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The Perils of Globalization:
Offshoring and Economic Insecurity of the American Worker

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Abstract

According to polls from the 2006 congressional elections, globalization and economic insecurity were the primary concerns of many voters. These Americans apparently believe that they have fallen victim to liberal trade polices and that inexorable trends in globalization are destroying the American Dream. In this analysis, we use time series cross-section data from the General Social Survey (GSS) to examine the links among offshoring, labor market volatility, and the demand for social insurance. Unique among the GSS literature, our analysis includes a pseudo-panel model which permits including auxiliary state and regional macroeconomic information.

Keywords: economic insecurity, globalization, labor-demand elasticity, offshoring,

JEL classification: F16; J23; C23

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1 Introduction

Polls from the 2006 congressional elections placed globalization and economic insecurity as the driving forces behind the large economic populist vote, and found that 40 percent of Americans think the next generation will have a lower standard of living than today. Moreover, 62 percent said there was less job security and 59 percent said they had to work harder to earn a decent living. Many Americans undoubtedly believe they have fallen victim to liberal trade polices and that globalization is destroying the American Dream: 75 percent said outsourcing work overseas hurts American workers.[1]

Conversely, most economists would argue the U.S. economy has been enriched by increases in world trade. According to Bradford, Grieco and Hufbauer (2006), globalization has brought an extra $800 billion to $1.4 trillion annual income (or about $7,000 to $13,000 per household) to the United States since World War II. At the same time, many economists have expressed concern regarding the uneven occupational, regional, and industry-specific impact of increased trade: While the economy gains *overall*, not *everyone* gains. Globalization is exposing a deep fault line between groups who have the skills and mobility to flourish in global markets and those who either don't have these advantages or perceive the expansion of unregulated markets as inimical to social stability and deeply held norms (Rodrik, 1997).

Globalization displaces workers and creates insecurities that increase the demand for social insurance (Garrett, 1998; Rodrik, 1997). As a result, postwar globalization was founded on the principle that the federal government would provide economic security, while free international markets would provide the best aggregate outcomes. The search naturally arises for a mechanism to "share" the gains from trade. Absent a suitable political consensus, the objections or even the visibility of the harmed persons, regions, and industries, threaten to derail and perhaps reverse reductions in trade barriers as they have done in the past.

Kevin O'Rourke and Jeffery Williamson (1999) note that 19th century globalization sowed the seeds of its own destruction. Political backlash due to economic

[1]For poll results and mass media reports on economic insecurity see Greenhouse (2006), Orszag (2006),Lynch (2006), or Summers (2006).

insecurity, not economic factors, killed globalization.[2] Somewhat regrettably, postwar changes in the economy are likely to have increased workers' anxiety today, most notably the significant change in the composition of traded goods and services.

Traditionally, trade is thought of as exchanging different goods across nations, not the shifting of production from one country to another, followed by return shipments back to the original country. For example, in the past, U.S. firms would export good x and import good y. In the New Economy, U.S. firms export the capital k needed to produce good x to a country with lower production costs and then re import good x.[3] Theoretically, disaggregating the value chain has allowed U.S. business to substitute cheaper foreign labor for domestic labor, increasing firms' own price elasticity of demand for labor, raising the volatility of wages and employment, which increase worker insecurity.

This phenomenon of rising economic insecurity in developed nations during the 1990s (and now, as we will show, into the 2000s) has sparked widespread interest in its causes and consequences. Past research suggests the implications of rising insecurity are far-reaching: including wage restraint, ill health, reduction in consumer expenditure, and economic inequality.[4] There is a vast collection of literature examining the structural determinates impacting perceptions of economic insecurity in the United States (e.g., Aaronson and Sullivan, 1998; Dominitz and Manski, 1997; Manski and Straub, 2000; Schmidt, 1999). Unfortunately, empirical research explicitly connecting globalization to increased economic insecurity is non-existent. This paper is the first, to our knowledge, to empirically examine the forces of globalization—more specifically, offshoring— and workers' perceived economic insecurity in the United States.

In this article, we use 1977-2004[5] data from the General Social Survey (GSS) to investigate if U.S workers have, in fact, become more pessimistic about their economic

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[2] O'Rourke and Williamson discuss three notable examples of globalization and its political backlash in the late 19th century (early 20th century): (1) cheap grain from the New World threatened agricultural incomes in Europe, leading to tariffs on agricultural imports from the New World; (2) mass immigration from Europe threatened New World living standards, escalating immigration restrictions in the New World; and (3) European manufactured exports threatened emerging industries in the New World, leading to high tariffs in the New World on European manufactured imports.

[3] Some analysts have referred to this as a flattening of the world, others as disaggregating the value chain such that products, and components of manufactured products, are manufactured worldwide.

[4] See Green, Felstead, and Burchell (2000) for a summary.

[5] Data from the 2006 GSS will be available in early 2007, and we plan to update after that time..

security into the 21st century and, more specifically, whether offshoring has played a significant role in fostering this insecurity. We build upon the work of Scheve and Slaughter (2004), who examine the impact of foreign direct investment on economic insecurity in Great Britain from 1991 to 1999. We find evidence suggesting that workers in tradable industries and occupations express higher levels of economic insecurity; additionally, workers expressing higher levels of insecurity demand greater social insurance.

Our empirical work attempts to resolve some widely ignored issues in the GSS literature. The GSS dataset consists of a time series of cross-section surveys, but not a panel structure. In other words, we cannot follow individuals through time. However, unique among such datasets, the GSS includes many responses per individual on related (and unrelated) questions. Our estimation strategy is two fold. At the micro level we use auxiliary information (responses to auxiliary survey questions) to remove (filter) individual effects. Our second estimation strategy is one of cohort-specific effects, or, specifically, regional macroeconomic analysis.

The paper is organized into the following sections. Section 2 reviews the economic theory as it pertains to globalization. Section 3 describes our data. Section 4 presents our individual and cohort level empirical specification and analysis. Section 5 discusses policy implications and proposals. The final section concludes.

2 Theory

Economic insecurity is most often understood as an individual's perception of the risk of economic misfortune (Dominitz and Manski, 1997; Scheve-Slaughter, 2004). Economic misfortune can be thought of as individuals' inability to purchase goods and services (or provide for their families), which primarily depends on their income. In reality, the majority of Americans do not earn their primary income from dividend payments or stock options, but rather from wages from labor income. Therefore, we assume that economic insecurity primarily stems from volatility in wages and employment, caused by volatility in the labor market. As a result, this section utilizes labor theory in conjunction with trade theory to explain how offshoring affects economic insecurity via increases in industries' labor-demand elasticities.

2.1 Globalization and the elasticity of demand for labor

An industry's own-price labor demand elasticity, η_j^d, consists of two parts, the *scale effect* ($s\eta_j$) and the *substitution effect* ($-1[1-s]\sigma_j$) so that $\eta_j^d = -1[1-s]\sigma_j - s\eta_j$.[6] The *scale effect* tells us how much labor demand changes after a wage change due to a change in output. The *substitution effect* tells us, for a given level of output, how much firms substitute away from labor and toward other factors of production when wages rise. Both the *scale* and *substitution* effects reduce the quantity of labor demanded when wages rise. For the purpose of this paper, we focus on the processes in which offshoring increases labor-demand elasticities via the *substitution effect*.[7]

Suppose an industry is vertically integrated with a number of production stages. Trade allows domestic firms to lower production costs by offshoring work to foreign businesses and importing intermediate inputs (e.g., Feenstra and Hanson, 1996, 1999). Trade thus increases the number of factors that firms can substitute in response to higher domestic wages beyond just domestic non-labor factors.[8] Therefore, moves toward freer trade should increase the elasticity of substitution, σ_j. Firms need not actually offshore jobs to increase σ_j; the potential of offshoring is sufficient (Slaughter, 2001). As this substitutability increases, labor demand becomes more elastic.[9] Additionally, the smaller s the stronger is the pass-through from σ_j to η_j^d. As a result, higher wages generate larger changes in the quantity of labor demanded the less important labor is in total costs.[10]

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[6] Where s is labor's share of industry total revenue; σ_j is the constant-output elasticity of substitution between labor and all other factors of production; and η_j is the product-demand elasticity for industry j's output market. η_j^d is defined as negative; s, σ_j, and η_j are positive.

[7] Scheve and Slaughter (2004) note several reasons for focusing on the substitution effect: first, because it is direct, that is, it places domestic workers in competition with foreign labor, and, second because other researchers (primarily Rodrik, 1997) have emphasized in theory its possible role in generating insecurity.

[8] According to Freeman (2005), the opening of India, China, and the former Soviet bloc to international commerce during the 1990s approximately doubled the worlds supply of labor from 1.46 billion workers to 2.92 billion. However, these countries brought with them limited capital, dropping the global labor-to-capital ratio by approximately 40 percent, decreasing the returns to labor, and increasing the returns to capital. Based on the findings of Rauch and Trindade (2003), this massive increase in the labor supply in foreign nations has nearly equal proportionate effects as a domestic increase in labor supply on U.S. labor-demand elasticity, suggesting that without change in U.S trade policy, the increased openness in other nations will have the same effect on labor-demand elasticities.

[9] $\frac{\delta\eta^d}{\delta\sigma} = [1-s] < 0$.

[10] This is where the role of increasing automation affects labor-demand elasticities. Increases in automation will reduce s, increasing the pass-through effect. Replacing a worker with a computer will exacerbate the impact of trade on the labor-demand elasticity.

2.2 Labor-demand elasticities and labor market volatility

The above expressions demonstrate how offshoring increases labor-demand elasticities. Figure 1 (below) illustrates how increasing labor-demand elasticities induce greater wage and employment volatility in the labor market, thus causing greater economic insecurity.

First we look at the case of a closed economy in which firms cannot substitute foreign labor for domestic labor. Assume workers have the ability to adjust their work-leisure time or relocate, allowing the total labor supply to be relatively elastic, S_0. In a closed economy, firms face a demand for skilled labor, D_0^a. In an open economy, firms have the ability to substitute foreign labor for domestic labor, increasing the labor-demand elasticity, denoted by curve D_0^b.

Assume a labor productivity shock increases the marginal product of labor, increasing firms' demand for labor from $D_0^{a,b}$ to $D_1^{a,b}$. In the closed economy, the labor market moves from equilibrium at point *x* to equilibrium at point *y*, increasing wages from W_0 to W_1 and employment from E_0 to E_1. If firms have the ability to substitute foreign labor for domestic labor, the same increase in productivity will lead to greater volatility in wages and employment, denoted by the equilibrium at point *z*. Increased economic insecurity reflects workers' response to the greater volatility in employment and wages within their industry (Rodrik, 1997; Slaughter, 2001).

2.3 Impact of insecurity on the average worker

There are four important implications from increased labor-demand elasticities (economic insecurity). Most noteworthy is the decline in workers' bargaining power leading to slower wage growth[11] and rising income inequality[12] (e.g., Aaronson and

[11] Former Federal Reserve chairman Alan Greenspan famously stated that increased insecurity doubtlessly played a role in the slowdown of wages, as workers would be less inclined to ask for a pay raise because of fear of job loss.

