.

This paper significantly advances our understanding of the effect of UI extensions in recessions, and has immediately received attention among academics and in policy circles for the use of a highly credible research design and outstanding data to address a highly relevant question.² In ongoing work I show that extensions in UI durations have only small adverse effects on long-term job quality and labor force attachment using the same estimation strategy. This is an important and policy relevant finding, too since it suggests that although extensions in UI do not improve job

² An early version was quoted by Larry Katz in his testimony before the Joint Economic Committee of Congress on April 29 2010, and in the Council of Economic Advisor’s report on “The Economic Impact of Recent Temporary Unemployment Insurance Extensions.”

outcomes (as some economic models predict), they do not substantially worsen them (as predicted by models of human capital depreciation or stigma effects). Using the same administrative data source, in related work I show that German displaced workers suffer similarly large and persistent earnings losses as in the U.S., but that even the generous unemployment insurance benefits in Germany replace only a small fraction of lost earnings (**“The Long-Term Impact of Job Displacement in Germany During the 1982 Recession on Earnings, Income, and Employment”**, 2009, joint with Johannes Schmieder and Stefan Bender). This finding has underscored my concern with the interaction between labor market shocks, such as displacement, and other government support programs.

6) Labor Market Conditions and Disability Insurance and Old-Age Survivor Insurance

The large costs of job displacement I found last well beyond duration of unemployment insurance benefits. Reduced earnings make other government programs offering income replacement more attractive, especially if their payments are based on pre-displacement earnings. This has potentially important implications for the finances of these programs, as well as for these programs’ effects on labor supply. In a series of papers, I have analyzed to what extent aggregate or individual labor market conditions lead to higher take up of the two largest programs, federal disability insurance (DI) or Social Security benefits (Old-Age Survivor Insurance).

A growing literature suggests that declining labor market conditions lead low-skilled workers to apply and receive DI. Seemingly in contrast with this finding, a long-standing result suggests that at least among older male DI beneficiaries, few are likely to work in the absence of DI. In **“Trends in Employment and Earnings of Allowed and Rejected Social Security Disability Insurance Applicants”** (*American Economic Review*, 2011, joint with Jae Song and Joyce Manchester), I use a hard-to-access longitudinal administrative data set to provide new evidence that younger rejected male DI applicants exhibit substantial labor force attachment. Similarly, a significant fraction of rejected applicants with low-mortality impairments such as back pain and mental health problems is employed. The paper shows how these findings imply that recent changes in the applicant pool have raised the potential life-time employment of workers receiving DI benefits, and shows that the costs in terms of foregone earnings are potentially large.

A temporary worsening in labor market conditions raises the implicit generosity of Social Security benefits, because they depend on an average of the workers’ earnings history. In a series of papers, I am the first to analyze whether this channel can explain a rising incidence of early retirement and claiming of benefits for less educated workers. In one paper (**“The Effect of Economic Conditions on the Employment of Workers Nearing Retirement Age”**, 2007) I find that labor force participation rates for low-skilled older workers as measured in the Current Population Survey have fallen more strongly than that of high-skilled older during each major recession since the early 1970s. In a follow-up paper (**“The Effect of Labor Market Trends on the Incentives and Incidence for Claiming Social Security Benefits Early”**, 2009) I use data on actual claiming of Social Security benefits to show that changes in the wage structure lead less educated workers to claim benefits early. These findings suggest that labor market conditions affect

early claiming partly because of the nature of Social Security rules, but the full extent and channels remain to be quantified.

These results have motivated my ongoing work, in which I use continuing access to exceptional administrative data from Social Security records to directly estimate the effect of an explicit economic shock, job displacement, on DI applications and claiming of Social Security in the short and long run. Preliminary findings, difficult to obtain with conventional data sources, imply potentially significant costs of job displacement for these programs in the short- to medium-run (presented at the National Bureau of Economic Research Summer Institute and the National Tax Association meetings). These findings will be relevant for understanding the impact of layoffs on the Social Security finances, and the potential to raise labor force participation of older workers, in particular in times of high unemployment and tight government budgets.

