

Understanding Workers' Perception of Job Insecurity by Union Status

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Abstract

This paper examines the union workers' perception of job insecurity. I use the General Social Survey (GSS) for the United States from 1978 to 2006 to examine whether union workers are more insecure about their jobs than non-union workers, and if so, what its causes. I find that union workers have a higher level of perceived job insecurity than their non-union counterparts. The difference of worker and job characteristics cannot explain why union workers feel more insecure about their job. The working condition (e.g. working relationship with managers, working tenure) cannot explain the issue either. Finally, I find that the union effect on perceived job insecurity changes significantly once I divide my sample into three time periods. The biggest gap of perceived job insecurity is in the 1978 to 1989 period, and then the gap tends to become smaller after 1990.

1. Introduction

Unions represent their members when bargaining with employers. There is a widely held belief that unions bargain for permanent jobs for their members, but that they also protect its older members' job when firms need to layoff some employees. As such, union workers should feel less insecure about their jobs than non-union workers. However, some recent research shows that union workers have relatively higher levels of perceived job insecurity (e.g. Aaronson and Sullivan 1998; Brochu and Zhou 2009).

Most papers have looked at satisfaction or dissatisfaction to measure union workers' perception of their jobs (Bryson, Cappellari, and Lucifora 2004; Bender and Sloane 1998). Although job security can be seen as part of job satisfaction, job satisfaction is very

subjective and open to interpretation. If a person feels dissatisfaction for his job, it does not mean that he fears losing it. I prefer to just focus on perceived job insecurity itself. It has a relatively more narrow focus.

In this paper, I use the General Social Survey (GSS) data for the United States from 1978 to 2006 to examine whether union workers feel more insecure in jobs than non-union workers. I find that union workers are more insecure about their jobs than non-union workers. The insecurity gap is more apparent in the 1978 to 1989 period. Worker characteristics (i.e. education, race, gender, etc.) cannot explain why union workers feel more insecure about their jobs. Job characteristics (i.e. industry, occupation) also cannot explain the gap of perceived job insecurity. Although the relationship between workers and managers significantly affects the perceived job insecurity, there is no evidence to support the claim that a bad relationship between union workers and managers causes the perception gap. The type of job (i.e. permanent or not) cannot explain why union workers have higher levels of perceived job insecurity. Finally, tenure cannot explain the gap of perceived job insecurity either.

Once I divide my regression sample into three time periods, I find that unions' effects on perceived job insecurity are much different across the three periods. Union workers had a higher level of perceived job insecurity than their non-union counterparts in the 1978 to 1988 period. However, the insecurity gap tends to be disappeared after 1989. Unions may now be less successful at securing higher wages for their members which has resulted in fewer job losses. This may be due to globalization, i.e. more competition from foreign firms. An alternative possibility is

that union may be better at protecting their members' jobs. They may now emphasize more job security as opposed to just higher wages.

This paper is organized in five sections. Section 2 is the review of the literature. Section 3 briefly describes the GSS data and explains the sample restrictions. In section 4, I carry out the probit regressions and analyze the results. The conclusion is in section 5.

2. Literature Review:

2.1 The role of Union

A union is an agent that tries to improve workers' welfare. It collects the requests from its members and represents them in the bargaining process. Collective agreement covers wages and other benefits such as vacation time, overtime work payment, etc. One way of improving the welfare of union members is to secure their job positions. This is one of union's basic functions; in other words, job security is one of the most important reasons that workers pay membership fees. Although the union is supposed to fulfill its members' demands, it is hard to meet all of its members' demands in practice.

Contrary to an employer whose objective is to maximize profits, unions face several kinds of demands. Members of a union do not share benefits equally, since the union cannot fulfill all its members' demands at same time. A union usually sets some members' demands as the first objective (like job security, wage, etc.) to be achieved, and others (like vacation time, promotion opportunity, etc.) as secondary objectives. Unions sometimes sacrifice the secondary objectives. This implies that some members gain means which other members lose.

A relative good method to measure the preference of a union's objectives is called the median voter model. This model assumes that the union's goals are chosen by union leaders to satisfy the median union member. To keep their positions in the union, leaders must guarantee the members' demands when bargaining with employers. More senior union members usually care about high wages. If the union chooses a wage increase as its first objective, the more senior member will keep asking for high wages unless they are threaten with job loss. On the other hand, younger members may prefer relatively low wages along with the possibility of getting more chances for promotion or full-term contracts, and middle-aged members may prefer raising wages and keeping their job. Under this situation, the union leaders will choose to support the mediocre voters so that they could fulfill those middle-aged voters' requirement of raising wages and also the senior members' demands for higher wages. Union leaders will get support of the major of the voters in order to defend their positions in the next election. In this case, young members' major goals are sacrificed in favor of senior members' high wages.

Another way to model union's behavior is to assume that it has a utility function relates to two factors: wages and employment of union members. If the union wage is too high, it can force employers to lower employment in order to cut down labour cost. Therefore a union has to adjust its wage-employment tradeoff. Empirical studies (e.g. Benjamin, Gunderson, and Riddel 2002) have found that the union wage is higher than the non-union wage by around 10 percent.

Union workers also show a stronger preference for nonwage benefits than non-union

workers. Because most middle-aged voters are married and have children; they prefer higher benefits rather than just higher wages. Therefore, under the median vote model, union will tend to take more account of nonwage benefits.

The exit-voice model is used to explain union members' behaviour when union members' demands are not fulfilled. The exit-voice model predicts two kinds of behaviours: the first one is to end the working relationship (i.e. quit or dismissal), which is called "exit"; the second one is to voice their concerns with the unions or employers, which is called "voice". Some empirical studies (e.g. Freeman and Medoff 1984) show that union workers when they are dissatisfied at their job, prefer to voice their demand with unions or employers rather than exit their jobs,

It is the union's responsibility to provide for permanent status of full-time workers. If a layoff cannot be avoided, firms will follow the layoff policy "last-in-first-out", which means that they will tend to lay off the young workers first before the more senior workers. Freeman and Medoff (1984) found that, under collective bargaining, the more senior workers in a union seem to be "never" terminated before the junior workers of union. Furthermore, even without an explicit policy, they found that 59 percent of union firms will lay off the junior workers before the senior workers because of pressure from the union. On the other hand, the fact that older workers are more secure relative to young workers in the union does not mean they are more secure as compared with the non-union senior workers. In fact, Freeman and Medoff (1984) found that layoffs occurred more frequently in union firms than firms without unions.

2.2 Perception of Job Security

Schmidt (1999) researched the 'American workers' perception of job security between 1977 and 1996 using the General Social Survey (GSS). Her sample ranged from 691 to 1,364 workers per survey year. The key questions of interest is the following: "How likely do you think it is that you will lose your job in the next 12 months." and "About how easy would it for you to find a new job with approximately same income and fringe benefit you now have?" She found that workers felt more insecure about their jobs during the 1990s than in the 1980s. She also found that white-collar workers, service occupation workers, some college and college graduate workers, and workers aged 55 or older, felt more insecure about their jobs during the 1990s than they did during the 1980s.