[12] Slaughter (2001) finds evidence the labor-demand elasticity for low-skilled labor has increased; however, the evidence does not suggest the same is true for high-skilled workers. Coupled with the results of Aaronson and Sullivan (1998), Slaughter's findings would suggest slower wage growth for low-skilled workers than their high-skilled counterparts. Feenstra and Hanson (1996, 1999) suggest that globalization has lead to a decreasing demand for low-skilled workers relative to their high-skilled counterparts. They find that computers account for 35 percent of the increase in relative wage for nonproduction (skilled) workers, while offshoring can explain 15 percent. Others have found that increased trade has only a marginal impact on the demand for labor (e.g., Berman, Bound, and Griliches, 1994; Strauss-Kahn, 2003). While it may be fair to assume the demand for low-skilled workers has not increased as rapidly as the

Sullivan, 1998). Second, increases in the elasticity of labor demand shift the costs of benefits, such as healthcare, away from firms toward workers.[13] Third, Benito (2006) finds that increased insecurity causes households to defer consumption. Finally, Burchell (1999) concludes that economic insecurity is damaging to workers' health.

On the other hand, gains from globalization have been quite large and have taken many different forms, specifically, lower prices, higher profits, and increased product variety. Estimates by Bradford, Grieco and Hufbauer (2006) suggest that future gains from removing the rest of U.S trade barriers could add at least another $1.3 trillion to the U.S. economy annually.[14] However, as previously mentioned, a large majority of workers rely on wages from labor income, not profits, to provide for their families. While the gains from globalization have been grand for the economy as a whole, when the average worker constructs an opinion about the effect of globalization, the direct impact of declining wages (real and relative) and increasing healthcare costs will likely outweigh the more indirect benefits.

3 Variables to capture the peril of globalization

Our empirical work seeks to examine how workers' perceptions of their economic insecurity are affected if they work in industries (or occupations) that are susceptible to offshoring. Our data are from the General Social Survey (GSS) conducted by the National Opinion Research Center of the University of Chicago. The survey is administered in February and March of each sample year, with the total number of respondents ranging from 1,468 to 2,832. Since 1994, the GSS has been conducted on a biannual basis. Respondents answer questions regarding their demographic information and opinions on a plethora of topics, including two questions about earnings and employment expectations. These questions were included in 17 surveys between 1977 and 2004. We use the responses from these two questions to measure economic insecurity. So far as we are aware, this is the only large survey dataset for the United States that contains such questions.

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demand for high-skilled workers, rising insecurity (labor-demand elasticities) can explain an increasing income gap between high- and low-skilled workers within and across industries.

[13] See Rodrik (1997) p.18 for a complete discussion.

[14] The authors believe this may be an underestimate, perhaps by a great deal.

The first question, which we label *joblose*, asks: "Thinking about the next 12 months, how likely do you think it is that you will lose your job or be laid off—very likely, fairly likely, not too likely, or not at all likely?" The second question, which we label *jobfind*, asks: "About how easy would it be for you to find a job with another employer with approximately the same income and fringe benefits you now have? Would you say very easy, somewhat easy, or not easy at all?" We combine the answers of these two questions in order to define a variable that measures if workers believe they will suffer a pay cut or unemployment as a result of job loss. Following Schmidt (1999), we define a binary variable, *costly job loss*, as those respondents who said they were very or fairly likely to lose their job in the next year and also said it would not be easy at all to find another job with similar pay and benefits. We assume workers are indifferent between two jobs with similar pay and benefits, as both jobs would provide the same level of economic security as defined in Section 2.

In order to relax this assumption and allow for more variability between respondents, we construct a supplemental variable, *insecure*. The variable ranges from 0 to 5 depending on how respondents answered the two survey questions. With regard to *joblose*, scores range from 0 to 3. If respondents answered very likely they were assigned a score of 3; somewhat likely, 2; not too likely, 1; and not at all likely, 0. Similarly, for *jobfind*, scores range from 0 to 2. If respondents answered not easy at all, they were assigned a score of 2; somewhat easy, 1; and very easy, zero. The scores from the two questions are simply summed to construct the variable *insecure*.[15] Although summarizing the survey's information in such categorical variables is far from ideal, there are few alternatives.

Figure 2 exhibits two patterns. First, workers' expectations about losing their jobs and finding new jobs have moved fairly closely with the unemployment rate. Second, during the economic recovery of the 1990s, and to a greater extent the recovery in the 2000s, workers were more pessimistic about both job loss and finding a job than they

[15] We also construct two other variables; *likelose* and *hardfind* which equal 1 if respondent answers very likely or very hard, respectively, and zero otherwise. For the sake of brevity the empirical results using *costly job loss* and *insecure* are present in this paper. Others are available on request.

were during the previous periods of low unemployment in the 1970s and 1980s, as highlighted by the growing divergence with the unemployment rate.[16]

Our theory hypothesizes that tradable industries (and occupations) will exhibit more-elastic labor demands, which, raises labor-market volatility. According to the findings of Jensen and Kletzer (2005), this is exactly the case. Tradable industries have job-loss rates that are notably higher than those safe from offshoring: 0.152 compared with 0.076. Moreover, occupations exposed to global trade exhibited higher rates of job loss than safe occupations: 0.22 compared with 0.094. Additionally, workers in tradable industries saw income (in logs) loss of -0.30 compared with -0.14 in non tradable industries. Therefore, we expect workers in industries and occupations safe from offshoring to express significantly lower levels of economic insecurity. Following the results of Jensen and Kletzer, we construct our offshoring variables.[17]

To develop an empirical approach to identify activities that can be potentially offshored, Jensen and Kletzer assume activities traded domestically can be potentially traded internationally, even if they currently are not. Using spatial clustering, they group industries and occupations into "Gini classes," where those industries and occupations with Gini coefficients less than 0.1 are classified as "Gini class 1" or non tradable. We base our construction of our two offshoring variables on their results.[18] The variable *pIND* identifies those industries in which activities can be offshored. Industries such as personal services (e.g., teeth cleaning) are coded as zero, or non tradable. There is no reason a dentist or hygienist would worry about their job being offshored. Other industries in which the work could feasibly be offshored are coded as one.

Similar to offshoring threats by industry, certain occupational groups are directly or indirectly affected by offshoring. Some workers may find themselves in industries where they are safe from offshoring but are in an occupation in which employees in similar jobs in different industries are being offshored. Such is the case with administrative support positions. An administrative assistant at a dentist's office may not

[16] The first and to some extent the second patterns were previously recognized by Schmidt (1999).
[17] See Jensen and Kletzer (2005) for further discussion of the methodology used to identify tradable industries and occupations.
[18] The GSS reports respondents' Census industry and occupations codes, while Jensen and Kletzer use NACIS and Major Standard Occupations Classification codes; therefore we use our best judgment to apply their results. See Table 1 for comparative figures.

fear that *his* job will be offshored, but if he does lose his job it may be harder for him to find a new job because other industries have been able to offshore this work. We construct a variable *pOC* to identify those occupational groups that are safe from offshoring. Occupations safe from offshoring (e.g., judges or physicians) are coded as 0; those that can be offshored are coded as 1. Using these two variables exploits the fact that respondents provide information on their industries as well as their occupations within their respective industries.[19]

Workers' perceptions about their economic security are formed by many characteristics beyond the pressures from offshoring. Consequently, we construct a number of individual-level control variables.[20] The variable *Income* is a categorical variable measuring real household income.[21] *Union* equals 1 if the respondent belongs to a union, and 0 if not. *Degree* is a categorical variable ranging from 1 to 5, with 1 the lowest education and 5 the highest. *AgeGr* is a vector of binary variables corresponding to respondents' respective age group at the time of the survey. *White*, *Black*, and *Other* equal 1 if the respondent identifies as white, black, or other, respectively, and 0 otherwise. *Self* equals 1 if the respondent identifies himself as being self-employed and 0 otherwise. *Region* is a vector of nine binary variables corresponding to the nine Census divisions.[22] *Unemployment* measures the share of workers unemployed in a respondent's census region during the survey year.[23] Finally, *Year* is a vector of binary variables controlling for year fixed effects.

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[19] In addition to the potential for offshoring, the magnitude of offshoring activity within an industry (or region) may be of some importance. Higher levels of offshoring activity could indicate greater mobility, which in turn raises labor-demand elasticities and perceptions of employment risks (Scheve and Slaughter, 2004). However, U.S regional import data per se are not available (see Hervey, 1999), nor is Foreign Direct Investment (FDI) data by industry classification at comparable levels of disaggregation. Moreover Scheve and Slaughter construct an FDI *magnitude* variable that produces coefficients that are not statistically different from their *potential* coefficients at a 95percent confidence level.

[20] See appendix table 6 for more information.

[21] The GSS asks respondents to report their annual household income within equal nominal brackets that arbitrarily change over time. The values range from 1 for the lowest income bracket to 9 for the highest income bracket. We compute the annual median value and use the deviation from the median value as a proxy for real household income, (e.g. If in year *y,* the median respondent, *I,* reported his family income to be in bracket 4 then respondent *i*'s real family income was coded as zero. If respondent i_{+1} reported to have a family income for year, *y* in bracket 5, i_{+1}'s real family income is coded as 1).

[22] If respondent lives in the respective Census region at the time of the survey, they are assigned a value of 1, and 0 otherwise. We will later use this information for our cohort analysis.

[23] These data were obtained from the Bureau of Labor Statistics (BLS).

The control variables are likely to account for some of the variation among individuals' perceptions about their economic security. However, individual-specific immeasurable and/or unobserved differences may also matter. When answering the GSS survey question about finding a new job, one respondent may believe he could find a new job paying 10 percent less with comparable benefits and answer "somewhat easy", while another respondent may be in the same situation and say "not easy at all." Unlike the U.K. panel survey data used by Scheve and Slaughter, the GSS is a time series of cross-sections that does not track the same individual over different years. We are unable to control for individual-specific effects using the standard practice.[24] We use auxiliary data from the GSS survey to approximate the existing individual *bias*.

The GSS asks respondents a question about their past financial situation and general happiness, specifically: "During the last few years, has your financial situation been getting better, worse, or has it stayed the same? Taken all together, how would you say things are these days—would you say that you are very happy, pretty happy, or not too happy?" We code the respondents' answers to these questions with values ranging from 1 to 3, where 3 equals getting better and very happy. Using this coding, we construct the variables *fSit* and *gHap*.

Including these variables in our models allows us to approximate unobserved effects that influence the respondents' answers to the economic insecurity questions. More specifically, *fSit* can be thought of as a proxy for a lagged dependent variable, as respondents' past financial situation's will likely influence their future outlook. The *gHap* variable can be thought of as a bias correction, as generally happy people are more likely to be optimistic when expressing their perceptions of economic security.[25] Including these variables in our estimation produces more precise estimates, but by no means accounts for all the unobserved individual effects that are possible in a panel structure.

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[24] Starting in 2008 the GSS will switch from a repeating cross-section design to a combined repeating cross-section and panel-component design. When these new data become available they will allow future research to test our approach of controlling for individual-specific effects.

[25] There is clearly an endogeneity issue between general happiness and economic security that we correct for using IVmethods. Survey questions on martial status, occupational happiness, financial satisfaction, and friendship happiness are reserved to satisfy identification restrictions.

