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WORKER PERCEPTIONS OF JOB INSECURITY IN THE MID-1990S: EVIDENCE FROM THE SURVEY OF ECONOMIC EXPECTATIONS

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ABSTRACT

This paper analyzes the probabilistic measures of job insecurity that have recently become available through the nationwide Survey of Economic Expectations (SEE). Since 1994, employed SEE respondents have been asked questions eliciting their subjective probabilities of job loss in the coming year and their expectations of a good outcome should they lose their current job and have to engage in job search. The responses of 3600 persons interviewed from 1994 through early 1998 are analyzed here.

It is found that workers vary considerably in their perceptions of job insecurity, with most workers perceiving little or no risk but some perceiving moderate to high risk. Expectations of job loss tend to decrease markedly with age, but so do expectations of a good outcome should job search become necessary. The net result is that composite job insecurity tends not to vary at all with age. Subjective probabilities of job loss tend to decrease with schooling and subjective probabilities of good search outcomes tend to increase with schooling; hence composite job insecurity tends to decrease with schooling. Perceptions of job insecurity vary little by sex. Perceptions of job insecurity vary substantially by race, the main differences being that subjective probabilities of job loss among blacks tend to be nearly double those of whites. Self-employed workers see themselves as facing less job insecurity than do those who work for others. Workers tended to perceive less job insecurity in 1996 and 1997 than in 1994 and 1995. Expectations within groups are heterogeneous, the covariates (age, schooling, sex, race, employer, year) collectively explaining only a small part of the sample variation in worker expectations.

Moving beyond descriptive analysis, the paper connects the empirical findings to modern theories of the labor market. A competing-risks formalization of job separations by the two routes of job loss and voluntary quits is used to draw conclusions about workers' expectations of exogenous job destruction in the year ahead. The theory of job search is used to interpret the empirical finding that the distribution of search-outcome expectations is symmetric and quite dispersed.

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1. Introduction

Worker perceptions of *job insecurity* have been hypothesized to be determinants of economic outcomes ranging from wages and employment to consumption and savings.[1] Meaningful empirical conclusions about the effects of job insecurity can be drawn only if the concept is defined clearly and measured appropriately. Non-academic writers often use the expression *job insecurity* without formal definition, but usage indicates that the expression is commonly intended to convey the chance that a worker will lose his present job and subsequently not obtain a position of comparable value. Academic labor economists tend not to use the expression *job insecurity* in their formal analyses of labor markets, but it is clear what the expression means in the theory of job search (e.g., Lippman and McCall, 1976; Mortensen, 1986; Mortensen and Pissarides, 1998).[2] Workers' perceptions of

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[1] For example, job insecurity is linked to wages and employment in these remarks of Federal Reserve Board Chair Alan Greenspan before the Economic Club of Chicago on October 19, 1995:

> "Job insecurity, of course, is not a new phenomenon. It has always been prevalent in free labor markets. But it appears to have become particularly pronounced in recent years, perhaps because the rapid pace of technological change has occurred alongside, and been associated with, the highly publicized downsizing of many large corporations. Overall job growth has remained substantial despite these layoffs but that seems not to have relieved the fear of displacement. And that fear has doubtless played a significant role in the slowdown of the growth of wage compensation as workers have in effect sought to preserve their jobs by accepting lesser increases in wages."

Job insecurity is linked to consumption in this lead to an Associated Press report of January 28, 1996 titled "Job Insecurity Blamed for Home Sales Decline":

> "Middle managers and workers at the top of the blue-collar pay scale put off purchases of homes last year, according to a new survey that blames job insecurity arising from the wave of corporate downsizing."

Greenspan's remarks appears on the website of the Federal Reserve Bank of Minneapolis at http://woodrow.mpls.frb.fed.us/info/speeches/ag10-95.html. The AP report appears on the site of Woodward Communications, Inc. at http://www.wcinet.com/th/News/1996/th0128/stories.286.htm.

[2] The expression *job security* does appear routinely in the literature on industrial relations. For example, Hammermesh (1993, page 317) writes "Job security – the protection of current members' jobs and of employment opportunities for union labor generally – has been recognized as a major or even overarching goal of unions (Perlman 1928)."

job insecurity are given form through the expectations they are assumed to hold -- through their subjective probabilities of exogenous job destruction and their subjective distributions of outcomes should they search for new employment.