Aaronson and Sullivan (1998) examined worker's perception of job security using GSS data over the 1977 to 1996 period. They restricted their sample to 18 to 64 years old currently full-time or part-time respondents. The key questions are the same as in Schmidt (1999). Aaronson and Sullivan similarly found that the feeling of job insecurity for workers has risen over the 1990s. They found that workers with high education who are white-collar workers or work in service sectors feel relatively more pessimistic about the future of their jobs. At the same time, they suggested that the increasing displacement rate was the major cause of the higher job insecurity of the 1990s, and that the slow growth in wages in the 1990s is the effect of the insecurity on wage. In addition, they found that union members feel more pessimistic than non-union members. The relatively slower growth of wage for union workers indicates that they are willing to trade off the wage to have more job

security.

Johnson, Bobko and Hartenian (1992) used data of workers who come from 26 unions in the United States in 1988. These workers were asked to complete a survey about job insecurity when they attended a labour education class, which was conducted by a university in Midwest of the United States. The sample consists of 81 union members from 26 different unions. The data set is cross-sectional in nature. They found that the union members' perceptions on job insecurity depend on where the threat of losing the job comes from. If the threats come from managers or owners of the firm (e.g. arbitrary supervisions or organizational quit) the union members feel that their jobs are more insecure. Moreover, they are more sensitive to the wage-employment tradeoff. This means that the higher the wages the union offers to its members, the higher the level of job insecurity the members feel.

Brochu and Zhou (2009) used Canadian Gallup data that covered the 1977 to 2004 period to examine workers' perception of job security. Their sample is restricted to individuals who are 25 to 64 years old and are full-time or part-time workers. The key question is "Whether you think your job is safe." Their regressions control for characteristics such as age, gender, education level, work status, occupations, and union status. They found that the high job insecurity of the mid-1990s was not a structural change but that it was instead cyclical in nature. They also found that workers who are university educated, white-collar and full-time workers feel more secure about the present job and in re-finding a job in future. Finally, they found that union workers feel more insecure in their

job than non-union workers.

Sverke and Hellgren (2000) used the Swedish Health Care Employee dataset for 1998. The sample size is 1,270 employees including temporary workers. The data is cross-sectional, and the sample is relatively small. They found that the perception of job insecurity is the same for both union members and non-union members. They found that job insecurity is primarily related to the exit-voice theory. The members of a union are less willing to use exit, and they voice their views more relative to the non-union ones, and members of unions show more loyalty to their organization.

2.3 Job Satisfaction:

Borjas (1979) used data sets from National Longitudinal Survey of Mature Men in 1971. He restricted his sample to white male workers 50 to 64 years of age. The sample size is 1,873 observations. He found that union members have lower level of job satisfaction compared to the non-union members. He believed that there was a strong negative relationship between quit probability and union status at low levels of tenure. Moreover, this relationship tends to diminish as tenure increase.

Bryson, Cappellari and Lucifora (2004) examined whether union membership leads to lower job satisfaction using the British Workplace Employee Relations Survey (WERS) for 1998. They restricted their sample to non-agricultural workplaces with more than 10 employees in 1998. The sample size is 18,021 observations. Their key question is “How satisfied workers were on four aspects of their jobs: the power of their jobs; the wages; the sense of achievement; and the respect they got from supervisors.” They found the union

members' job satisfaction is not different from the non-union ones. They also found that the main source of dissatisfaction for union members are non-wage reasons (e.g. sense of achievement on the jobs, promotion). They believed that unions complete their mission well with respect to bargaining wage premium.

Clark (2001) used data from the British Household Panel Survey for the 1991 to 1999 period. The panel consists of 7,309 employed individuals who are 16 to 65 years old. He found that job satisfaction data is a good indicator to forecast separation and quit rates even when controlling for wages, working hours, etc. He also found that job security and wages are important, and that union members are more dissatisfied at their jobs than non-union workers.

Bender and Sloane (1998) used data from the Social Change and Economic Life Initiative Survey (SCELI) between 1986 and 1987. Their sample consists of 1,509 full-time employees who are 20 to 60 years old. The data set is a British cross-section. They found that union tenure and non-union tenure both affect job satisfaction. They suggested that the negative relationship between union status and job satisfaction becomes insignificant when they controlled for the firm-level industrial climate. Hence they concluded that the exit-voice theory about job dissatisfaction for union members does not hold and the negative relationship between overall job satisfaction and union status is caused by poor industrial relationship between employers and employees.

Green, Felstead and Burchell (2000) used the British Social Changes and Economic Life Initiative Survey (SCELI) in 1986 and the Skilled Survey (SS) in 1997. Their sample

size composes 4,041 individuals 20 to 60 years of age for the SCEDI, and 2,467 individuals of the same ages for the SS. Both data sets are British cross-section data. They found that, the job insecurity remains almost unchanged, or is even increasing slightly overtime, and that the difficulty of re-finding the job is decreased, when they compared 1997's data with the 1986's data. Furthermore, they found that the tenure and job insecurity have a u-shaped relationship, which means that tenure is positive related with job insecurity, after a certain number of years.

Iverson and Currivan (2003) used data from public schools located in a major city in the Midwest of the United States. They randomly selected 1,500 teachers from 405 schools and then surveyed those teachers from the personnel records of school districts. They got 838 responses, of which 794 respondents are union members. After removing respondents did not answer the key question or do not know how to answer it, the final sample size is 674 public school teachers from 405 schools. The data is cross-sectional. They examined the relationship between union participation and the level of satisfaction for union members. They found that union participation is negatively related to turnover, regardless of the level of job satisfaction. They argued that union members' participation in union activities is important for understanding union members' exit-voice theory.

Renaud (2002) used the Canadian General Social Survey for 1989. She restricted her sample to full-time or part-time employees who are 20 to 64 years old and not self-employed, managers or administrators in 1989. She found that job satisfaction of union members positively related to union status when she controlled the work conditions.

In summary, researchers have found that union members feel more insecure about their jobs than non-union members. Some researchers believe that this finding is not due to union status. They think that the reason comes from other factors (e.g. different goals between union and non-union members, relationship with managers).

3. Data Description:

3.1 GSS data:

This paper uses U.S. General Social Survey (GSS) data. The National Opinion Research Center (NORC) of the United States gathers the GSS data. The GSS is a cross-sectional dataset, which covers the 1973-2006 period. The survey includes three kinds of questions: the first kind of question appears each year, and is represented as “permanent questions”, such as age, gender, race, etc. The second type of question is asked repeatedly over time, but not to every respondent. Prior to 1988, such questions would appear in two continuous years and were not asked in the third year. For example, a question would appear in 1974, 1975 and then only in 1977; or in 1974, and then in 1976 and 1977. From 1988 onwards, the question would be asked in every survey, but the sample is divided into three sub-samples (known as “ballots”), and the question is asked in two of three ballots. The third kind of question appears in selected years as “experiment” (e.g. the Supreme Court decision concerning abortion in 1982). It should be noted that the survey was not conducted in 1992. After 1994, the survey was conducted every two years. Each survey covers English-speaking individual that are 18 years and up, who lives in United States. Starting in 2006, Spanish-speaking interviews were also conducted. Each survey is

answered by different respondents, and this means that we will observe different individuals across time.