4 Empirical specification, estimates and analysis

In section 4.1, we analyze the pooled cross-section time-series GSS data using ordered probit models, so as to examine the variation in our measures of economic insecurity at the individual-respondent level. In section 4.2, we stratify the data by Census region and estimate a Deaton-style "pseudo-panel" model to examine economic insecurity at a more macroeconomic regional level. Among other advantages, this framework allows us to replace certain macroeconomic variables used in the individual-respondent model (aggregated from the GSS dataset) with more satisfactory aggregate regional data from the Bureau of Economic Analysis.

4.1 Individual level

In cases where the variable to be estimated is limited to a range of values and contains discrete responses, probit models are employed to provide the best estimation (e.g., coin toss). As noted by Aaronson and Sullivan (1998), in cases where the underlying variable (perceived economic insecurity) is continuous in nature but approximated by discrete and ordered responses of a survey question, the appropriate statistical technique is the use of ordered probit models. The ordered probit regression is based on a latent regression such as $y_i^* = \beta x_i + \varepsilon_i$, where y_i^* is the unobserved economic insecurity of individual i, x_i are demographic and other individual characteristics of individual i, and ε_i is a person-specific error term. The parameter β is a vector of coefficients to be estimated. Although we do not observe y_i^*, we observe k possible answers allowed by the survey and the construction of our insecurity measures, as represented by y_i:

$$
\begin{array}{lll}
y_i = 0 & \text{if} & y_i^* \leq \mu_0 \\
y_i = 1 & \text{if} & \mu_0 \leq y_i^* \leq \mu_1 \\
y_i = 2 & \text{if} & \mu_1 \leq y_i^* \leq \mu_2 \\
\vdots & & \\
y_i = k & \text{if} & \mu_{k-1} \leq y_i^* .
\end{array}
$$

For example, for the *costly job loss* variable, y_i=1 corresponds to answering "somewhat likely" or "very likely" and "very hard," whereas for the *insecure* variable, y_i=5 corresponds to "very likely" and "very hard." The μ_i's are unknown intercept parameters to be estimated.

Table 2 reports the coefficients and standard errors from specifications that use *costly job loss* and *insecure* as dependent variables. The first three columns of the table use *costly job loss* as the dependent variable and the last three columns use *insecure.* The results are reported relative to a base-case white, female, non-union, age 25 to 39, who lived in the northeast in 1988. The model fits well. The majority of the estimated coefficients have the expected signs. A notable exception is the *Union* variable, which has a positive and highly significant coefficient.[26] The unobserved individual-effect variables *gHap* and *fSit* have the largest impact on our insecurity variables. Our potential-for-offshoring variables, *pIND* and *pOC*, are positive and significant across all model specifications, supporting our hypothesis that employees in industries and occupations safe from offshoring will express lower levels of job insecurity.

Assuming $E(\varepsilon_i)=0$ and $V(\varepsilon_i)=\sigma^2$, we can calculate the base case probability of each of the *k* answers.

$$\text{Prob}\ (y=j|x) = \begin{array}{ll} \Phi(\mu_0 + \beta x) & \text{if } j=0 \\ \Phi(\mu_0 + \beta x) - \Phi(\mu_{j-1} + \beta x) & \text{if } 0 < j \leq k-1 \\ 1-\Phi\ (\mu_{k-1} + \beta x) & \text{if } j=k, \end{array}$$

where Φ is the standard normal cumulative distribution function. From the equation above, we can calculate the marginal effects on the base case by

$$\frac{\partial prob(y=0)}{\partial x} = \phi(\mu_0 + \beta x)\beta$$
$$\frac{\partial prob(y=j)}{\partial x} = (\phi(\mu_j + \beta x) - \phi(\mu_{j-1} + \beta x))\beta$$
$$\frac{\partial prob(y=k)}{\partial x} = (1 - \phi(\mu_{k-1} + \beta x))\beta,$$

where ϕ is the standard normal density function and the *x* variables are measured at their mean value. In many cases, the independent variables are binary indicators, such as *male* or *white*. In this case, the marginal effect is calculated as follows:

[26] If we assume that union membership is, in fact, exogenously determined, this coefficient suggests that by joining a union the respondent will express higher levels of job insecurity. Theoretically this does not make much sense, as workers join unions to increase their job security. On the other hand, the natural decline of union membership in the United States and higher union wages means that if union members do lose their job it is very likely they will experience a pay cut. See Bender and Sloane (1999) for further discussion.

Prob ($y=j|x',1$) – Prob ($y=j|x',0$),

where x′, 1 is the vector of covariates where the *male (white)* variable is set to 1 and x′, 0 is the vector of covariates where the *male (white)* variable is set to 0.

The base-case probabilities and marginal effects, in Table 3, measure the impact of a change in the respective independent variable on the probability of the respondent expressing a certain level of job insecurity. For example, for every unit increase in the regional unemployment rate, the probability of expressing costly job loss increases 0.56 percent, all else constant. The first row of this table shows that the probability of the base-case person expressing costly job loss is 6.2 percent.

With respect to our offshoring variables, *pInd* and *pOC*, the probability the base-case worker will express costly job loss if she works in an industry and occupation with the potential for offshoring increases to about 8.5 percent, from 6.2 percent. The individual-effect variables play even a greater role in predicting workers' economic insecurity. Specifically, the probability that the base-case respondent will express costly job loss is only about 2 percent if they are "very happy" and have seen their financial situation improve over the past few years. The probability that the same base-case respondent will express costly job loss is about 10 percent if they are "not too happy" and have seen their financial situation get worse.

Figure 3 plots the estimated probabilities of *costly job loss* and *insecure* over the sample period. As we expect, workers probability of expressing economic insecurity moves in sync with fluctuations in the labor market, measured by the national unemployment rate. However, in 2004 there is a significant departure from this trend, suggesting that recent improvements in the labor market have not quelled economic insecurity as they have in the past

Breaking down the probabilities even further in Figure 4, we see that upper-class workers have seen some reprieve from improvements in the labor market but middle/working class and lower class workers continue to express heightened levels of economic insecurity. Data since 2000, by education level show that workers across all education levels are expressing higher levels of economic insecurity, with lower-educated workers experiencing the starkest increases. Somewhat contrary to previous findings, our

results suggest that the economic growth of the 1990s *eventually* reduced workers economic insecurity, although never to levels lower than those of the 1980s.

4.2 A Regional level, Pseudo-Panel Model

Above, we have conducted estimation with the pooled GSS dataset. Because the GSS is a series of cross-sections and not a panel dataset, it is not possible to control for individual effects nor to estimate a dynamic model that uses lagged dependent and independent variables.[27] Deaton (1985) introduced the concept of stratifying such datasets according to certain exogenous variables, creating a "pseudo-panel" dataset. There are two underlying assumptions needed to successfully convert the GSS data into a panel structure. First, if there are individual-specific effects, there will be equivalent additive cohort effects. Second, the sample cohort means are consistent estimates of the true cohort means. Consider the simple theoretical model, $y_{it} = \beta_{it} x_{it} + \varepsilon_{it}$, where y_{it} is the measure of job insecurity of individual i at time t, x_{it} is a vector of demographic individual characteristics, β is a vector of parameters to be estimated, and ε is the error term. In a normal panel structure, researchers track certain individuals over time, allowing econometricians to use individuals as their own controls, or individual fixed-effects, modeled as

$$y_{it} = \beta x_{it} + \theta_i + \varepsilon_{it}, \qquad (1)$$

where θ_i captures the individual fixed effect. Since θ_i will be correlated with other explanatory variables, this equation can only be consistently estimated from panel data. However, consider a case where i is a member of a well-defined cohort monitored through successive surveys. Let i belong to a cohort, c, and calculate the simple population averages of (1) over all i belonging to c to obtain

$$y^*_{ct} = \beta x^*_{ct} + \theta^*_c + \varepsilon^*_{ct}, \qquad (2)$$

[27] Our variables *gHap* and *Fsit* appear to be fair approximations of these individual effects; that is to say, they are powerful predictors of economic insecurity.

where the asterisks denote population means. In practice, these cohort population means can be estimated by cohort means from the sample. We then get sample cohort means, forming the relationship

$$\bar{y}_{ct} = \bar{\beta}\bar{x}_{ct} + \bar{\theta}_{ct} + \bar{\varepsilon}_{ct}, \tag{3}$$

where $\bar{\theta}_{ct}$ is the average of the fixed effects for those *i* part of *c* that show up in the survey.[28]

Deaton's work considered only static panel models, but later econometric studies have examined the possibility of estimating dynamic pseudo-panel models. The necessary conditions for consistent estimation of such models are stringent and, in our opinion, unlikely to be fulfilled in most non-panel survey datasets; see for example Verbeek and Vella (2005).[29] Hence, we do not pursue dynamic pseudo-data panel models.

Following Deaton's methodology, we group our data into regional cohorts corresponding to the nine census regions, reducing the total observations in the sample to 153. Averaging our individual dummy variables produces regional composition measures, (i.e., 50 percent of the sample is male). Due to the reduction in observations and the large number of regressors, we estimate the following fixed-effects model to preserve degrees of freedom:

$$\bar{y}_{ct} - \bar{y}_c = \bar{\beta}_{ct}(\bar{x}_{ct} - \bar{x}_c) + \bar{\varepsilon}_{ct}, \tag{4}$$

where $\bar{y}_c$ and $\bar{x}_c$ are the means of each regional cohort over all sample years.

Grouping the GSS data into regional cohorts allows us to replace certain state and local variables created via aggregation of GSS survey questions with more satisfactory (in our opinion) state and regional data from the Census Bureau and BEA. For example, a measure of real household income is included on GSS dataset; in the pseudo-panel

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[28] After conducting data sampling tests, we assume $\bar{\theta}_{ct} = \theta_c^*$. Note: The GSS is not a random sample, and we lose some observations due to question availability; therefore, we use information from other sources to test if the cohort sample means equal the cohort means of other data sources. For example, we use regional cohorts, and the Bureau of Economic Analysis (BEA) provides employment data by region. Amongst other things we test if the distribution of employment between regional cohorts is equal to the true employment distribution reported by the BEA. See appendix table A.2 for results.

[29] Other papers discussing dynamic pseudo-panel models include Moffit (1993) and Collado (1997).

models, we can use BEA estimates of real per capita personal income.[30] To check robustness, we estimate our models with both the GSS and BEA measures.[31] Further, the GSS race classifications of white, black, and other are not statistically representative of the regional demographic mix; therefore, we substitute the Census Bureau's regional composition of races into our models.

Table 4 reports ordinary-least-squares estimates as specified in equation 4.[32] Overall, the model appears to fit the data reasonably well, predicted and actual values are closely correlated, and the residuals are both uncorrelated and normally distributed (see appendix tables A.3). However, there are some incongruities between the regional models and individual models. Specifically, in the individual models both *pInd* and *pOC* are highly significant and positive, while in regional models the coefficients on *pOC* are consistently negative, although insignificantly different from zero. Additionally, it appears that there may not be enough variability in *costly job loss* to determine the signs of our regressors. We find that a 1 percent increase in the number of workers employed in industries with the potential for offshoring will increase *insecure* by about a half a unit or the percentage of workers expressing *costly job loss* by 0.5 percent.