Whereas modern labor economics offers clear ways to define perceptions of job insecurity, it offer little guidance on how to measure them. Empirical labor economists have generally shunned direct elicitation of workers' expectations.[3] The prevalent practice has been to infer expectations from data on labor market realizations. Labor economists have sought to infer perceptions of job insecurity from statistics on unemployment rates and durations, from worker reports of job loss and business reports of plant closings, and from other data on the operation of labor markets. See, for example, Aaronson and Sullivan (1998) and Farber (1997).

Credible inference on expectations from realizations is hard to achieve (see Manski, 1993; Dominitz and Manski, 1997a). A researcher attempting such inference must somehow know what information workers possess and how they use this information to form expectations. Moreover, the labor market data available to the researcher must be rich enough to enable simulation of the assumed process of expectations formation. Economists seeking to infer expectations from realizations have generally been unable to meet these requirements for credible inference. Many do not even attempt to justify the assumptions they make about the information workers possess and the way they form expectations.

Direct elicitation of expectations is an alternative. Until recently, the only measures of perceptions of job insecurity available in the United States were the responses to the qualitative

[3] The occasional exceptions to this generalization warrant note. These include Kasper (1967), Lancaster and Chesher (1980), Feldstein and Poterba (1984), and Flinn and Del Boca (1984), who elicit reservation wages and expected values of wage offers.

questions asked in the General Social Survey (GSS) and other surveys of attitudes. Since 1977, GSS respondents who are currently working have been asked these two questions eliciting their expectations of job loss and search outcomes (Davis and Smith, 1994) :[4]

GSS Job-Loss Question: "Thinking about the next twelve months, how likely do you think it is that that you will lose your job or be laid off -- very likely, fairly likely, not too likely, or not at all likely?"

GSS Search-Outcome Question: "About how easy would it be for you to find a job with another employer with approximately the same income and fringe benefits that you now have? Would you say very easy, somewhat easy, or not easy at all?"

Unfortunately, the qualitative questions posed in surveys of attitudes suffer from at least two basic problems, described in Manski (1990) and Dominitz and Manski (1997b). First, the responses may not be interpersonally comparable. There is no a priori reason to think that different respondents interpret phrases such as "fairly likely" or "somewhat easy" in the same way and there is empirical evidence that interpretations of such phases vary substantially between respondents (see Wallsten et al., 1986). Second, even if different respondents interpret the verbal phrases identically, the responses provide only ordinal information about expectations. Consider the GSS job-loss question. The most the responses reveal is that workers who report "very likely" perceive that they

[4] Aaronson and Sullivan (1998) has analyzed the responses to these questions from 1977 to 1996. Dominitz and Manski (1997b) has compared the GSS responses in 1994 with those obtained the same year in the Survey of Economic Expectations, to be described below. Otherwise the GSS measures of job insecurity appear not to have drawn attention from economists.

are more likely to lose their job than those who report "fairly likely," and so on.

In principle, probabilistic elicitation of expectations should be more informative than qualitative questioning. Probabilistic questioning can yield responses that are interpersonally comparable and that fully characterize expectations, provided that respondents are able to formulate and express subjective probabilities with reasonable care. Probabilistic elicitation was recommended as long as thirty years ago by Juster (1966) and Savage (1971). However, persuasive demonstration of the empirical feasibility and utility of eliciting subjective probabilities in household surveys has had to wait until the 1990s, when a number of surveys with probabilistic questions have been fielded and analyzed. [5]

This paper analyzes the probabilistic measures of job insecurity that have recently become available through the nationwide Survey of Economic Expectations (SEE) described in Dominitz and Manski (1997a, 1997b). Since 1994, SEE respondents who are currently working have been asked these questions eliciting expectations of job loss and search outcomes:

SEE Job-Loss Question (L): "I would like you to think about your employment prospects over the next 12 months. What do you think is the percent chance that you will lose your job during the next 12 months?"

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[5] These include the Survey of Economic Expectations described below, the Health and Retirement Survey (see Juster and Suzman, 1994; Hurd and McGarry, 1995) in the United States, the Survey of Household Income and Wealth (see Guiso, Jappelli, and Terlizzese , 1992) in Italy, the VSB-Panel survey (see Das and Donkers, 1997) in the Netherlands, a survey of perceptions of health risks (see Quadrel, Fischhoff, and Davis, 1993) in Pittsburgh, and a survey of youth expectations of the returns to schooling (see Dominitz and Manski, 1996) in Madison. Modules of probabilistic expectations questions also appear in the 1994 wave of the Panel Study of Income Dynamics and in the National Longitudinal Study of Youth 1997.