Finally, it should be noted that the GSS not only asks questions in several fields (e.g. economics, religion, psychology, etc.), but it also gathers demographic information such as age, gender, race, region, education degrees, etc.

3.2 Data and Restriction:

For this paper the key question is about perceived job insecurity: “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 insecurity question is among the “second type” questions, which I explained in the last paragraph. The sample also includes related demographic and social-economics variables such as age, gender, race, region, education degrees, union status, industry, and occupation. The sample is restricted to 18 to 64 years old workers who are not self-employed, and covers certain years during the 1978 to 2006 period.¹ The question is asked in each of the following years: 1977, 1978, 1982, 1983, 1985, 1986, 1988, 1989, 1990, 1991, 1993, 1994, 1996, 1998, 2000, 2002, 2004, and 2006.

It is the common sense that the normal age of retiring is 65 years old. Following most studies (e.g. Aaronson and Sullivan 1998; Brochu and Zhou 2009), I restrict the sample to individuals who are employees (i.e. self-employed are excluded). The self employed

¹ I drop the years 1979, 1980, 1981, 1982, 1984, 1987, 1992, 1995, 1997, 1999, 2001, 2003, and 2005, because the key question or some of demographic question (e.g. union status) are missing. When I mention the “1978 to 2006 period” in the rest of paper, it exclude the above year.

workers work for themselves, however, the union has an impact only on employees who work for others.

Because I focus on comparing union and non-union workers, I eliminate from the sample individuals that do not answer the union status question. The question about union status is a “second type” question. As I mentioned in previous paragraph, the question is asked to only some respondents in each year after 1988. In other words, some respondents’ information is missing in each sample.

In addition, some respondents are not willing or cannot answer some questions. For example, some people refuse to answer their age, or some people cannot catalogue their education attainment. I drop these individuals from my sample. After having imposed my restrictions, my final sample size consists of 7,815 individuals.

Table 1 shows the summary statistics (means and standard deviations) of union and non-union workers from 1978 to 2006. All means are weighted.² I divided the race into three categories: white, black, and other race. Respondents who are black ethnic would be classified as black. However, individuals who are “mixed color” (e.g. 1/2 black and 1/2 white, American-India, American-Asian) are assigned to other ethnic group. Those individuals who answers they are Asian, Indian, etc. are also belong to the “others” category. The rest belong to the white category.

Individuals who answers “very likely” or “fairly likely” to the perceived job insecurity question are said to be insecure. Individuals who answers “not too likely” or “not at all

² I use the GSS weights variable WTSSALL.

likely” are not.

Table1: Summary Statistics: Means and Standard Deviations in brackets

Explanatory Variables	Union		Non-union	
	(1978 to 2006)		(1978 to 2006)	
<i>A. Gender</i>				
Female	0.402	(0.490)	0.511	(0.500)
<i>B. Race</i>				
Black	0.164	(0.371)	0.109	(0.311)
Other Race	0.036	(0.186)	0.058	(0.234)
<i>C. Age</i>				
18 to 33	0.285	(0.452)	0.423	(0.494)
34 to 49	0.470	(0.499)	0.394	(0.489)
50 to 64	0.245	(0.430)	0.183	(0.386)
<i>D. Education</i>				
Less than High school	0.128	(0.334)	0.118	(0.322)
Graduate from High school	0.563	(0.496)	0.560	(0.496)
Graduate from some College	0.066	(0.249)	0.073	(0.261)
Bachelor of University	0.136	(0.343)	0.180	(0.384)
Master and up	0.107	(0.310)	0.069	(0.253)
<i>E. Work Status</i>				
Full-time	0.873	(0.267)	0.805	(0.397)
Part-time	0.087	(0.423)	0.169	(0.375)
<i>F. Region</i>				
New England	0.077	(0.267)	0.052	(0.222)
Middle of Atlantic	0.233	(0.423)	0.136	(0.343)
East north of Central	0.230	(0.421)	0.170	(0.375)
West north of Central	0.067	(0.251)	0.078	(0.267)
South of Atlantic	0.108	(0.310)	0.200	(0.400)
East south of Central	0.039	(0.193)	0.068	(0.251)
West south of Central	0.047	(0.211)	0.102	(0.303)
Mountain	0.045	(0.208)	0.064	(0.244)
Pacific	0.154	(0.361)	0.131	(0.337)
G. Job Insecurity	0.131	(0.338)	0.106	(0.308)
Observations	1,372		6,443	

For education degrees, “less than high school” includes respondents who do not

graduate from high school. “graduate from some college” includes respondents who graduate from associate or junior colleges. Finally, “master and up” includes respondents who receive a graduate diploma such as a master or Ph.D. A full-time worker is an individual who works more than 40 hours per week. If the individual works less than 40 hours per week, then he is said to be a part-time worker.

Table 1 shows that the level of perceived job insecurity for union workers (13.1%) is higher than that for non-union workers (10.6%). The proportion of union members that are female (40.2%) is much lower than that of the non-union sector (51.1%). This means that male workers are over represented in the union sector. 28.5% of union members are young workers (18 to 33 years old), 47% of union members are 34 to 49 years old and 24.5% points of union members are 50 to 64 years old. For the non-union sector, the proportions are 42.3%, 39.4% and 18.3% respectively. As such, the main source of union members consists of middle age and older workers.

The proportion of union members that are black is almost 6 percent point higher than that the non-union sector. It is the opposite for other races. Although the proportion is relatively small in both union and non-union, workers of other races are not over represented in the union sector. Table 1 shows that full-time workers dominate in both union and non-union sectors. It also shows that full-time workers tend to join unions more or that unions encourage full-time work.

There are some interesting findings for education. First, workers with low education (graduating from high school or less) are not more likely to be part of a union. The