[30] Aaronson and Sullivan (1998) and Schmidt (1999) omit income from their econometric models; we find household income is highly significant as a predictor of economic insecurity. This omission likely biases their results.
[31] Real per capita personal income from BEA, (Chn. 2000$)
[32] Other authors (Moffit,1993; Collado,1997; Verbeek and Vella, 2005) suggest dynamic estimation methods that may be better suited for cohort analysis. Due to limited degrees of freedom and good model-fit, we believe this parsimonious model is sufficient.

5 Policy

Our findings verify the economic theory that globalization generates economic volatility leading to worker insecurity. Specifically, workers in industries (and to some extent occupations) susceptible to offshoring will express higher levels of economic insecurity. Our findings have significant policy implications for the politics of globalization and social-insurance policies.

5.1 Implications

Globalization, by increasing economic insecurity, amplifies workers demands for social insurance. Agell (1999) notes that private markets are not likely to accommodate the demand for human-capital-related insurance. If governments are unwilling and/or unable to address these demands, workers will seek protectionism as a method of relieving their insecurity. Unlike other data sources, the GSS provides us with the ability to determine whether this link from increased insecurity to greater demands for social insurance truly exists.

Figure 5 illustrates that workers (over the last 30 years) have continued to demand that government provide increased funds for health, education, and social security programs. The graph also shows an increase in the 1980s and a severe decline in 1993 in the demand for social insurance. The high levels of demand for social insurance in recent years corroborate exit-poll results that indicated voters elected a Democratic Congress in an effort to reduce their insecurity, either through increased protectionism or social insurance. From a cross-sectional approach, the correlation between economic insecurity and demands for social insurance becomes more pronounced.

Table 5 reports the mean values of the demand-for-social-insurance variable by level of economic insecurity. Workers who express fear of costly job loss or high levels of insecurity express significantly higher demands for a social safety net than workers who feel secure. At the regional level, the evidence is quite similar to Table 2. The east and west coasts express fairly low levels of economic insecurity but demand relatively more funding for government programs. However, in the most discerning cases of the East South Central (MS, AL, TN, and KY) and West North Central (ND, SD, NE, KS,

MN, IA, and MO) regions, economic insecurity appears to be closely related to the demand for social insurance.[33] Combined with our regression analysis, these correlations tend to support the theory that increased offshoring increases insecurity, which stimulates the demand for social insurance.

5.2 Proposals

According to Bradford, Grieco and Hufbauer (2006), the lifetime loss by workers displaced from offshoring is estimated at about $50 billion dollars a year, a small percentage of the $0.8 to $1.3 trillion in public gains from liberalization. However, these costs are markedly higher than the $248 million federal outlays for trade adjustment assistance in 2001 (Storey, 2000). Moreover, instead of devoting resources to make the U.S. workforce more dynamic, federal outlays continue to be directed toward protectionist policies— the annual maximum spending on farm subsidies is $23 billion. The future of the Doha round of trade negotiations suggests that the outlook for further liberalization is bleak if policymakers continue pushing for protectionism instead of helping workers deal with the current and future pains associated with globalization.[34]

Among others, Lori Kletzer and Robert Litan (2001) have proposed two benefit programs that would reduce the economic insecurity of American workers, specifically those affected by offshoring: wage insurance and subsidies for health insurance. They estimate these programs would cost about $3.5 billion annually. The wage-insurance program essentially works as follows: A displaced worker who once earned $40,000 a year and found a new job paying $30,000 a year would receive $5,000 a year for two years after the initial layoff. The authors believe a benefit of this type of policy, compared with unemployment insurance, is that it would reduce the duration of unemployment instead of increasing it. Potential negative externalities are the underemployment of workers and depression of wages, as a wage insurance plan is an incentive for people to take jobs for which they are overqualified. On the other hand, it is likely that displaced workers had acquired job-specific skills that warranted a higher

[33] See appendix section A.5 for regional insecurity and demand for social insurance maps.
[34] Many have argued that without adequate progress on agriculture subsidies, developing nations will not make the concessions needed to complete the Doha round of trade negotiations. See Schott (2004) for further discussion.

wage in their previous job, skills that cannot be transferred to their new place of employment.

Consistent with our results, Bergsten (2005) suggests a more fundamental remedy to increase the support for globalization—better education. If the average worker completed four more years of school, turning a high school graduate into a college graduate, the average worker would be about 1.2 percent less likely to feel vulnerable to costly job loss.[35] According to Bergsten, increased education actually increases the number of workers who benefit from globalization and thus their propensity to support free-trade policies.[36]

6 Conclusions

The exit polls and results of the 2006 congressional elections have raised much concern regarding increased protectionism. Americans fear that the inexorable trends in global integration and offshoring will threaten the standard of living of future generations. Our research suggests that these perceived effects of globalization on labor-market volatility are, in fact, real and that future backlash is quite probable without structural change. The findings in this research support the existence of a connection among offshoring, economic insecurity, and the demand for social insurance.

First, our research provides individual-level and macroeconomic evidence of a link between the threat of offshoring and workers' perceptions of their job insecurity. We find that workers in industries and occupations susceptible to offshoring are about 30 percent more likely to express *costly job loss* and document rising trends in economic insecurity in the middle/working class in recent years. We also find that while educational attainment is a strong predictor of insecurity, even the most educated workers have begun to express higher levels of insecurity.

Next, our results imply evidence of the link between workers' perceived job insecurity and demands for social insurance and document that the rising trends in both

[35] While this increase may appear small in nominal terms, the probability of a high school graduate expressing costly job loss is roughly 6.8 percent, thus a decline in probability of 1.2 percent is a relative decline of 17.6 percent.

[36] There is much consensus that increased education is the best solution to combating the backlash toward globalization for numerous reasons; for the sake of brevity they are not all discussed here.

areas, are likely to threaten future economic integration. Individual and regional cross-sectional analysis supports the premise that economic insecurity causes workers to demand more social insurance. Finally, we review a few policies aimed at relieving workers' insecurity.

This article advances the GSS literature by addressing its shortcomings. Using auxiliary data and cohort-level analysis, we are able to proxy unobserved individual effects normally unfeasible to control for in cross-section time series data. Robust conclusions across all model specifications suggest the appropriateness of these techniques. According to the National Opinion Research Center, future GSS releases with a panel structure will allow research to test our results in light of new information.

Scheve and Slaughter (2004) was the first article to provide empirical tests at the individual level of the relationship between globalization and the economic insecurity of workers. This article builds on their work by using U.S. data over three decades, as opposed to U.K data for eight years. Additionally, we attempt to determine whether there is a link between increased insecurity and demands for greater social insurance, an issue that Scheve and Slaughter leave for future research. Although this article does not empirically test this hypothesis, it explores GSS data well suited to answer this question. We leave it to future research to empirically test if, in fact, the apparent relationship between economic insecurity and demands for social insurance is, in fact, causation.

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Figure 1. – The elasticity of labor demand and labor market volatility

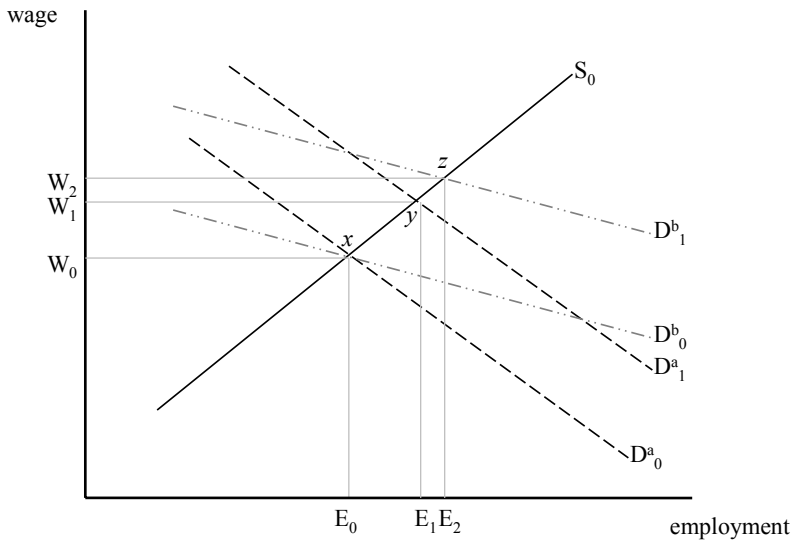


Figure 2. – Percent of workers who believe they were likely to lose their job in the next 12 months (left) and would find it hard to find a job with similar pay or benefits (right)

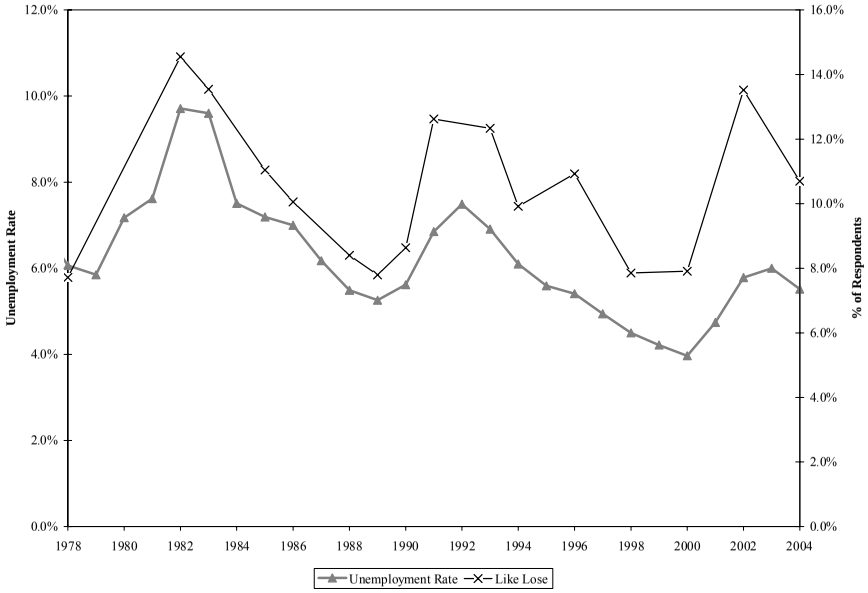


Figure 3. – Estimated probability of *costly job loss* (left) and *insecure* = [3,4,5] (right)
(95 percent confidence bands)