SEE Search-Outcome Question (S): "If you were to lose your job during the next 12 months, what is the percent chance that the job you eventually find and accept would be at least as good as your current job, in terms of wages and benefits?"

These questions are followed by one eliciting expectations of voluntary quits:

SEE Voluntary-Quits Question (Q): "What do you think is the percent chance that you will leave your job voluntarily during the next 12 months?"

We examine here the 3600 responses to these questions obtained from 1994 through early 1998.

The present paper builds in part on the analysis by Dominitz and Manski (1997b) of SEE data collected in 1994 and 1995. The earlier paper served multiple functions. It described the SEE survey procedures in considerable detail, it explained at some length the rationale for probabilistic elicitation of expectations, and it evaluated the empirical feasibility of such elicitation. The substantive contribution of the paper was its use of the responses to three questions – the job-loss question, one eliciting expectations of health insurance coverage, and one eliciting expectations of crime victimization – to describe perceptions of economic insecurity in broad terms. Dominitz and Manski (1997b) did not focus on job insecurity per se. In particular, this earlier paper did not examine the SEE search-outcome and voluntary quits responses. [6]

[6] Two other papers have analyzed household income expectations elicited in a preliminary version of the SEE survey administered in 1993. Dominitz and Manski (1997a) examined the cross-sectional variation in income expectations. Dominitz (1998) used six-month and twelve-month follow-ups of the 1993 respondents to investigate the correspondence between their income expectations and their subsequent income realizations.

Section 2 gives background on the Survey of Economic Expectations and describes the overall sample distribution of responses to the questions eliciting job expectations. We find that the distribution of responses to the job-loss question is highly skewed. Most respondents perceive little or no chance of job loss in the year ahead, but some view themselves as facing a moderate to high risk. The distribution of responses to the search-outcome question has a very different shape. This distribution is approximately symmetric and quite dispersed.

Section 3 examines the cross-sectional and time-series variation across respondents in their perceptions of job insecurity. The main findings include these:

* Expectations of job loss tend to decrease markedly with age, but so do expectations of a good outcome should job search become necessary. The net result is that a measure of composite job insecurity tends not to vary at all with age.

* Subjective probabilities of job loss tend to decrease with schooling and subjective probabilities of good search outcomes tend to increase with schooling. Hence composite job insecurity tends to decrease with schooling.

* Perceptions of job insecurity vary little by sex.

* Perceptions of job insecurity vary substantially by race. The main differences are in expectations of job loss, with the subjective probabilities of blacks tending to be nearly double those of whites. Black respondents within every age, schooling, or sex group tend to have much higher subjective probabilities of job loss than do whites in the same group.

* Workers who are self-employed or who work in a family business see themselves as facing less job insecurity than do those who work for others.

* Workers tended to perceive less job insecurity in 1996 and 1997 than in 1994 and 1995.

* Expectations within groups are heterogeneous. The covariates (age, schooling, sex, race, employer, year) collectively explain only a small part of the sample variation in worker expectations.

In Section 4 we use the SEE data to draw conclusions about workers' expectations of exogenous job destruction in the year ahead. It is tempting to interpret the SEE job-loss question as eliciting these expectations directly, but scrutiny of the wording raises doubts about this interpretation. The reason is that a worker may choose to quit before job loss occurs. We use a competing-risks model of job separation to argue that the response to the job-loss question places a lower bound on a worker's subjective probability of exogenous job destruction. The sum of the responses to the job-loss and voluntary-quits questions places an upper bound on this quantity.

In Section 5 we use the theory of job search to interpret our empirical finding that the distribution of search-outcome expectations is symmetric and quite dispersed. Models of sequential job search with time-invariant reservation wages imply that, within each demographic/schooling group, the responses to the search-outcome question should be distributed uniformly on [0, 1]. We find that, although the SEE data reject this prediction as a point null hypothesis, the overall and group-specific distributions of responses to the search-outcome question do tend to be reasonably close to uniform. The most notable departure from uniformity is that the distribution of responses shifts leftward with increasing age.