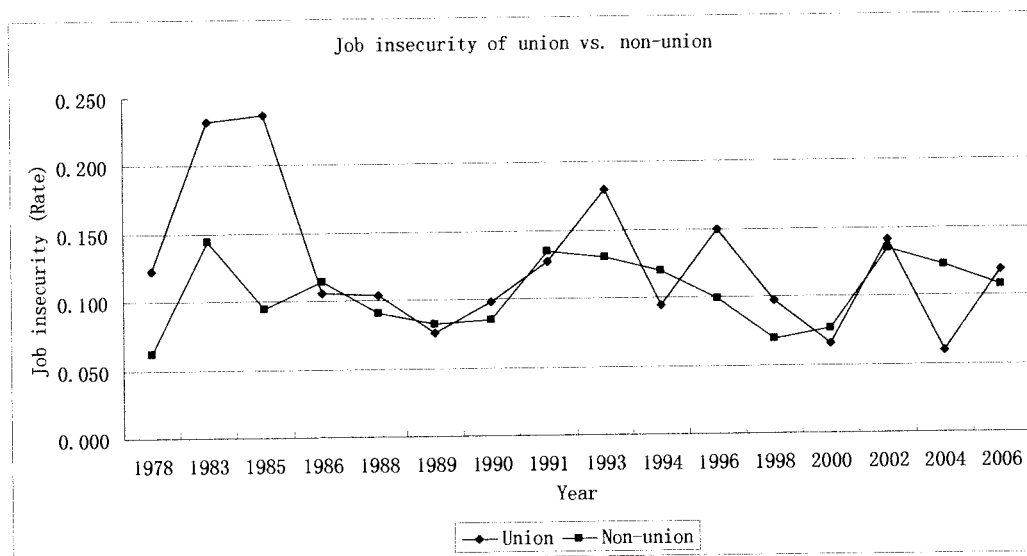
proportion of these workers in union and in non-union sections are almost the same. This finding is counter intuitive. Second, the proportion of workers who have a middle education level is just slightly lower in the union sector. The difference is not as large as I thought. Third, from masters and up, the proportion of union workers is 3.8 percent point higher than for workers who are non-union. This finding is also counter intuitive. Normally, people would think that workers with lower education would tend to join in a union, and workers with higher education would tend to work in a non-union setting. However, my data shows that it is not the case.

Finally, workers who live in New England, middle of Atlantic, east north of Central or Pacific region are more likely to be unionized that those living in west north of Central, south of Atlantic, east south of Central, west south of Central or Mountain regions.

Figure 1 shows the average perceived job insecurity perception for union and non-union workers overtime. According to Figure 1, most of the insecurity gap occurred in the early periods (i.e. 1978 to 1989 periods). There are much smaller insecurity gaps for latter years. The information in the Figure 1 shows that the rate of insecurity changes a lot from one year to the next. For union members, the highest rate of perceived job insecurity occurred in 1985, which is 23.7% points and the lowest rate of perceived job insecurity occurred in 2004, which is 6% points. On the other hand, for non-union, the highest level of perceived job insecurity occurred in 1983, which is 14.4% points and the lowest one occurred in 1998, which is 7% points.

Figure 1: Perceived job insecurity of Union Members vs. Non-union

Members'



4. Data Analysis

4.1 Methodology:

In this section, I build a basic model that include some workers' characteristics such as gender, age, education degrees, race, region, and work status. The econometric model is the following:

$$\Pr(\text{insecure}_{it}=1 \mid U, X) = \Phi(\gamma U_{it} + X_{it}\beta) \quad (1)$$

where insecure_{it} is the dummy variable of perceived job insecurity for individual i in year t , and Φ is the cumulative normal distribution. U_{it} is a dummy variable for union status for individual i in year t . X_{it} is a vector that includes all the related variables for individual i in year t except for union status (e.g. age, gender, education, etc.).

The model above examines one direction of the relationship between union status and

job insecurity, i.e. it assumes that union status is exogenous. There is another possibility for the relationship between union status and job insecurity, which is that the perception of job insecurity impacts union status. Workers in jobs that are naturally insecure will be more likely to join into a union than those who have a secure job. In this paper, I abstract from the reverse causality argument.

The coefficients in table 2 and in all subsequent tables represent the marginal effect of the variable on job insecurity. Table 2 shows the Probit regression results for equation (1). I start with a set of basic variables, which are gender, age, race, education degrees, work status, region and year dummies. The base group consists of full-time white male non-unionized workers who are 50 to 64 years old in 1988, and who have a high school diploma and live in the Pacific area.

Table 2 shows that union workers feel relatively more insecure about their job than non-union worker by about 2.8% points. It is statistical significant. Moreover, it is also economical significant, compared the average level of perceived job insecurity in Table 1 (13.1% points for union); 2.8% points is a big gap of job insecurity between union workers and non-union workers.

Higher education degree makes worker feel more secure. All those coefficients for education are statistical significant of the 1% level. Compared with the base group, the “graduate from some college” sector, the “bachelor of university” sector, and the “masters and up” sector are all economically significant on having less perceived job insecurity (-4.2% points for college sector, -3.8% points for university sector, and -5.8% points for

masters and up sector). On the other hand, the “less than high school” sector is significantly having more perceived job insecurity than the base group (4.1% points for less than high school sector).

The gender coefficient is not statistically significant, even at the 10% level, though females feel less insecure about losing their jobs than male by 1.2% points. Black and other races workers are definitely more pessimistic on perceived job insecurity than white workers: 7.6% points for black and 4.7% points for other races. Old workers feel more optimistic about keeping their jobs than young workers. The results show that old workers have perceived job insecurity of 2% points less than young workers and of 1.9% points less than middle age workers. Finally, it is no surprise that part-time workers feel 4.6% points more insecure than full-time worker.

Table 2: Basic Probit Regression

Dependent variable= Perception of Job Insecurity

Variables	Coefficients	Standard Deviations
<i>A. Gender</i>		
Female	-0.012	(0.008)
<i>B. Race</i>		
Black	0.076***	(0.014)
Other race	0.047**	(0.021)
<i>C. Age</i>		
18 to 33	0.020*	(0.011)
34 to 49	0.019*	(0.011)
<i>D. Education</i>		
Less than High school	0.041***	(0.013)
Graduate from Some College	-0.042***	(0.011)
Bachelor of University	-0.038***	(0.009)
Master and up	-0.058***	(0.010)
<i>E. Work Status</i>		

Part-time	0.046***	(0.012)
<i>F. Union Status</i>		
Union	0.028***	(0.011)
<i>G. Region</i>		
New England	-0.008	(0.020)
Middle of Atlantic	0.025*	(0.016)
East north of Central	-0.001	(0.014)
West north of Central	-0.022	(0.016)
South of Atlantic	0.009	(0.014)
East south of Central	0.035*	(0.021)
West south of Central	0.035**	(0.018)
Mountain	-0.003	(0.017)
<i>H. Year Dummies</i>		
D1978	-0.021	(0.021)
D1983	0.076***	(0.033)
D1985	0.036	(0.033)
D1986	0.02	(0.027)
D1989	-0.005	(0.029)
D1990	-0.007	(0.029)
D1991	0.046	(0.032)
D1993	0.058**	(0.033)
D1994	0.032	(0.030)
D1996	0.021	(0.029)
D1998	-0.015	(0.023)
D2000	-0.016	(0.024)
D2002	0.056	(0.039)
D2004	0.032	(0.031)
D2006	0.018	(0.029)

Sample Size

7,815

Note: Standard errors are in brackets. The omitted group consists of workers who are 50 to 64 years old white male, not union member, graduate from high school, full-time worker, living in Pacific in 1988.

* significant at 10% level, ** significant at 5% level, *** significant at 1% level (all two-tailed test).

Table 3 shows the Probit regression result for the model when I control for industry and occupation in addition to the variables in Table 2.

I divide industries into 8 categories: agriculture or mining, manufacturing or construction,

transportation and community, wholesale, retail, business and financial / personal services, entertainment and recreation / professional services (such like doctor or actors, etc.), and public administrator (such like working for government). The base group is manufacturing/construction.