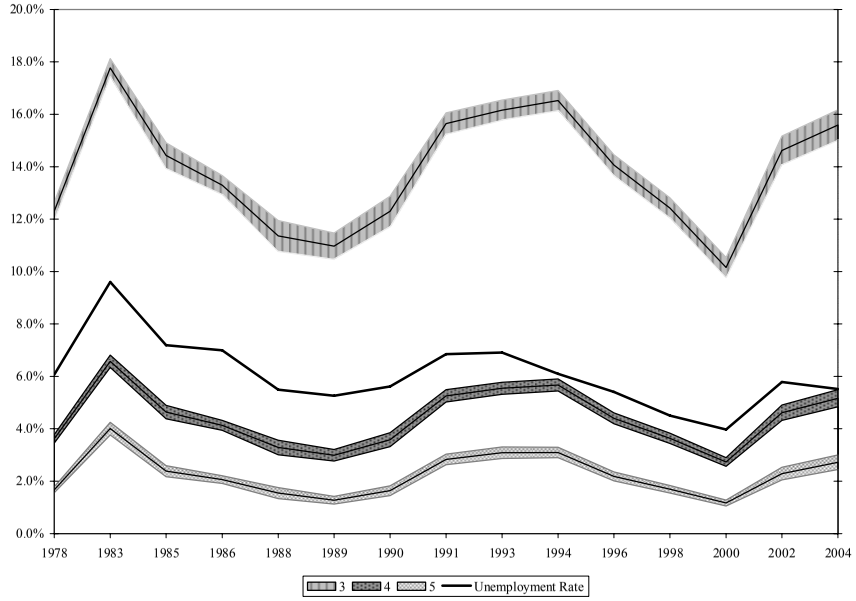
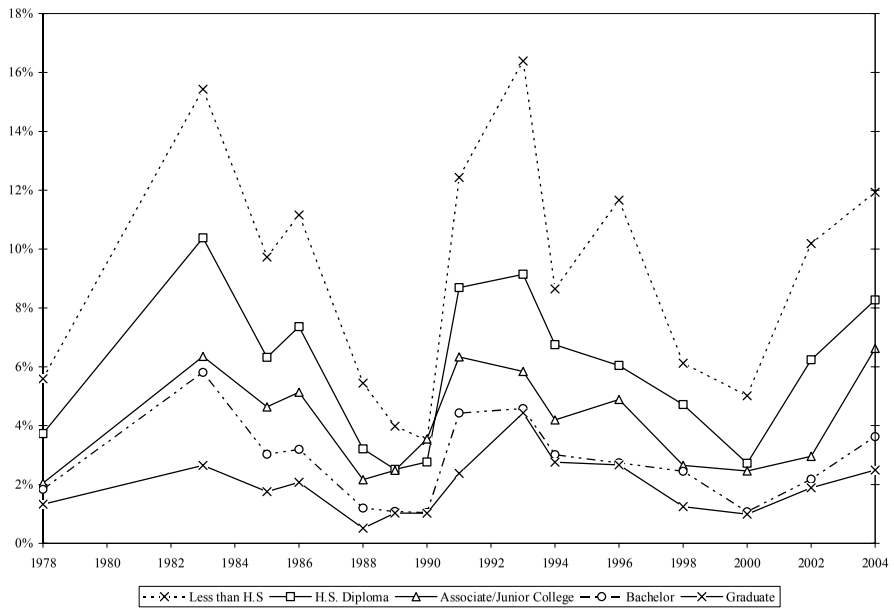


Figure 4. – Probability of *costly job loss* by education (left) class (right)



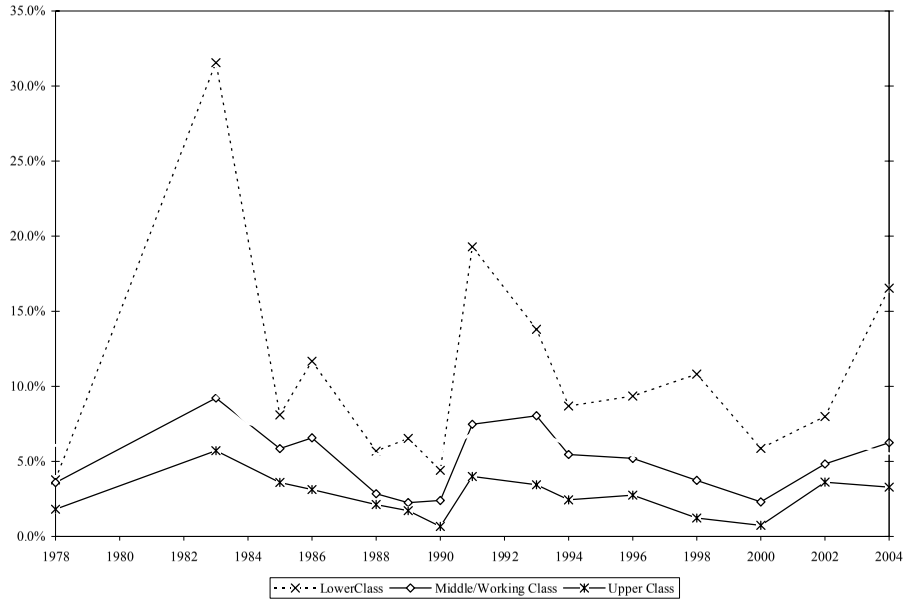
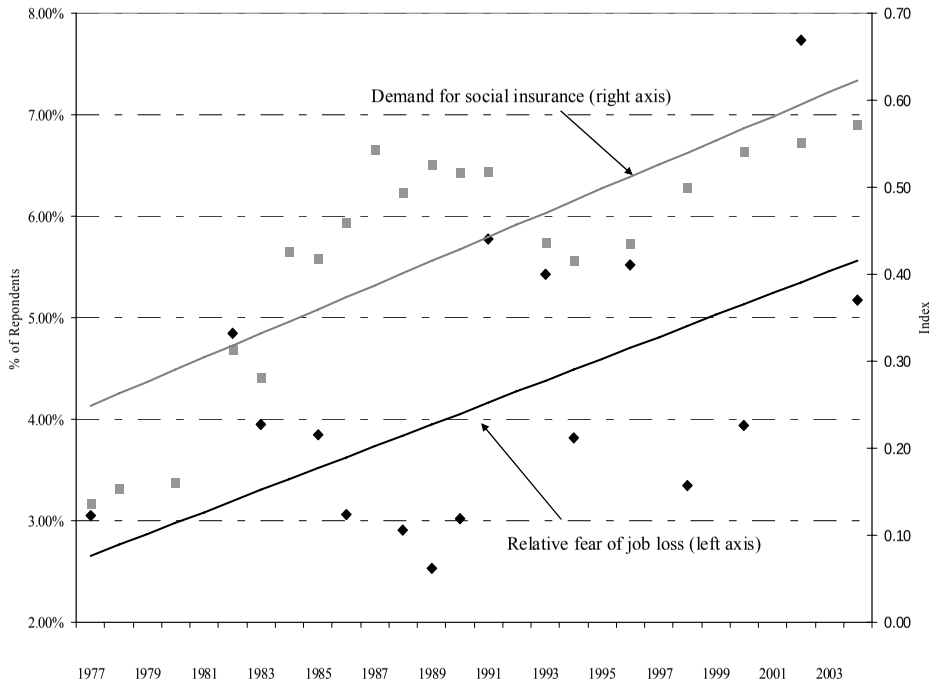


Figure 5. – Trends in economic insecurity and demand for social insurance



Source: GSS, BLS, and authors' calculations.
Note: Relative job insecurity equals the percentage of respondents who believe job is loss very likely or fairly likely minus the unemployment rate. Demand for social insurance is calculated using respondents' answers to questions regarding funding for welfare, social security, and healthcare. See appendix for survey questions and calculations.

Table 1. – Share of total employment in occupations and industries

Industry	**Occupation**	
	Non tradable	Tradable
Non tradable	**48.43**	**14.55**
	(50.03)	(10.79)
Tradable	**19.96**	**17.07**
	(21.64)	(17.54)

Note: Numbers in parenthesis are from Jensen and Keltzer (2005), table 6.

Table 2. – Likelihood of expressing economic insecurity: ordered probit analysis

	Dependent Variable					
	Costly job loss			*Insecure*		
Regressor	(1)	(2)	(3)	(4)	(5)	(6)
pInd	.2685***	.4800***	.4802***	.1568***	.1594***	.1900***
	(.0589)	(.1110)	(.1069)	(.0283)	(.0278)	(.0348)
pOC	.1847***	.3450***	.3154***	.1702***	.1682***	.1744***
	(.0575)	(.1078)	(.1045)	(.0272)	(.0267)	(.0335)
gHap		-.5542***	-1.005***		-.1780***	-.6064***
		(.0956)	(.2220)		(.0220)	(.0931)
fSit		-.9898***	-.7707***		-.1239***	-.0892***
		(.2658)	(.2464)		(.0178)	(.0247)
Income	-.0438***	-.0560***	-.0432***	-.0239***	-.0157***	-.0104***
	(.0067)	(.0126)	(.0129)	(.0032)	(.0033)	(.0041)
Degree	-.1225***	-.2285***	-.2149***	-.0886***	-.0784***	-.0874***
	(.0281)	(.0575)	(.0550)	(.0118)	(.0116)	(.0148)
Unemployment	.1242***	.2017***	.1982***	.0828***	.0761***	.0906***
	(.0326)	(.0600)	(.1982)	(.0164)	(.0161)	(.0197)
Union	.4041***	.6857***	.6453***	.3716***	.3540***	.3846***
	(.0692)	(.1348)	(.1312)	(.0363)	(.0355)	(.0492)
Self	-.3648***	-.6402***	-.5633***	-.3331***	-.3290***	-.3468***
	(.1010)	(.1807)	(.1731)	(.0397)	(.0387)	(.0510)
18 to 24	-.2337**	-.3233*	-.3236*	-.1586***	-.1380***	-.1560***
	(.1004)	(.1821)	(.1737)	(.0454)	(.0449)	(.0533)
40 to 54	.0507	.0145	-.0031	.1329***	.1020***	.1084***
	(.0627)	(.1135)	(.1078)	(.0297)	(.0295)	(.0353)
Over 55	-.0711	-.1773	-.1360	.2590***	.2387***	.3026***
	(.0857)	(.1535)	(.1475)	(.0401)	(.0395)	(.0506)
Black	.3535***	.5611***	.4739***	.2113***	.1849***	.1726***
	(.0751)	(.1460)	(.1430)	(.0416)	(.0411)	(.0498)
Other	-.0332	-.0970	-.1285	.0599	.0453	.0222
	(.1492)	(.2756)	(.2607)	(.0657)	(.0651)	(.0761)
Male	.0524	.1472	.1213	.02401	.0250	.0221
	(.0556)	(.1030)	(.0976)	(.0258)	(.0254)	(.0298)
Intercept 1	2.937***	1.899***	1.036	-.1959*	-.9356***	-1.846***
	(.2869)	(.5527)	(.6602)	(.1144)	(.1295)	(.2561)
Intercept 2				.5748***	-.1716	-.9723***
				(.1151)	(.1290)	(.2287)
Intercept 3				1.604***	.8485***	.1961
				(.1206)	(.1304)	(.2150)
Intercept 4				2.367***	1.610***	1.070***
				(.1286)	(.1338)	(.2234)
Intercept 5				2.945***	2.180***	1.728***
				(.1377)	(.1389)	(.2393)
Year dummies	yes	yes	yes	yes	yes	yes
Regional dummies	yes	yes	yes	yes	yes	yes
Instruments	no	no	yes	no	no	yes
N	8080	8006	7959	7899	7825	7782
Log likelihood	-1551	-1500	-7884	-11803	-11629	-17782

Note: Each cell reports the maximum- likelihood parameter estimate and, in parentheses, its standard error. Each model includes the following base case: female, white, non-union, who lived in the northeast in 1998 and worked in an occupation and industry safe from offshoring. The heteroskedastic robust standard errors are adjusted for respondents' past financial situations. *gHap* likely being endogenous, survey questions on marital status, occupational happiness, financial satisfaction, and friendship happiness are used as instruments.