Viewed as a whole, the analysis in Sections 2 through 5 sheds much descriptive light on workers' expectations and usefully connects some findings to the modern theory of labor markets. We see a rich agenda for future research. Section 6 describes elements of what we see ahead.

2. Measuring Job Expectations in The Survey of Economic Expectations

2.1. The Survey of Economic Expectations (SEE)

SEE is administered as a periodic module in WISCON, a continuous national telephone survey conducted by the University of Wisconsin Survey Center. The WISCON core questions ask respondents about their labor market experiences, demographics, and attitudes. The WISCON database, including the SEE modules, may be obtained from UWSC. The survey procedures are described in Dominitz and Manski (1997b), with further details in Winsborough (1987) and other UWSC in-house documents. The central features are summarized here.

The WISCON interviewers attempt contact with a sample of telephone numbers representative of currently working residential telephone numbers in the continental United States, including both listed and non-listed numbers.[7] The interviewers call about forty telephone numbers per day and find, on average, that about twenty of these numbers are either not in service or are at business locations. Among the remaining twenty or so numbers, they obtain an interview at slightly over ten households, on average. Thus the effective response rate (the ratio of interviews to potential residential phone numbers called) is a bit over fifty percent. Nonresponse is fairly evenly divided

[7] When a telephone number is called, the interviewer first determines whether or not a working residential telephone number has been reached and then screens to verify that it is associated with a household containing at least one resident age 18 or older. If so, one person is selected to be interviewed from among the eligible adult household members. If there is more than one adult in the household, the selection of an interviewee is as follows: If there is one male and one female, the selection is made with equal probabilities. If there is more than one of either sex, the gender selection probability is adjusted accordingly; the selection within gender is then made by randomly choosing the oldest or the youngest of the selected gender. In same gender multi-adult households, there is a random selection of the oldest or youngest member.

between refusals to be interviewed and cases in which ten phone calls made over several weeks find the appropriate respondent to be not at home or otherwise unable to complete the interview.

Since 1994, the SEE module has been included in WISCON in the spring/summer and fall/winter of each year, the interviewing periods roughly being May to July and November to January. In all, 5426 SEE interviews were completed from 1994 through early 1998. The analysis in this paper focuses on the 3600 SEE respondents during this period who were working at the time of the interview, who responded to all three job-expectations questions, and who provided basic demographic and schooling data.

Table 1 reports the demographic and schooling characteristics of the WISCON respondents interviewed when the SEE module was administered. The first column describes the entire sample of 5426 individuals. Of these respondents, 3804 reported that they were working at the time of the interview.[8] Of the working respondents, 3671 responded to all three SEE job-expectations questions. Thus, the item response rate to this set of SEE questions was 96.5 percent (3671 of 3804). Of these, 3600 provided the basic demographic and schooling data that we use in our analysis.

Columns 2 and 3 of Table 1 reports the demographic and schooling characteristics of these 3600 respondents in numerical and fractional terms. Relative to the population of workers in the United States, the working SEE respondents somewhat over-represent women, whites, and persons with postsecondary schooling. A reader wanting to use our findings to draw conclusions about the population of workers in the U.S. should keep in mind these characteristics of the sample. The

[8] Respondents were classified as working if they reported that they worked for pay in the week preceding the interview. This classification imposes no minimum hours criterion and includes workers who are self-employed or work in family businesses as well as those who work for others. Respondents who reported themselves as temporarily absent from or laid off from their jobs were not classified as working and were not asked the three job-expectations questions.

analysis in this paper does not weight the sample in an attempt to match the distribution of demographic and schooling characteristics of the U.S. population of workers.[9]

2.2. The Sample Distribution of Job-Expectation Responses

Modal Responses

Table 2 reports the frequency distribution of responses given by the 3600 respondents to each of the three job-expectations questions. There has until recently been something of a conventional wisdom that respondents asked to give probabilistic responses will mostly use the values (0, 50, 100) and not exploit the refined reporting possibilities permitted by the 0 - 100 percent chance scale. Contrary findings, however, were reported in Dominitz and Manski (1997b). Table 2 corroborates these findings. Most respondents do not round their responses to the values (0, 50, 100), but rather to the nearest multiple of 5. Respondents perceiving very low or very high probabilities of events provide yet more refined responses, with many reporting 1, 2, 98, or 99 percent.