I divide occupation into three different groups: white collar, blue collar and service work. The service works include nurses, firemen, policemen, teachers, etc. The omitted group is blue-collar occupation.

Table 3 Probit Regression controlling for additional variables:

Variables	Dependent Variable=Perception of Job Insecurity		
	Coefficients		
	(1)	(2)	(3)
<i>A. Gender</i>			
Female	-0.013* (0.008)	-0.002 (-0.008)	0.001 (0.008)
<i>B. Race</i>			
Black	0.076*** (0.014)	0.080*** (-0.014)	0.078*** (0.014)
Other race	0.040** (0.021)	0.389** (0.020)	0.038** (0.020)
<i>C. Age</i>			
18 to 33	0.020* (0.011)	0.021* (0.011)	0.018* (0.011)
34 to 49	0.020* (0.011)	0.019* (0.011)	0.017 (0.011)
<i>D. Education</i>			
Less than High school	0.041*** (0.013)	0.035*** (0.013)	0.029** (0.013)
Graduate from College	-0.045*** (0.011)	-0.041*** (0.011)	-0.039*** (0.012)
Bachelor of University	-0.040*** (0.009)	-0.033*** (0.009)	-0.028*** (0.010)
Master and up	-0.060*** (0.010)	-0.050*** (0.011)	-0.045*** (0.012)

<i>E. Work Status</i>			
Part-time	0.042*** (0.012)	0.052*** (0.013)	0.051*** (0.013)
<i>F. Union Status</i>			
Union	0.027*** (0.011)	0.024** (0.011)	0.021** (0.011)
<i>G. Region</i>			
New England	-0.009 (0.020)	-0.011 (0.019)	-0.010 (0.019)
Middle of Atlantic	0.027* (0.016)	0.024 (0.015)	0.024 (0.016)
East north of Central	0.001 (0.014)	-0.002 (0.014)	-0.003 (0.014)
West north of Central	-0.022 (0.016)	-0.020 (0.016)	-0.021 (0.016)
South of Atlantic	0.009 (0.014)	0.007 (0.014)	0.006 (0.014)
East south of Central	0.033* (0.020)	0.027 (0.020)	0.025 (0.020)
West south of Central	0.035** (0.018)	0.036* (0.018)	0.035* (0.018)
Mountain	-0.001 (0.017)	0.004 (0.018)	0.004 (0.018)
<i>H. Industry</i>			
Agriculture/Mining	-	-0.040* (0.017)	-0.039* (0.017)
Transportation/ Community	-	-0.041*** (0.011)	-0.039*** (0.011)
Wholesale	-	-0.039** (0.015)	-0.034* (0.016)
Retail	-	-0.050*** (0.009)	-0.046*** (0.009)
Business / Personal Service	-	-0.040*** (0.010)	-0.036*** (0.010)
Entertainment / Professional Service	-	-0.052*** (0.009)	-0.047*** (0.009)
Public Administer	-	-0.046*** (0.011)	-0.042*** (0.011)
<i>I. Occupation</i>			

Table 3 shows the results for 3 different specifications. Specification (1) is the basic specification same as in Table 2. But I remove those records without industry or occupation in order to keep the same sample for specification (1) (2) and (3). In specification (2), I also control for the industry. In specification (3), I control for both industry and occupation.

Comparing specification (2) and (3) with specification (1), the marginal effect of perceived job insecurity on union status does not change much. Coefficients for all other variables do not change much either. The union status' effect is 2.7% points in specification (1), 2.4% points in specification (2) and 2.1% points in specification (3). This shows that controlling for industry and occupation cannot explain why union workers feel more insecure about their jobs than non-union workers.

Table 4 shows the Probit regression result for the model when I further control for worker's relationship with managers and the type of working contract.

I introduce a new variable: working relationship with managers. If a worker's relationship with managers is "good" or "neither good nor bad", then the dummy variable equals 1, otherwise the dummy equals 0 (i.e. the relationship is "bad"). The GSS only collects this question in 1989, 1991, 2002, 2004 and 2006. Therefore, my sample size decreases to 1,645 observations.

I also want to examine whether the type of work contract can explain why union workers feels more insecure about their jobs than non-union workers. I measure the type of work in two ways: one is whether the worker's contract is less than one year; the other is whether the worker is a permanent worker. The GSS only ask the question in 1998 and the question

was asked in a different ballot from the key union question, so the sample size is only 195 observations.

In table 4, I show probit results for 5 specifications. Specification (1) is the base regression, which also controls for industry and occupation. Specification (2) has the same control as specification (1), but it also includes the relationship with managers. I use the same sample for specification (1) and (2) to examine whether the relationship with managers cause union workers to feel more insecure about their job than non-union workers.

Specification (3) is again the base specification (using in 1998 data only). Specification (4) also controls for the first type of work contract (i.e. whether the contract is less than one year). Specification (5) is the same specification, which controls for the second type of work contract (i.e. whether is permanent work). STATA drop the agriculture/mining variable because of STATA fail to perfectly predict this variable. Therefore the coefficient of agriculture/mining is unavailable in table 4. The same situations occurred in “graduate from college” sector and “west north of central” sector for specification (3), (4), and (5).

Specification (2) of Table 4 shows that the coefficient for the industrial relationship with managers is both economically significant (-8.3% points) and statistically significant (at the 1% level). However, the union coefficient is economically small in both specifications. I find that the working relationship with managers does affect the job insecurity, but its inclusion did not affect the union coefficient. The relationship with managers cannot

explain why union workers feel more insecure about their jobs than non-union workers.

This finding is at odds with the finding of Bender and Sloane (1998).

The probit regression results in specification (3), (4), and (5) are statistically insignificant. This may be because of the small sample size. The results cannot explain any thing. Therefore, one cannot reject the hypothesis that the type of work contract does not matter.

Table 4 Probit Regression Controlling for Work Relationship and Tenure:

Variables	Dependent Variable=Perception of Job Insecurity				
	Coefficients				
	(1)	(2)	(3)	(4)	(5)
<i>A. Gender</i>					
Female	-0.008 (0.019)	-0.007 (0.019)	0.065 (0.039)	0.05 (0.069)	0.047 (0.038)
<i>B. Race</i>					
Black	0.076*** (0.030)	0.076*** (0.030)	0.023 (0.061)	0.021 (0.059)	0.02 (0.058)
Other race	0.031 (0.035)	0.033 (0.035)	-0.033 (0.057)	-0.036 (0.054)	-0.035 (0.055)
<i>C. Age</i>					
18 to 33	0.043 (0.025)	0.043 (0.025)	-0.015 (0.055)	-0.016 (0.053)	-0.013 (0.055)
34 to 49	0.027 (0.023)	0.028 (0.023)	0.051 (0.052)	0.051 (0.051)	0.052 (0.052)
<i>D. Education</i>					
Less than High school	0.032 (0.030)	0.033 (0.030)	-0.028 (0.060)	-0.03 (0.057)	-0.031 (0.056)
Graduate from College	-0.057** (0.021)	-0.057* (0.021)	- -	- -	- -
Bachelor of University	-0.051** (0.018)	-0.052** (0.018)	-0.041 (0.039)	-0.042 (0.037)	-0.042 (0.038)
Master and up	-0.037 (0.028)	-0.035 (0.029)	-0.039 (0.054)	-0.044 (0.049)	-0.042 (0.052)
<i>E. Work Status</i>					
Part-time	0.045* (0.021)	0.047** (0.021)	-0.004 (0.054)	-0.006 (0.049)	-0.007 (0.052)