That some older workers work past age 65 if given the opportunity is shown in **“The End of Mandatory Retirement in the US: Effects on Retirement and Implicit Contracts”** (Revise and Resubmit, Industrial Labor Relations Review, 2009), which takes advantage of fact that the abolition of mandatory retirement in 1978 and 1986 affected some workers much more than others. To mimic the ideal experiment offered by the change in legislation, I impute coverage of mandatory retirement to data from the monthly Current Population Survey and compare labor force trends for workers with high- and low-probabilities of coverage before and after the change. The results indicate that workers covered by mandatory retirement had a very high incidence of retirement at age 65, which declined significantly following the elimination of mandatory retirement. Overall, the results suggest that the labor force of workers 65 and older rose by 10% to 20% with the end of mandatory retirement.

Other Research

Two published papers unrelated to my main research agenda make novel and significant contributions to two separate important fields that have seen a large amount of empirical work.

In the first paper (**“Zero Returns to Compulsory Schooling in Germany: Evidence and Interpretation”**, *Review of Economics and Statistics*, 2008, joint with Steve Pischke) I estimate the impact of compulsory schooling on earnings using changes in compulsory schooling laws in West Germany after world war II. Most estimates in the literature indicate returns in the range of 10% to 15%. While the research design is very similar to studies for various other countries, this paper finds a zero return. This is an important finding, since it shows that the return to schooling can vary with institutions and characteristics of the labor market, something not apparent from the previous literature. The paper finds no evidence that this is due to labor market institutions or the apprenticeship training system in Germany. Instead, the result might be due to the fact that the basic skills most relevant for the labor market are learned earlier in Germany than in other countries.

The second paper is one of the few papers using a quasi-experimental research design to estimate the effect of monetary policy on the economy. In most applications, forward-looking behavior on the part of the monetary authority makes it difficult to estimate the effect of monetary

policy interventions on output. In **“Following Germany’s Lead: Using International Monetary Linkages to Estimate the Effect of Monetary Policy on the Economy”** (*Review of Economics and Statistics*, 2008, joint with Julian di Giovanni and Justin McCrary) I present instrumental variables estimates of the impact of interest rates on quarterly real output for several European countries, using German interest rates as the instrument. This strategy is successful because for long periods many countries essentially tied their monetary policy to that of Germany. These estimates find significant effects of interest changes on output growth, and confirm a strong forward-looking bias in least squares estimates that persists even conditional on standard controls for the history of the system. Due to the potential for correlation of output shocks across countries, the paper interprets its estimates as lower bounds for the effect of monetary policy on real output.

Research in Progress in Two Main Areas

In this section, I give a brief overview of research in progress not mentioned in the main part of the research statement, indicating coauthors and the degree of progress.

A) Understanding Job Displacement at Worker and Firm Level

Auto-Supplier Survey Linked to Worker Records (Joint with Susan Helper). Few studies analyze the layoff decision at the firm level, how it depends on firm characteristics, and how it affects workers' outcomes and firms' productivity after a mass-layoff. To study these questions, I have been involved in a large survey of auto suppliers in the aftermath of the 2008 recession, which asks questions about layoffs, human resource strategies, and growth strategies. The survey data will be linked to longitudinal wage and unemployment insurance information on workers from Ohio, as well as longitudinal information on firms from the Economic Census.

Structure of Wage Losses and Models of Wage Setting (Joint with Johannes Schmieder). This project uses data on the career outcomes of displaced workers before and after job loss in Germany (Schmieder, von Wachter, and Bender 2009) to estimate a structural search model with human capital accumulation. Complete information on employment spells and job mobility at the daily level, as well as on employer characteristics will allow us to identify the contribution from job search activity and loss and re-accumulation of human capital in the effect and recovery of job displacement.

Job Displacement, Credit and Consumption (Daniel Aaronson, Sumit Agarwal, and Daniel Sullivan). A longstanding question is how job loss affects consumption, and how consumption responds to short and long-term earnings shocks. The difficulty in studying these and related questions is that typically good measures of displacement, consumption, and financial background are not available in the same data source. To remedy this shortcoming, an ongoing project merges data on credit scores, credit card expenditure, and credit default with information on workers and employers from the unemployment insurance system in Georgia (GA).