The most common responses to the job-loss question are 0 percent (1251 respondents), 5 percent (471 respondents), and 10 percent (400 respondents), with 1478 respondents giving some other response. The most common responses to the search-outcome question are 50 percent (625 respondents), 100 percent (426 respondents), and 80 percent (345 respondents), with 2204 giving

[9] It is common in survey research to use weights to jointly adjust for the known effects of sampling design features and the unknown effects of nonresponse within a given design. The former application of weights has a more firm statistical foundation than does the latter (see Horowitz and Manski, 1998). Dominitz and Manski (1997b) weighted the 1994-1995 sample to adjust for two features of the sample design described earlier in this section: the differential respondent-selection probabilities across interviewed households and the varying interview rate across time periods. It was found that these design features have negligible effect on the demographic and schooling distribution of the sample.

some other response. The most common responses to the voluntary-quits question are 0 percent (1265 respondents), 50 percent (422 respondents), and 5 percent (304 respondents), with 1609 giving some other response. Thus, to the extent that responses are bunched at particular values, the pattern very much depends on the question posed.

Shapes of the Response Distributions

Here are the means and several quantiles of the sample responses to the three questions asked of respondents.

Sample Means and Quantiles of the Job Expectations Responses

Job Loss (L)				Search Outcome (S)				Voluntary Quits (Q)			
Mean	Quantile			Mean	Quantile			Mean	Quantile		
	.25	.50	.75		.25	.50	.75		.25	.50	.75
14.5	0	5	20	56.3	25	50	85	24.1	0	5	50

Observe that the distributions of responses to the job-loss and voluntary-quits questions are highly skewed. At least twenty-five percent of the respondents (the .25-quantile) see themselves as facing zero chance of losing their jobs or voluntarily quitting in the next year and at least fifty percent (the .50-quantile or median) see themselves as facing no more than a 5 percent chance of each event. Yet some respondents see much larger chances of job separation. The entry for the .75-quantile of the job-loss distribution shows that at least 25 percent of the respondents see a 20 percent or more chance of job loss in the next year. At least 25 percent of the respondents see a 50 percent or more chance of quitting voluntarily.

The distribution of responses to the search-outcome question has a very different shape. This distribution is approximately symmetric and quite dispersed, with its center at about 50 percent (mean = 56.3, median = 50, mode = 50) and its interquartile range being 60 percent (.25-quantile = 25 and .75-quantile = 85). In Section 5, job search theory will be used to interpret this empirical finding.

3. Cross-Sectional and Time-Series Variation in Perceptions of Job Insecurity

In this section we characterize the heterogeneity in perceptions of job insecurity evident in Table 2. We describe how workers' expectations vary cross-sectionally with age, schooling, sex, race, and employer. We also describe how expectations vary from year to year. In Section 3.1 we vary one respondent attribute at a time. In Section 3.2 we use all of the attributes to form best linear predictors of expectations.

The SEE job-loss and search-outcome questions yield information on two distinct dimensions of job insecurity: the chance that a worker will lose his current job and the chance of satisfactory recovery should job loss occur. It is of interest to analyze these two dimensions of job insecurity one at a time, but we also see value in combining the two dimensions into a one-dimensional composite measure of job insecurity: the chance that a worker will lose his current job and not recover satisfactorily from this event . Let L denote the response to the job-loss question and S denote the response to the search-outcome question. Then $L \times (100 - S)$ gives the percent chance that a worker will lose his job in the year ahead and subsequently not obtain a position of comparable economic

value. We examine here the responses L and S that respondents give directly and also their composite responses.

3.1. Univariate Patterns

Table 3 shows how expectations of job loss, search outcomes, and composite job insecurity vary with age, schooling, sex, race, employer, and year. The top row of the table repeats the overall sample means and quantiles discussed in Section 2. Each succeeding row displays these statistics for respondents having a specified attribute. Below each entry is a standard error computed under the assumption that the SEE respondents are a random sample of a population of potential respondents. We now discuss each univariate pattern in turn.

By Age

We find that younger, middle-aged, and old workers have remarkably similar distributions of composite job insecurity. Yet they have rather different distributions of the two component events – job loss and search outcome – that combine to form the composite. Job loss is more of a concern to younger workers than to older ones. Job search is more of a concern to older workers than to younger ones.