* Significant at the 90 percent level.

** Significant at the 95 percent level.

***Significant at the 99 percent level.

Table 3. – Marginal effects on base-case probability

	Dependent Variable							
	Costly Job Loss		*Insecure*					
	no=0	yes=1	0	1	2	3	4	5
Base-case probability	.9377	.0623	.2212	.2366	.3220	.1423	.0493	.0286
pInd	-.0135	.0135	-.0330	-.0239	.0149	.0216	.0113	.0090
pOC	-.0089	.0089	-.0303	-.0220	.0138	.0198	.0104	.0083
gHap	.0283	-.0283	.1053	.0764	-.0476	-.0689	-.0362	.0289
fSit	.0217	-.0217	.0155	.0112	-.0070	-.0101	-.0053	-.0042
Income	.0012	-.0012	.0018	.0013	-.0008	-.0012	-.0006	-.0005
Degree	.0060	-.0060	.0152	.0110	-.0069	-.0099	-.0052	-.0042
Unemployment	-.0056	.0056	-.0157	-.0114	.0071	.0103	.0054	.0043
Union	-.0182	.0182	-.0668	-.0484	.0302	.0437	.0230	.0183
self	.0159	-.0159	.0602	.0437	-.0272	-.0394	-.0207	-.0165
18 to 24	.0091	-.0091	.0271	.0197	-.0123	-.0177	-.0093	-.0074
40 to 54	.0000	-.0000	-.0188	-.0137	.0085	.0123	.0065	.0052
Over 55	.0038	-.0038	-.0525	.0381	.0238	.0344	.0181	.0144
Black	-.0134	.0134	-.0300	-.0217	.0136	.0196	.0103	.0082
Other	.0036	-.0036	-.0039	-.0028	.0017	.0025	.0013	.0011
Male	-.0034	.0034	-.0038	-.0028	.0017	.0025	.0013	.0011
d_1978	-.0024	.0024	.0019	.0014	-.0009	-.0012	-.0007	-.0005
d_1983	-.0088	.0088	-.0142	-.0103	.0064	.0093	.0049	.0039
d_1985	-.0096	.0096	-.0070	-.0050	.0031	.0046	.0024	.0019
d_1988				-Base Year-				
d_1989	.0008	-.0008	.0063	.0045	-.0028	-.0041	-.0022	-.0017
d_1990	-.0004	.0004	-.0123	-.0089	.0056	.0081	.0042	.0034
d_1991	-.0196	.0196	-.0313	-.02274	.0142	.0205	.0108	.0086
d_1993	-.0227	.0227	-.0447	-.0324	.0202	.0293	.0154	.0123
d_1994	-.0163	.0163	-.0543	-.0394	.0246	.0355	.0187	.0149
d_1996	-.0174	.0174	-.0283	-.0205	.0128	.0185	.0097	.0078
d_1998	-.0149	.0149	-.0251	-.0182	.0113	.0164	.0086	.0069
d_2000	-.0067	.0067	-.0034	-.0024	.0015	.0022	.0012	.0009
d_2002	-.0147	.0147	-.0329	-.0239	.0149	.0215	.0113	.0090
d_2004	-.0257	.0257	-.0519	-.0376	.0235	.0340	.0178	.0142

Note: The average marginal effects presented in this table correspond to ordered probit models (3) and (6) in Table 2. An *insecure* value of 5 suggests the workers economic insecurity is high and a value of 0 suggests the worker is very secure.

Table 4. – Regional cohort, pseudo-panel model

N=153	Dependent variable					
	costly job loss			*insecure*		
Regressor	(1)	(2)	(3)	(4)	(5)	(6)
pInd	.0548	.0607	.0773***	.5478**	.5535**	.6715***
	(.0475)	(.0424)	(.0298)	(.2724)	(.2710)	(.2553)
pOC	-.0441	-.0103	-.0518**	-.0902	.0148	-.0293
	(0445)	(.0400)	(.0235)	(.2554)	(.0599)	(.2556)
Degree	-.0189	-.0056	-.0240*	-.3387***	-.2960***	-.3519***
	(.0164)	(.0147)	(.0125)	(.0940)	(.0940)	(.0829)
Unemployment	.0128***	.0147***	.0132***	.1079***	.1016***	.1128***
	(.0030)	(.0023)	(.0026)	(.0172)	(.0156)	(.0167)
Income	.0023	.0008	.0041**	.0045	.0164	.0108
	(.0031)	(.0022)	(.0020)	(.0175)	(.0156)	(.0164)
d_1977	-.0010	-.2965	.1627	-.0968	-.0239	-.4853
	(.0206)	(.6509)	(.5591)	(.1184)	(.7048)	(.7145)
d_1978	.0014	-.1776	.4413	-.1649	-.5205	-1.062
	(.0194)	(.6321)	(.9233)	(.1114)	(.6771)	(.7264)
d_1982	.0035	-.2657	.1958	-.0805	.0098	-.5158
	(.0201)	(.6318)	(.5743)	(.1155)	(.6785)	(.6471)
d_1983	.0146	.0242	.5603	-.0158	.3059	-.0323
	(.0188)	(.5913)	(.5589)	(.1079)	(.6383)	(.5903)
d_1985	-.0015	-.0489	-.0215	-.0078	.2416	-.0073
	(.0149)	(.5147)	(.5021)	(.0857)	(.5360)	(.5129)
d_1986	.0176	.2655	.5456	-.0566	-.3000	-.4627
	(.0146)	(.5011)	(.4917)	(.0837)	(.5202)	(.5091)
d_1988				-Base Year-		
d_1989	-.0040	-.1909	-.7594	.0312	.0471	.1737
	(.0140)	(.4933)	(.5532)	(.0806)	(.5073)	(.4858)
d_1990	-.0074	-.4379	-.3282	.0369	.1135	.1510
	(.0143)	(.5018)	(.4862)	(.0818)	(.5158)	(.4916)
d_1991	.0085	.4707	.2221	.1078	.7504	.5795
	(.0146)	(.5099)	(.4954)	(.0835)	(.5263)	(.5016)
d_1993	0.0221	.8816*	.7270	.2032**	1.387***	1.107**
	(.0148)	(.5164)	(.5013)	(.0850)	(.5360)	(.5087)
d_1994	.0105	.4339	.2884	.2627***	1.679***	2.048***
	(.0148)	(.5156)	(.4964)	(.0849)	(.5324)	(.5176)
d_1996	0.0053	.2944	.0342	.2212**	1.258**	1.653***
	(.0157)	(.5304)	(.5307)	(.0902)	(.5558)	(.5696)
d_1998	.0080	.6369	.0347	.1555	.5717	1.336
	(.0193)	(.6092)	(.5960)	(.1110)	(.6585)	(.9533)
d_2000	-.0113	-.1433	-2.200**	.0249	-.3714	-.1060
	(.0234)	(.6991)	(1.127)	(.1342)	(.7767)	(.8085)
d_2002	.0096	.5895	.0034	.1653	.5713	.6774
	(.0244)	(.7555)	(.5909)	(.1403)	(.8325)	(.7312)
d_2004	.0080	.4299	-.0435	.2610*	1.137	1.325
	(.0261)	(.8034)	(.6016)	(.1501)	(.8869)	(.8708)
Intercept	-.0042	-.1353	-.0575	-.0602	-.3697	-.2793
	(.0107)	(.3739)	(.3582)	(.0615)	(.3870)	(.3661)
Heteroskedascity correction		Region	Year		Region	Year
R^2	.42	.57	.65	.59	.61	.63

Note: Each cell reports the coefficient and, in parentheses, its standard error. Heteroskedastic standard errors are calculated using the standard deviation of the ordinary-least-squares residuals. Coefficients on demographic controls are not reported. See appendix table 3 for analysis of residuals.

** Significant at the 95 percent level.

***Significant at the 99 percent level.

Table 5. – Demand for social insurance by level of economic insecurity

	Mean	Upper Bound	Lower Bound	Standard Error	Observations
By costly job loss					
1 = Yes	0.478	0.518	0.438	0.020	446
0 = No	0.415	0.425	0.405	0.005	7336
By insecure					
5	0.508	0.573	0.443	0.033	185
4	0.471	0.516	0.426	0.023	356
3	0.419	0.446	0.392	0.014	1091
2	0.417	0.435	0.399	0.009	2593
1	0.417	0.437	0.397	0.01	1918
0	0.402	0.424	0.380	0.011	1639
Entire sample	0.419	0.429	0.409	0.005	7782

Note: Upper and lower bounds represent 95 percent confidence intervals.

Appendix

A.1. Summary Statistics

Variable	Years: pre and post New Economy				
	1978-1991		1992-2004		
	Mean	Standard deviation	Mean	Standard deviation	Net Δ
*Costly Job Loss**	0.060	0.237	0.054	0.226	-
Insecure	1.634	1.237	1.637	1.203	+
*liklose**	0.049	0.216	0.042	0.201	-
*HardFind**	0.412	0.492	0.396	0.489	-
*pIND**	0.327	0.469	0.303	0.460	-
*pOC**	0.375	0.484	0.364	0.481	-
gHap	2.237	0.594	2.215	0.585	-
fSit	2.312	0.761	2.321	0.754	+
JobHap	3.347	0.770	3.324	0.776	-
FinHap	2.032	0.741	2.034	0.729	+
FrdHap	2.853	0.855	2.869	0.843	+
Married	0.611	0.488	0.527	0.499	-
*DivSep**	0.163	0.369	0.199	0.399	+
*Never Married**	0.195	0.396	0.245	0.430	+
*Widowed**	0.032	0.175	0.029	0.168	-
*18 to 24**	0.107	0.309	0.086	0.280	-
*25 to 39**	0.472	0.500	0.416	0.493	-
*40 to 54**	0.283	0.451	0.368	0.482	+
*over 55**	0.138	0.345	0.130	0.336	-
*Male**	0.541	0.498	0.489	0.500	-
Degree	1.455	1.146	1.687	1.159	+
*White**	0.881	0.324	0.814	0.389	-
*Black**	0.098	0.297	0.125	0.330	+
*Other**	0.021	0.143	0.061	0.240	+
*Union**	0.166	0.372	0.153	0.360	-
Income	0.282	4.114	-0.023	4.599	-
*Self**	0.132	0.339	0.131	0.338	-
*Unemployment**	0.070	0.018	0.054	0.013	-
Observations	4314		3468		

Notes: Sample is of full-time workers; *Degree* 1 equals High School; *Degree* 2 equals Associate/Junior College; due to data manipulation we cannot convert *Income* into a dollar value.

* Mean value represents the percentage of total sample, for example 54 percent of the 1978-1991 sample is male.