B) Understanding Job Loss and Long-Term Unemployment

Audit Study of Effect of Unemployment Duration on Call Back (Joint with Henry Farber and Daniel Silverman). This project uses an audit study approach to assess what employers infer from the duration of unemployment spells apparent on the curriculum vitae from job applicants. To do so, I will randomly send realistic but fictitious resumes to firms that vary information on applicants' recent employment status, longer term career history, as well as education, and measure the rate of call back.

Analysis of Wage Expectations Using Matched Survey and Administrative Data (Joint with Stefan Bender). A key question in labor economics is to what extent workers anticipate observed employment and wage fluctuations, and how workers respond to anticipated and unanticipated

shocks to wages and employment. Yet, it is typically hard to observe both credibly ex-ante measures of perceived risk and workers' responses. To study these issues, I was able to add several questions on workers' expectations about future layoffs, employment, and wages in four waves of a major household survey in Germany. A particular advantage of this data is that it can be merged with complete histories of employment, earnings and layoff from German administrative records.

Survey of Literature on Job Displacement (Outline accepted at the Journal of Economic Literature). In this survey I summarize recent empirical research on the short- and long-term effects of job displacement and long-term unemployment, discuss how this research can help improve our understanding of the labor market, and formulate a set of open questions for empirical and theoretical work. The survey complements earlier surveys which do not discuss more recent developments in the literature, consider a narrower set of outcomes, and put less weight on the contrast of empirical findings with hypotheses from economic models.

Part II – Teaching, Advising, and Service to the Department

1) Teaching and Advising

Since my appointment at Columbia University, I have taught Introduction to Econometrics at the undergraduate level, and Graduate Labor Economics to Ph.D. students. I have benefited from and enjoyed teaching both classes. Teaching *Introduction to Econometrics* has been a welcome challenge, since as part of the required curriculum it attracts students with very different backgrounds. The subject matter of the class is very demanding of students on both a conceptual and analytical level. The statistical and mathematics background of the average student is weak. Yet, the main insights are of fundamental importance for students' progress towards the economics major or minor.

I believe one of the key challenges in teaching this class is to keep motivating the material and engaging students, while still teaching a rigorous statistical material. Every class thus requires renewed engagement of the students' interest. This is especially important since a successful completion of the material requires ongoing work for most students. I believe to have succeeded in motivating the importance of the subject matter and stimulate students' interest in all the classes I have taught. If I have erred between motivation and mathematical rigor, I have probably erred on the side of rigor, and I have continuously strived to make the material more accessible and interesting to students. A useful help in this task would be for teaching assistants to have access to electronic class-rooms, where statistical exercises could be done at the computer together with students.

From knowledge of my own curriculum, of the curriculum in other top economics departments, and feedback from former students, I feel comfortable in saying that the *Graduate Labor Economics* class I teach is an integral part of the formation of the empirical skills of applied micro economics students in the department. In fact, Ph.D. students that did not take the labor and public finance field who come to my office hours may have benefited from taking this class. Each year I have taught this class, I have extended the statistical tools I teach. In the future, I would like to keep the emphasis on methods, but put additional weight in engaging students to help generate or implement their own research ideas. This would complement similar efforts in the other classes of the labor and public finance sequence. However, I often run out of time since I have to teach the practical application of standard econometrics methods. My sense is an applied econometrics 'boot camp' at the beginning of the second year, parallel to the intensive math course students take at the beginning of their first semester, would benefit students and free up time in my class to focus on labor-related topics.

I have advised several of the economics department's top *applied micro graduate students* as co-advisor. I also have given regular advice to most other applied micro graduate students. As a result, I have sat on numerous dissertation defense committees. I have been co-advisor of Reed Walker (top student currently on the job market), Beth Akers, Alice Henriques, Johannes Schmieder (top student, now at Brown University), Ayako Kondo, and Muhammad Asali.