Expectations of job loss tend to decrease markedly with age, but so do expectations of a good outcome should job search become necessary. The net result is that composite job insecurity tends not to vary at all with age. Compare, for example, the expectations of workers aged 18-34 with those of workers aged 50-64. The younger workers tend to have subjective probabilities of job loss that

are .03 to .04 higher than those of the older workers {(mean = .157, median = .05) versus (mean = .123, median = .01)} and subjective probabilities of good search outcomes that are .15 to .20 higher than those of the older workers {(mean = .620, median = .70) versus (mean = .474, median = .50)}. The net effect is that the younger and older workers tend to have similar subjective probabilities of composite job insecurity {(mean = .060, median = .01) versus (mean = .065, median = .002)}.

Offsetting age variation occurs not only in the central tendencies of job-loss and search-outcome expectations but also in their within-group dispersion. Compare the interquartile ranges (IQR) of the expectations of workers aged 18-34 with those of workers aged 50-64. The younger workers have more disperse subjective probabilities of job loss than do the older workers (IQR = .20 versus IQR = .10) but less disperse subjective probabilities of good search outcomes (IQR = .45 versus IQR = .70). Again, the net effect is that the younger and older workers have similarly disperse subjective probabilities of composite job insecurity (IQR = .06 versus IQR = .05).

By Schooling

Whereas the variation with age in job-loss and search-outcome expectations is offsetting, the variation with schooling is reinforcing. Subjective probabilities of job loss tend to decrease with schooling and subjective probabilities of good search outcomes tend to increase with schooling. Hence composite job insecurity tends to decrease with schooling.

Close inspection of Table 3 shows that the shapes of the distributions of job-loss and search-outcome expectations change differentially with schooling. In the case of job loss, the .25-quantile and median do not vary with schooling but the .75 quantile moves to the left (from .20 to .10). In

the case of search outcomes, the entire distribution shifts rightward by .10 as schooling increases from the "No Postsecondary" category to the "Bachelor Degree' category.

The variation with schooling in the shape of the distribution of composite job insecurity is similar to that found in the distribution of job-loss expectations. At each level of schooling, the majority of workers have very little fear of losing their current job and not recovering (median = .01). The right tail of the distribution, however, shifts leftward with schooling, the .75 quantile falling from .10 to .08 to .05.

By Sex

We find that women and men have identical .25-quantile and median subjective probabilities of job loss but that women have somewhat higher .75-quantiles, and consequently, somewhat higher means {(mean = .155, .75- quantile = .20) versus (mean = .136, .75-quantile = .15)}. Offsetting this, women tend to have somewhat higher subjective probabilities of good outcomes should job search become necessary {mean = .567, median = 60) versus (mean = .558, median = .50)}. The net result is that women and men have essentially the same distribution of composite job insecurity.

The present findings strengthen the earlier conclusion of Dominitz and Manski (1997b) that women and men have similar perceptions of economic risks. That paper, analyzing 1994 and 1995 SEE data on expectations of job loss, burglary victimization, and absence of health insurance coverage, found no variation by sex in the .25-quantiles and medians of the distributions of these three risks and modest variation in the .75-quantiles.

By Race

Whereas perceptions of job insecurity vary little by sex, they vary substantially by race. The main differences are in expectations of job loss. The subjective probabilities of blacks tend to be nearly double those of whites {(mean = .233, median = .10) versus (mean = .137, median = .05)}. Blacks and whites differ even more in the right tails of their distributions of expectations. The .75-quantile for blacks is over three times that for whites (.50 versus .15). Thus, at least 25 percent of blacks who are currently working perceive themselves to have at least a 50 percent chance of losing their jobs in the next year.

Blacks tend to have somewhat lower subjective probabilities of good search outcomes than do whites {(mean = .545, median = .50, 75-quantile = .80) versus (mean = .564, median = .60, .75-quantile = .90)}. Taken together, the racial differences in job-loss and search-outcome expectations imply that subjective probabilities of losing one's job and not recovering tend to be much higher among blacks than among whites { (mean = .106, median = .04, .75-quantile = .15) versus (mean = .059, median = .01, .75 quantile = .05) }.[10]

Here, as in other settings in which large racial differences are found, it is of interest to determine whether the differences are pervasive or are restricted to particular subgroups of the population. Table 4 shows how the expectations of the 240 black workers in the SEE sample vary with age, schooling, sex, and year. (The breakdown by type of employer is not shown because few black respondents are self-employed or working in family businesses.) Comparison of the entries in Table 4 with the corresponding entries in Table 3 shows that the racial differences in job-loss expectations are pervasive. Black respondents within every age, schooling, or sex group tend to have much higher subjective probabilities of job loss than do whites in the same group. The racial pattern