	(0.026)	(0.026)	(0.048)	(0.048)	(0.048)
<i>F. Union Status</i>					
Union	0.002	0.001	0.065	0.053	0.062
	(0.023)	(0.023)	(0.073)	(0.069)	(0.071)
<i>G. Region</i>					
New England	-0.072*	-0.071**	0.367**	0.376**	0.372**
	(0.024)	(0.024)	(0.217)	(0.215)	(0.216)
Middle of Atlantic	0.001	0.000	0.105	0.123	0.115
	(0.032)	(0.032)	(0.127)	(0.131)	(0.129)
East north of Central	-0.004	0.000	0.166	0.173	0.168
	(0.030)	(0.031)	(0.127)	(0.129)	(0.128)
West north of Central	-0.049	-0.050	-	-	-
	(0.028)	(0.027)	-	-	-
South of Atlantic	0.013	0.012	0.105	0.108	0.109
	(0.032)	(0.032)	(0.119)	(0.119)	(0.120)
East south of Central	-0.017	-0.017	0.024	0.032	0.029
	(0.033)	(0.033)	(0.115)	(0.119)	(0.117)
West south of Central	-0.018	-0.017	0.287**	0.299**	0.292**
	(0.032)	(0.032)	(0.192)	(0.195)	(0.193)
Mountain	0.010	0.007	0.266*	0.276*	0.272*
	(0.039)	(0.038)	(0.209)	(0.212)	(0.211)
<i>H. Industry</i>					
Agriculture/Mining	-	-	-	-	-
	-	-	-	-	-
Transportation/Community	-0.027	-0.029	-	-	-
	(0.026)	(0.026)	-	-	-
Wholesale	-0.049	-0.046	-	-	-
	(0.029)	(0.030)	-	-	-
Retail	-0.039	-0.039	-	-	-
	(0.024)	(0.024)	-	-	-
Business/Personal Service	-0.020	-0.018	-	-	-
	(0.026)	(0.026)	-	-	-
Entertainment/ Professional Service	-0.065***	-0.064***	-	-	-
	(0.022)	(0.022)	-	-	-
Public Administer	-0.036	-0.037	-	-	-
	(0.029)	(0.028)	-	-	-
<i>I. Occupation</i>					
White Collar	0.013	0.012	-	-	-
	(0.024)	(0.024)	-	-	-
Service Work	0.034	0.034	-	-	-

	(0.035)	(0.035)	-	-	-
<i>J. Working Relation</i>					
Not Bad with Managers	-	-0.083***	-	-	-
	-	(0.037)	-	-	-
<i>K. Type of Working</i>					
Contract less than 1 year	-	-	-	-0.03	-
	-	-	-	(0.038)	-
Permanent Working	-	-	-	-	0.019
	-	-	-	-	(0.038)
<i>L. Year Dummies</i>					
D1991	0.003	0.005	-	-	-
	(0.026)	(0.026)	-	-	-
D2004	-0.007	-0.006	-	-	-
	(0.025)	(0.025)	-	-	-
D2006	-0.034	-0.032	-	-	-
	(0.024)	(0.024)	-	-	-
Sample Size	1,645	1,645	195	195	195

Note: Standard errors are in brackets. The omitted group of specification (1) and (2) consists of workers who are 50 to 64 years old white male, not union member, graduate from high school, full-time worker, living in Pacific blue collar, working in manufacture or construction in 1989. The omitted group of specification (3) to (5) consists of workers who are 50 to 64 years old white male, not union member, graduate from high school, full-time worker, living in Pacific.

* significant at 10% level, ** significant at 5% level, *** significant at 1% level (all two-tailed test).

Table 5 shows the Probit regression results when I further control for tenure and also for a union interacted with tenure. Tenure measures how long a worker has been working continually for his current employer. The GSS just asked the tenure question in 1991, 2002, and 2006, and the tenure questions are asked in different ballots from the one that key questions (e.g. union status question) are asked, so the sample size is only 866 observations. I divide table 5 into five specifications. Specification (1) is the base specification. In specification (2), I include a tenure variable for whether or not the respondent has worked more than 5 years. In specification (3), I include more detailed tenure controls (i.e. work less than 1 year, 1 to 2 years, etc.).

There is a corollary to the exit-voice theory that says that dissatisfaction is likely to be stronger among high-tenure union workers than among low-tenure union workers. This point is supported by Borjas (1979). I examine a similar hypothesis-whether high-tenure union workers will feel more insecure in their jobs than low-tenure union workers. For this purpose, I introduce union-tenure interaction terms. The specification (4) includes the interaction term of union and less than 5 years of tenure. In specification (5), I divide the union-tenure interaction term into more groups: union member with less than 1 year tenure, union member with 1 to 4 years of tenure, union member with 5 to 9 years of tenure, union member with 10 to 19 years of tenure and union member with 20 years up of tenure. The group of union member with 5 to 9 years of tenure is the omitted group.

Specification (2) shows that workers with tenure less than 5 years feel a little more insecure about their jobs (0.2% points) than workers with more than 5 years of tenure. The coefficient for union status in specification (2) is as of similar magnitude as in specification (1). The coefficient is neither economical significant nor statistically significant. The sample size is only 866 observations. This is the main reason of why most of coefficients are not statistically significant.

In order to examine with more details the relationship between tenure and perceived job insecurity, I introduce specification (3). In specification (3), I divide tenure into five categories (less than 1 year, 1 to 4 years, 5 to 9 years, 10 to 19 years and more than 20 years). The omitted category is less than 5 to 9 years. One can draw the following conclusions: first, workers with less than one year of tenure feel more perceived job

insecurity (1.6% points) than workers with 5 to 9 years; secondly, workers with 5 to 9 years of tenure will feel more job insecure (0.2% points) than workers who have 1 to 4 years of tenures; third, workers with 10 to 19 years of tenure feel more secure in their jobs (0.7% points) than ones with 5 to 9 years of tenure; finally, workers with more than 20 years of tenure feel more insecure about their jobs than workers with 5 to 9 years of tenures (2.3% points).

As tenure increases, workers generally tend to be worry more about their jobs, though this tend is not very significant. This result is not consistent with the findings of Green, Felstead and Burchell (2000), which they found that the relationship between tenure and perceived job insecurity shows like U-shape. The coefficient of union status in specification (3) increase just 0.1% points compared with the base specification (1), and it is neither significant in economics nor in statistics.