I have sat on the dissertation defense committees of Joshua Goodman (top student, now at Kennedy School of Government), Dalida Kadyrzhanova, Sanket Mohapatra, Suchin Virabhak, and Sandhya Persad. Among others, I have spoken regularly to Lesley Turner (top student currently on the job market), Mike Mueller, Raicho Bojilov (top student now at Toulouse School of Economics), Cecilia Machado (top student, no visiting at the University of Chicago), Emilia Simeonova, Olga Gorbachev, Sujata Visaria, Stephan Litschig, and Allison Schragger.

2) Service to the Department, University, and the Profession

Since my appointment at Columbia University, I have served in several ***Departmental Committees***. In both semesters of my first three and my eighth year I have been an Undergraduate Advisor. In my second service year I organized the purchase of the department's computer cluster and the hiring of the departmental computer assistant (together with Wojciech Kopczuk). In my third year I have helped the Department of Economics choose the graduate-student winner of the Wueller Prize. In my fourth year of service I have been part of the junior hiring committee, and in the fifth year I was on the graduate admissions committee. I have also actively helped with recruitment of applied job market candidates in several years I was not on the committee.

In addition, in my first three years at the Department of Economics, I have organized the ***Applied Micro Lunch Talk Series*** with internal and external speakers. This seminar helped to establish a vibrant research community in applied micro economics at Columbia University, involving faculty from the Economics Department, the Business School, the School of Social Work, the Mailman School of Public Health, Barnard College, and Teacher's College. In my eighth service year, I have again organized the lunch talk series, which is now an established part of the graduate curriculum requiring regular presentations of advanced graduate students.

In my third, fourth, fifth, sixth, and eighth service year, I have co-organized the department's ***Applied Micro Seminar*** jointly with the respective host of the Business School. Under my leadership, this seminar series became an active platform and high-profile platform for exchange of ideas, again involving several researchers from several departments and schools of the university. It also involved many renowned outside speakers, such as Ed Lazear, Alan Krueger, Larry Katz, David Card, or Richard Freeman.

I have actively participated in the ***academic community*** of the economics profession. I have been invited to be a member of the National Bureau of Economic Research in Cambridge, MA, the Center for Economic Policy Research in London, and the Institute for the Study of Labor in Bonn, Germany. Among others, I have stayed at Princeton University, the University of Michigan, the London School of Economics, and the National Bureau of Economic Research as a visiting scholar. I have also participated in many academic research conferences and have been invited to give many seminars in the U.S. and at many European institutions. I have also been on the scientific committee of several conferences.

I have been a regular ***referee*** for first-tier economics journals such as the Quarterly Journal of Economics, the Journal of Political Economy, and the American Economic Review. I have also

refereed many articles for top field journals such as the American Economic Journal Microeconomics, Journal of Labor Economics, the Journal of Human Resources, or the Review of Economics and Statistics. In addition, I have reviewed research proposals for the National Science Foundation and the European Science Foundation, and have been invited to evaluate proposals for the National Institute of Health, the Sloan Foundation, the German Science Foundation, the Italian Ministry of Health, and the Austrian Science Fund.

I have also been able to use my expertise to provide *policy advice* to several governmental and international institutions. I have been asked by the U.S. Department of Labor to be one of five members of a technical working group (one of two academic members) that oversees and serves as consultant of an evaluation of a reform of rules of the U.S. unemployment insurance system instigated by provisions of the American Recovery and Reinvestment Act of 2009 Bill. This evaluation is done by Mathematica Policy Research and Urban Institute in the course of 2011 and 2012. I have also advised the International Monetary Fund on questions of the human costs of recessions. I have advised the European Commission as well as the Organization of Economic Cooperation and Development on measuring the effects of job displacement.

In the course of 2010 and 2011, I have been asked to give five *Congressional Testimonies* on questions of layoffs, unemployment, and the recession's impact on young workers. I was also invited to be a member of the Economic Policy Research Network, for which I am the coordinator of cluster on 'Unemployment and Job Growth', and to which I have contributed a policy brief summarizing current research on the costs of job loss and available policy options.