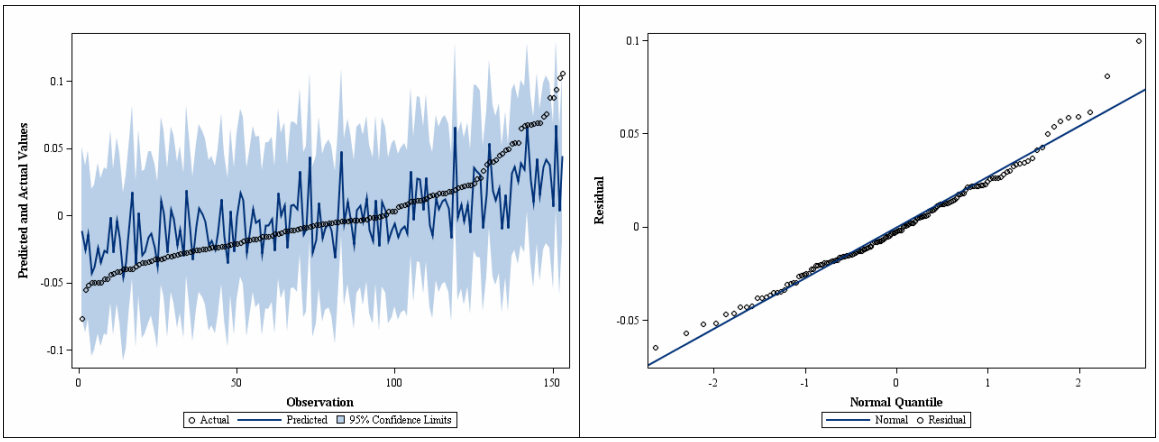
A.2. Percent of total employment by region: BLS

	New England	Mid Atlantic	EaNoCen	WeNoCen	SouAtl	ESouCen	WeSoCen	Mountian	Pacific
1977	**0.0584**	**0.1617**	**0.1918**	**0.0823**	**0.1595**	**0.0614**	**0.0996**	**0.0475**	**0.1377**
1978	**0.0582**	**0.1601**	**0.1903**	**0.0815**	**0.1605**	**0.0606**	**0.0999**	**0.0483**	**0.1406**
1979	0.0582	0.1593	0.1878	0.0807	0.1605	0.0601	0.1011	0.0496	0.1426
1980	0.0583	0.1582	0.1821	0.0801	0.1619	0.0600	0.1038	0.0508	0.1449
1981	0.0584	0.1569	0.1797	0.0794	0.1632	0.0589	0.1066	0.0519	0.1450
1982	**0.0588**	**0.1554**	**0.1758**	**0.0789**	**0.1649**	**0.0584**	**0.1092**	**0.0529**	**0.1456**
1983	**0.0590**	**0.1544**	**0.1737**	**0.0784**	**0.1664**	**0.0584**	**0.1096**	**0.0539**	**0.1462**
1984	0.0592	0.1533	0.1731	0.0775	0.1682	0.0583	0.1093	0.0544	0.1466
1985	**0.0591**	**0.1534**	**0.1721**	**0.0770**	**0.1697**	**0.0582**	**0.1088**	**0.0540**	**0.1477**
1986	**0.0589**	**0.1535**	**0.1718**	**0.0768**	**0.1720**	**0.0580**	**0.1057**	**0.0537**	**0.1496**
1987	0.0587	0.1530	0.1714	0.0762	0.1739	0.0576	0.1044	0.0531	0.1517
1988	**0.0582**	**0.1518**	**0.1717**	**0.0760**	**0.1751**	**0.0572**	**0.1035**	**0.0532**	**0.1534**
1989	**0.0573**	**0.1504**	**0.1723**	**0.0755**	**0.1756**	**0.0571**	**0.1032**	**0.0536**	**0.1550**
1990	**0.0565**	**0.1490**	**0.1689**	**0.0739**	**0.1773**	**0.0570**	**0.1034**	**0.0548**	**0.1591**
1991	**0.0555**	**0.1468**	**0.1683**	**0.0751**	**0.1785**	**0.0574**	**0.1051**	**0.0562**	**0.1571**
1992	0.0549	0.1441	0.1690	0.0756	0.1792	0.0578	0.1059	0.0572	0.1562
1993	**0.0544**	**0.1426**	**0.1700**	**0.0758**	**0.1798**	**0.0584**	**0.1062**	**0.0589**	**0.1540**
1994	**0.0535**	**0.1404**	**0.1707**	**0.0762**	**0.1802**	**0.0590**	**0.1064**	**0.0611**	**0.1525**
1995	0.0530	0.1390	0.1707	0.0764	0.1806	0.0592	0.1068	0.0626	0.1517
1996	**0.0529**	**0.1390**	**0.1696**	**0.0763**	**0.1810**	**0.0591**	**0.1071**	**0.0630**	**0.1520**
1997	0.0528	0.1391	0.1684	0.0755	0.1815	0.0587	0.1069	0.0635	0.1535
1998	**0.0526**	**0.1380**	**0.1671**	**0.0751**	**0.1821**	**0.0585**	**0.1072**	**0.0645**	**0.1550**
1999	0.0525	0.1373	0.1665	0.0746	0.1829	0.0582	0.1072	0.0650	0.1558
2000	**0.0522**	**0.1366**	**0.1654**	**0.0742**	**0.1841**	**0.0579**	**0.1069**	**0.0655**	**0.1572**
2001	0.0522	0.1366	0.1639	0.0744	0.1839	0.0572	0.1074	0.0662	0.1582
2002	**0.0523**	**0.1371**	**0.1614**	**0.0746**	**0.1846**	**0.0570**	**0.1080**	**0.0668**	**0.1583**
2003	0.0519	0.1360	0.1602	0.0744	0.1861	0.0570	0.1086	0.0676	0.1581
2004	**0.0513**	**0.1357**	**0.1589**	**0.0739**	**0.1872**	**0.0566**	**0.1092**	**0.0687**	**0.1584**
2005	0.0508	0.1352	0.1576	0.0733	0.1890	0.0560	0.1095	0.0695	0.1590
2006	0.0504	0.1343	0.1573	0.0728	0.1913	0.0558	0.1089	0.0710	0.1583
1977-2004	0.0557	0.1471	0.1719	0.0767	0.1750	0.0583	0.1060	0.0578	0.1516
Bold Years	0.0560	0.1475	0.1716	0.0765	0.1751	0.0582	0.1061	0.0573	0.1518
GSS	0.0521	0.1460	0.1829	0.0840	0.1813	0.0645	0.0946	0.0615	0.1380

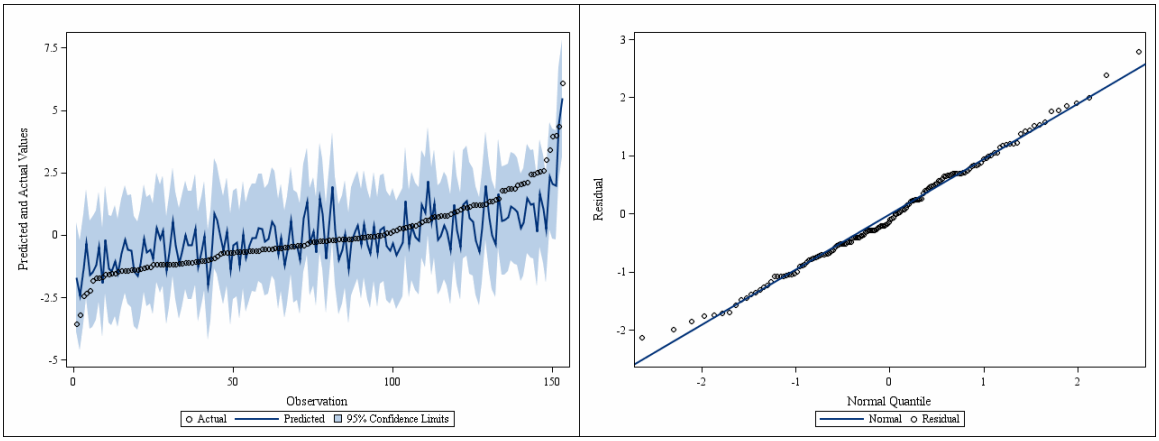
Source: GSS and the BLS.

A.3. Analysis of residuals: Predicted actual values (left) and QQ plot (right)

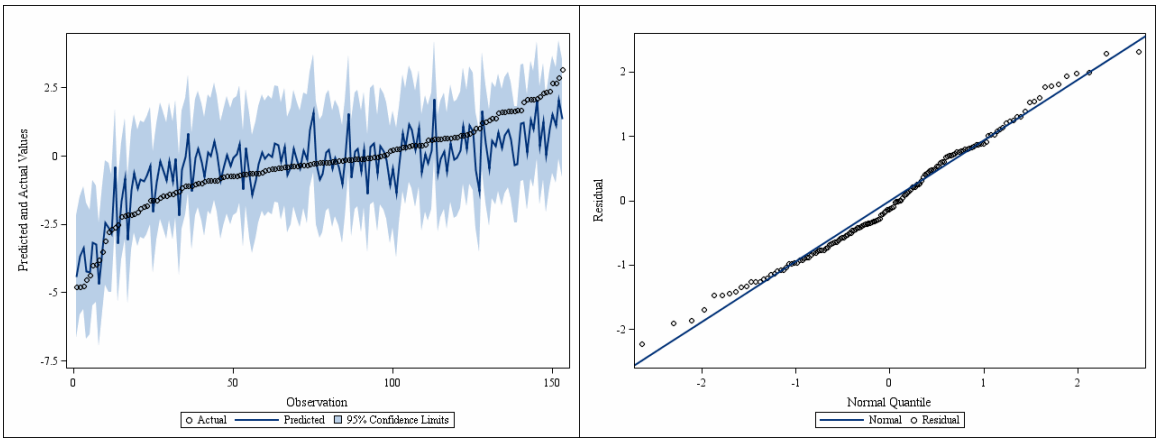
Costly job loss (1)



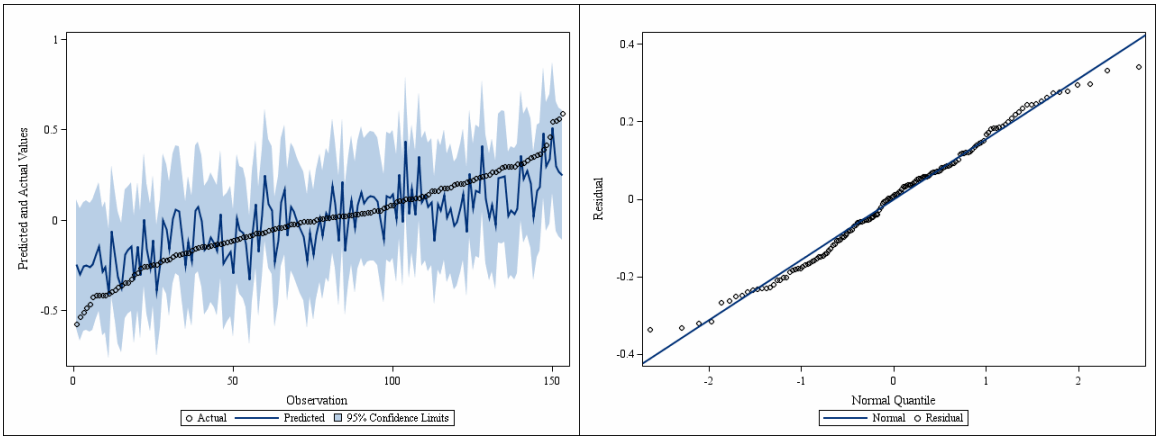
Costly job loss (2)