The result of specification (4) shows that union workers with less than 5 years of tenure feel less insecure in their jobs than union workers with more than 5 years of tenure (the different is 5.9% points). Particularly, specification (5) shows that all other four groups of union workers feel less insecure about their jobs compared to the level union workers with 5 to 9 years of tenure. The groups with less than 5 years of tenure feels particularly more optimistic (-6.0% points and -6.8% points), and the groups with more than 9 years of tenure feel slightly more optimistic (-0.3% points and -4.5% points). However, all the results above are not statistically significant in statistics. This means that one can not reject the hypothesis that the tenure has no relation with union workers' perceived job insecurity.

All of the results about tenure in Table 5 are not statistically significant. I think the most possible reason is the small sample size. I remove the data of 1991 and do regression again. I get the similar key results as table 5's. All the coefficients decrease at a same extent and the signs are same as those ones in table 5. These changes are mostly because of the sample size decreases from 866 observations to 712 observations.

Table 5 Probit Regression with Controlling Tenure:

Dependent Variable=Perception of Job Insecurity					
Variables	Coefficients				
	(1)	(2)	(3)	(4)	(5)
<i>A. Gender</i>					
Female	-0.009 (0.022)	-0.009 (0.022)	-0.009 (0.022)	-0.009 (0.022)	-0.009 (0.022)
<i>B. Race</i>					
Black	0.093** (0.038)	0.093** (0.038)	0.094** (0.039)	0.092*** (0.038)	0.092*** (0.038)
Other race	0.074* (0.052)	0.074* (0.052)	0.074* (0.051)	0.071 (0.051)	0.071 (0.051)
<i>C. Age</i>					
18 to 33	0.054* (0.034)	0.053* (0.034)	0.052 (0.033)	0.059* (0.034)	0.057* (0.034)
34 to 49	0.015 (0.029)	0.015 (0.029)	0.017 (0.029)	0.017 (0.029)	0.016 (0.029)
<i>D. Education</i>					
Less than High school	-0.020 (0.033)	-0.020 (0.033)	-0.020 (0.033)	-0.018 (0.033)	-0.017 (0.033)
Graduate from College	-0.004 (0.039)	-0.004 (0.039)	-0.004 (0.038)	-0.003 (0.039)	-0.003 (0.039)
Bachelor of University	-0.039 (0.024)	-0.039 (0.024)	-0.037 (0.024)	-0.040 (0.024)	-0.039 (0.024)
Master and up	-0.034 (0.036)	-0.034 (0.036)	-0.032 (0.036)	-0.034 (0.035)	-0.034 (0.034)
<i>E. Work Status</i>					
Part-time	0.053* (0.036)	0.053* (0.036)	0.049 (0.035)	0.052 (0.035)	0.051* (0.035)
<i>F. Union Status</i>					

Union	0.031 (0.030)	0.031 (0.031)	0.032 (0.031)	0.051 (0.036)	0.063 (0.057)
<i>G. Region</i>					
New England	-0.082** (0.020)	-0.081** (0.020)	-0.081** (0.020)	-0.082*** (0.020)	-0.082*** (0.019)
Middle of Atlantic	-0.020 (0.034)	-0.020 (0.034)	-0.020 (0.034)	-0.020 (0.034)	-0.019 (0.034)
East north of Central	-0.003 (0.038)	-0.003 (0.038)	-0.003 (0.037)	-0.003 (0.038)	-0.002 (0.038)
West north of Central	-0.054 (0.035)	-0.055 (0.034)	-0.053 (0.035)	-0.054 (0.035)	-0.054 (0.035)
South of Atlantic	-0.025 (0.035)	-0.025 (0.035)	-0.025 (0.034)	-0.022 (0.035)	-0.022 (0.035)
East south of Central	-0.067* (0.025)	-0.067* (0.025)	-0.066* (0.025)	-0.066** (0.025)	-0.066* (0.025)
West south of Central	-0.080** (0.023)	-0.080** (0.023)	-0.081** (0.022)	-0.079** (0.023)	-0.078** (0.024)
Mountain	-0.018 (0.040)	-0.018 (0.040)	-0.018 (0.039)	-0.017 (0.040)	-0.017 (0.040)
<i>H. Tenure</i>					
Less than 5 Years	-	0.002 (0.022)	-	0.153 (0.025)	-
Less than 1 Year	-	-	0.016 (0.036)	-	0.033 (0.043)
1 to 4 Years	-	-	-0.002 (0.031)	-	0.014 (0.037)
10 to 19 Years	-	-	-0.007 (0.034)	-	-0.012 (0.041)
20 Years and Up	-	-	0.023 (0.044)	-	0.039 (0.057)
<i>I. Union * Tenure</i>					
Union * Less than 5 Years	-	-	-	-0.059 (0.031)	-
Union * Less than 1 Year	-	-	-	-	-0.060 (0.041)
Union * 1 to 4 Years	-	-	-	-	-0.068 (0.033)
Union * 10 to 19 Years	-	-	-	-	-0.003 (0.073)
Union * 20 Years and Up	-	-	-	-	-0.045 (0.052)

<i>J. Year Dummies</i>					
D1991	0.010	0.011	0.010	0.009	0.009
	(0.032)	(0.032)	(0.032)	(0.032)	(0.032)
D2002	-0.037	-0.037	-0.038	-0.039	-0.040
	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)

Sample Size	866	866	866	866	866
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Note: Standard errors are in brackets. The omitted group of specification (2) consists of workers who are 50 to 64 years old white male, not union member, graduate from high school, full-time worker, and have worked more than 5 years, living in Pacific in 2006. The omitted group of specification (3) consists of workers who are 50 to 64 years old white male, not union member, graduate from high school, full-time worker, and have worked less than 1 year, living in Pacific in 2006.

* significant at 10% level, ** significant at 5% level, *** significant at 1% level (all two-tailed test).

Table 6 shows the Probit regression results when I divide the model into three different time periods. Schmidt (1999) examined the perceived job insecurity in two periods: 1982 to 1989 and 1990 to 1996. According to Figure 1, the gap of perceived job insecurity between union workers and non-union workers is more apparent in the 1978 to 1986 period than in the other period. I divide my sample into 3 periods: 1978 to 1988, 1989 to 1996 and 1998 to 2006 in order to examine the perceived insecurity gap across time.

Specification (1) in table 6 indicates that union workers feel 6.1% more insecure about their job than non-union workers in the early period. The percentage decreases to 1.6% in the middle time period, and finally to 0.2% in the most recent time period. The coefficient of the union variable is both economically and statistically very significant in specification (1). However, it is neither economically nor statistically significant in the other two specifications. Although the sample sizes of three specifications are different, the difference of 200 to 300 observations could not affect the results such significantly. This means that union played an important role in perceived job insecurity in 1978 to 1989 period, but that

its effect tends to disappear after 1990s. In other words, unions may be now less successful at their role of protecting union members' job. I think the most important reason is the globalization. Comparing with the foreign companies, domestic union has little advantage in labour cost. The globalization makes that unions can't be as powerful as they were in the 1970s and the 1980s. Of course, there is another possibility that union may do better at protecting their members' job than before. They used to emphasize high wages and older workers' protection at expense of younger workers. Maybe now they cannot do that anymore because younger workers getting much stronger than before.

Table 6: Probit Regression with different time periods:

Variables	Dependent Variable=Perception of Job Insecurity		
	Coefficients		
	(1)	(2)	(3)
	1978-1988	1989-1996	1998-2006
<i>A. Gender</i>			
Female	-0.013 (0.012)	-0.011 (0.013)	-0.009 (0.013)
<i>B. Race</i>			
Black	0.085*** (0.025)	0.096*** (0.027)	0.046** (0.021)
Other race	-0.009 (0.040)	0.058* (0.040)	0.046** (0.026)
<i>C. Age</i>			
18 to 33	0.013 (0.017)	0.027 (0.020)	0.018 (0.019)
34 to 49	0.006 (0.017)	0.026 (0.019)	0.024 (0.018)
<i>D. Education</i>			
Less than High school	0.040** (0.019)	0.027 (0.024)	0.054** (0.025)
Graduate from College	-0.063** (0.018)	-0.051** (0.017)	-0.021 (0.020)
Bachelor of University	-0.041**	-0.031*	-0.040**

	(0.015)	(0.016)	(0.014)
Master and up	-0.067***	-0.054**	-0.049**
	(0.017)	(0.018)	(0.017)
<i>E. Work Status</i>			
Part-time	0.069***	0.045**	0.018
	(0.022)	(0.021)	(0.019)
<i>F. Union Status</i>			
Union	0.061***	0.016	0.002
	(0.019)	(0.020)	(0.017)
<i>G. Region</i>			
New England	-0.032	0.050	-0.032
	(0.027)	(0.044)	(0.029)
Middle of Atlantic	0.001	0.033	0.038
	(0.023)	(0.028)	(0.029)
East north of Central	-0.020	0.010	0.004
	(0.020)	(0.026)	(0.025)
West north of Central	-0.027	0.005	-0.048*
	(0.024)	(0.032)	(0.020)
South of Atlantic	-0.014	0.041	-0.002
	(0.021)	(0.027)	(0.024)
East south of Central	0.059*	0.020	0.025
	(0.038)	(0.033)	(0.034)
West south of Central	0.059**	0.044	-0.004
	(0.032)	(0.035)	(0.026)
Mountain	0.008	-0.001	-0.019
	(0.031)	(0.031)	(0.025)
<i>H. Year Dummies</i>			
D1978	-0.023	-	-
	(0.023)	-	-
D1983	0.069***	-	-
	(0.029)	-	-
D1985	0.035	-	-
	(0.032)	-	-
D1986	0.021	-	-
	(0.026)	-	-
D1989	-	-0.024	-
	-	(0.023)	-
D1990	-	-0.024	-
	-	(0.023)	-
D1991	-	0.023	-
	-	(0.023)	-

D1993	-	0.033	-
	-	(0.022)	-
D1994	-	0.01	-
	-	(0.022)	-
D1998	-	-	-0.026
	-	-	(0.016)
D2000	-	-	-0.028
	-	-	(0.017)
D2002	-	-	0.036
	-	-	(0.028)
D2004	-	-	0.011
	-	-	(0.020)

Sample Size	2,836	2,652	2,327
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Note: Standard errors are in brackets. The omitted group of specification (1) consists of workers who are 50 to 64 years old white male, not union member, graduate from high school, full-time worker, and living in Pacific in 1988. The omitted group of specification (2) consists of workers who are 50 to 64 years old white male, not union member, graduate from high school, full-time worker, and living in Pacific in 1996. The omitted group of specification (1) consists of workers who are 50 to 64 years old white male, not union member, graduate from high school, full-time worker, and living in Pacific in 2006.

* significant at 10% level, ** significant at 5% level, *** significant at 1% level (all two-tailed test).

5. Conclusion

This paper has examined union workers' perception of perceived job insecurity. By using American GSS data for the 1978 to 2006 period, I reach the following conclusion:

First, union workers are more insecure about their jobs than non-union workers. The largest insecurity gap exists in the 1978 to 1989 period and the gap tends to be smaller after 1990. Unions may now be less successful. Globalization may have brought more competition from foreign companies. Foreign companies' competition affects employers more than unions. A union isn't as powerful as it was once. An alternative possibility is that unions may do better on protecting their members' jobs.

Second, there is no evidence that shows that controlling for industry or occupation can

explain why union workers are more insecure about their jobs than their non-union counterparts.

Third, the relationship between workers and managers cannot explain why union workers feel relatively more insecure about their jobs, though the relationship with managers affects the perceived job insecurity very significantly.

Fourth, because the sample size is small (195 observations in Table 4), the type of job (i.e. permanent or by short term contract) cannot explain anything. The length of tenure cannot either explain either why union workers feel more insecure about jobs than non-union workers. The interaction between union and tenure is statistically insignificant.

6. Appendix:

The following table briefly describes the restriction of the model and sample size for the papers that I mentioned in section 2.

Name	Restriction of model and sample size
Schmidt (1999)	Schmidt (1999) restricted her sample to individuals who are 18 years and up, English-speaking and employed full-time or part-time during the 1977—1996 period.
Aaronson and Sullivan (1998)	Aaronson and Sullivan (1998) restricted their sample to employed English-speaking individuals whose age is between 18 and 64 over the 1977—1996 period.
Brochu and Zhou (2009)	Brochu and Zhou (2009) restricted their sample to currently full-time or part-time worked individuals that 25 to 64 years old during the period of 1977—2004

Johnson, Bobko and Hartenian (1992)	Johnson, Bobko and Hartenian (1992) restricted their sample to currently full-time workers from 26 unions in U.S. in 1988.
Sverke and Hellgren (2002)	Sverke and Hellgren (2002) restricted their sample to currently full-time or part-time workers in the Swedish Health Care in 1998.
Bryson, Cappellari and Lucifora (2004)	Bryson, Cappellari and Lucifora (2004) restricted their sample to non-agricultural workplaces with more than 10 employees in 1998.
Clark (2001)	Clark (2001) restricted his sample to not self-employed workers whose age is between 16 and 65 in 1991 to 1999 period.
Bender and Sloane (1998)	Bender and Sloane (1998) restricted their sample to full-time workers who are 20 to 60 years old in 1987.
Green, Felstead and Burchell (2000)	Green, Felstead and Burchell (2000) restricted their sample to workers who are 20 to 60 years old in 1986 and in 1997.
Borjas (1979)	Borjas (1979) restricted his sample to white male workers who are 50 to 64 years old from 1971.
Iverson and Currivan (2003)	Iverson and Currivan (2003) restricted their sample to 1,500 teachers from 405 schools randomly in a major city in Midwest of U.S. in 2003.
Renaud (2002)	Renaud (2002) restricted her sample to currently full-time or part-time worked employees who are 20 to 64 years old and not self-employed, managers or administrators in 1989.

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