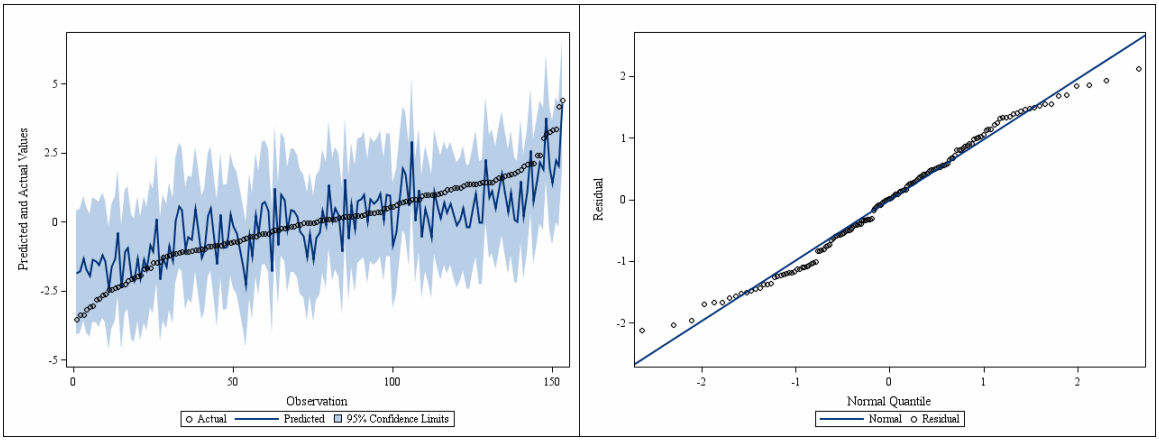
Costly job loss (3)



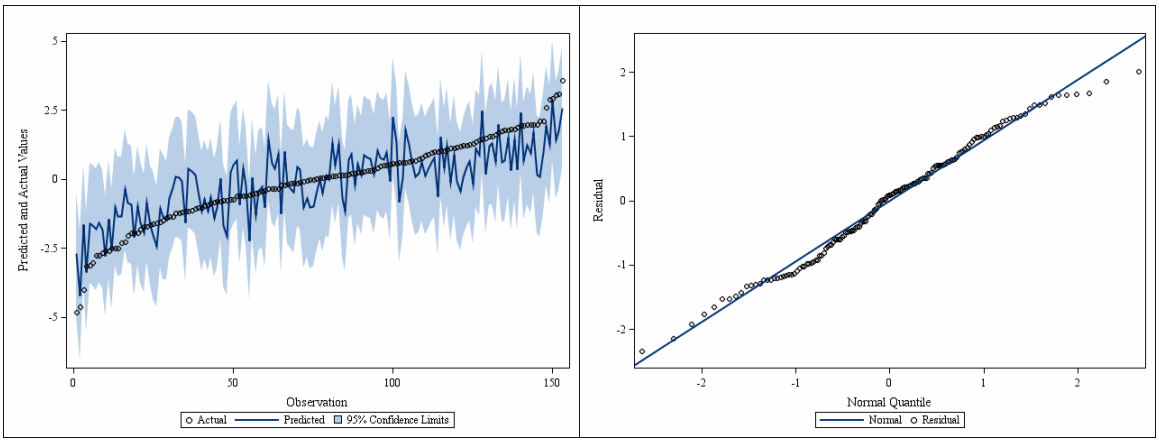
Insecure (4)



Insecure (5)



Insecure (6)



A.4. Demand for social insurance variable

Primary survey question: We are faced with many problems in this country, none of which can be solved easily or inexpensively. I'm going to name some of these problems, and for each one I'd like you to tell me whether you think we're spending too much money on it, too little money, or about the right amount.

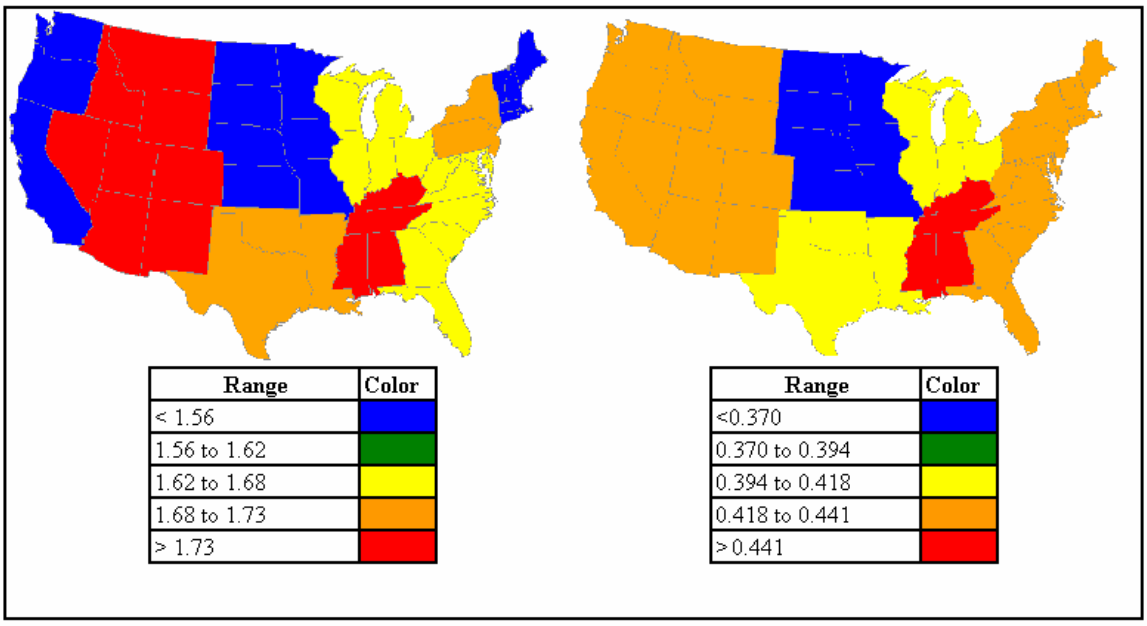
Specific Areas: 1-(a) Health (b) Improving the nation's health
2-Social Security
3-Welfare
4-(a)Education (b) Improving the nation's education system

Potential Answers: 1-Too much
2-About right
3-Not enough
4-Don't know/ N.A.

Calculation:

The respondents' answers to each question are scored as follows: too much, -1; about right, 0; not enough, 1. The answers to the four questions are averaged to a score ranging from -1 to 1.

A.5. Regional levels of economic insecurity and demand for social insurance



Note: The maps show the average values of insecure (left) and demand for increased funding for government programs (right) by census region over the period from 1977 to 2004.
Source: GSS and authors' calculations.

A. 6. Construction of Variables

Variable	Range of Values	Calculation
costly job loss (CjL)	0 to 1	if θ = "very likely" or "somewhat likely and if π= "not easy at all" then CjL=1 else CjL=0.
like lose (LiL)	0 to 1	if θ = "very likely" then LiL=1 else LiL=0.
hard find (HdF)	0 to 1	if π= "not easy at all" then HdF=1 else HdF=0.
insecure (InS)	0 to 5	If θ = "very likely" then InSa=3; if θ = "somewhat likely" then InSa=2, if θ = "not too likely" then InSa=1; if θ = 'not at all likely' then InSa = 0. If π = "not easy at all" then InSb = 2; if π = "somewhat easy" then InSb = 1; if π = "very easy" then InSb = 0. InS = InSa + InSb.
pInd	0 to 1	pInd = 1 if Gini class = 0 and zero otherwise.
pOC	0 to 1	pOC = 1 if Gini class = 0 and zero otherwise.
fSit	1 to 3	*fSit* =1 if respondent describes their past financail situation as "getting worse"; *fSit* = 2 if respondent describes their past financail situation as "stayed the same"; *fSit* = 3 if respondent describes their past financail situation as "getting better".
gHap	1 to 3	*gHap* =1 if respondent describes themselves as "not too happy"; *gHap* = 2 if respondent describes themselves as "happy"; *gHap* = 3 if respondent describes themselves as "very happy".
*Income**	1 to 9	*Income* =1 if respondents household income is in the lowest bracket; *Income* = 9 if respondents household income is in highest bracket. Regional models: real household income, as reported by the BEA.
Degree	1 to 5	if *Degree* = "less than high school" then *Degree* = 1; if *Degree* = "High School" then *Degree* = 2; if *Degree* = "Associate/Junior College" then *Degree* = 3; if *Degree* = "Bachelor" then *Degree* = 4; if *Degree* = "Advanced Degree" then *Degree* = 5.
Unemployment	2.8 to 12.5	regional unemployment rate, as reported by the BLS
Union	0 to 1	*Union* = 1 if respondent answered "Yes" or "Yes, Both"; *Union* = 0 if respondent answered "No" or "Spouse."
Self	0 to 1	*Self* = 1 if employment status = "self employed" and zero otherwise
18 to 24	0 to 1	*18 to 24* = 1 if 18 ≤ respondent age < 25 and zero otherwise.
25 to 39	0 to 1	*25 to 39*= 1 if 25 ≤ respondent age < 40 and zero otherwise.
40 to 54	0 to 1	*40 to 54* = 1 if 40 ≤ respondent age < 55 and zero otherwise.
Over 55	0 to 1	*Over 55* = 1 if 55 ≤ respondent age and zero otherwise.
Black	0 to 1	*Black* = 1 if race = "Black" and 0 otherwise.
White	0 to 1	*White* = 1 if race = "White" and 0 otherwise.
Other	0 to 1	*Other* = 1 if race = "Other" and 0 otherwise.
Male	0 to 1	*Male* = 1 if sex = "male" ; *Male* = 0 if sex = "Female."
Married	0 to 1	Married =1 if marital status = "married" and 0 otherwise.
DivSep	0 to 1	DivSep =1 if marital status = "divorced/separated" and 0 otherwise.
Widowed	0 to 1	Widowed =1 if marital status = "widowed" and 0 otherwise.
NevMar	0 to 1	NevMar =1 if marital status = "never married" and 0 otherwise.
fSat	1 to 3	*fSat* =1 if respondent describes their opinion of their finances as "not satisfied"; *fSat* = 2 if respondent describes their opinion of their finances as "more or less satisfied"; *fSat* = 3 if respondent describes their opinion of their finances as "well satisfied".
fHap	1 to 4	*fHap* =4 if respondent describes the frequency of social activities as "daily" or "few times a week"; *fHap* = 3 if respondent describes the frequency of social activities as "few times a month" or "monthly"; *fHap* = 2 if respondent describes the frequency of social activities as "several times a year" or "annually"; fHap = 1 if respondent describes the frequency of social activities as "never".
oHap	1 to 4	*oHap* =4 if respondent describes work life as "very satisfied"; o*Hap* = 3 if respondent describes work life as "satisfied" ; o*Hap* = 2 if respondent describes work life as "a little dissatisfied"; oHap = 1 if respondent describes work life as "very dissatisfied".

Note: θ = job loss question, π= job find question, * see note 19 for more information