[10] Blacks also tend to have much higher subjective probabilities of burglary victimization and absence of health insurance than do whites. See Dominitz and Manski (1997b).

of search-outcome expectations, however, is not uniform across groups.[11]

By Type of Employer

Self-employed workers and ones working in family businesses tend to perceive less chance of job loss than do those who work for others. Over half of the workers in the first two groups view themselves as facing no chance at all of losing their jobs in the next twelve months. Their mean subjective probabilities of job loss are .103 and .092, whereas the mean for other workers is .153.

Subjective probabilities of good search outcomes vary little by type of employer. Means, medians, and .75-quantiles are much the same across the three groups. Notable differences appear only in the .25-quantiles. These are much lower in the self-employed and family-business groups than in the group who work for others (.14 and .11 versus .30).

By Year

The main impression from examination of the year-by-year responses to the SEE questionnaire is that workers tended to perceive less job insecurity in 1996 and 1997 than they did in 1994 and 1995. Within the period of the mid-1990s, subjective job insecurity as measured through the SEE questions was highest in 1995, when expectations of job loss were at their peak and expectations of good search outcomes at their trough. Workers' expectations improved in 1996 and remained stable in 1997.

The time series variation in worker expectations corresponds broadly to the time series

[11] Consider the breakdown by schooling. Among persons with no postsecondary schooling, blacks tend to have lower subjective probabilities of good search outcomes than whites. The opposite pattern is found among persons with some postsecondary schooling.

variation in the state of the American economy during the mid-1990s. For example, the time series of the official unemployment rate during this period shows a nearly monotone decline throughout the period.[12]

3.2. Best Linear Predictors

Table 5 presents estimates of four best linear predictors (BLPs) of workers' expectations. Consider, for example, the entries under "Job Loss." The column labelled "Mean" presents the coefficients of a linear least squares fit of respondents' subjective probabilities of job loss to a constant and the variables (age, schooling, sex, race, employer, year). The predictor variables are defined as in Table 3, with one value of each variable omitted for normalization. Similarly, the three columns labeled "quantile" present the coefficients of linear (asymmetric) least absolute deviations fits. The four BLPs are interpretable as mean and quantile regressions if these regressions are linear. We do not, however, impose this assumption in computing standard errors. The standard errors given under the coefficients assume only that the SEE respondents form a random sample from a population of prospective respondents.

All of the prominent univariate patterns reported in Section 3.1 remain intact in the best linear predictors. The predicted subjective probabilities of job loss and of good search outcomes decrease with the age of the worker, the net effect being that the predictions of composite job insecurity essentially do not vary at all with age. The reinforcing univariate effects of schooling

[12] Here are the Bureau of Labor Statistics official unemployment rates at six-month intervals:

Jun-94: 6.0%	Dec-94: 5.6%	Jun-95: 5.8%	Dec-95: 5.5%
Jun-96: 5.4%	Dec-96: 5.2%	Jun-97: 4.8%	Dec-97: 4.7%

found in Table 3 reappear in the multivariate setting of Table 5. We again find very little difference in the expectations of women and men. We again find substantial differences in job-loss expectations between blacks and whites, as well as between self-employed workers and those working for others. The time series variation discussed earlier remains basically unchanged, with insecurity peaking in 1995 and falling subsequently.

What remains to be said is that the BLPs shown in Table 5 explain only a small part of the sample variation in worker expectations. The two bottom rows of the table show the average residual variation in expectations when only a constant is used to make predictions and when the BLP is used. (Average residual variation is measured by the root mean square error for the least squares fits and by the average absolute deviation for the least absolute deviations fits.) We find that none of the fitted linear functions of the predictor variables reduces the average residual variation in expectations by more than a few percent. Thus, the preponderance of heterogeneity in worker expectations appears to be within-group heterogeneity, not between-group heterogeneity.[13]

4. Worker Expectations of Exogenous Job Destruction

Labor economists writing on the theory of labor markets usually suppose that job separations occur through job loss and voluntary quits. Job loss occurs when an employer breaks an existing job match and a voluntary quit occur when a worker leaves his current job to accept or search for a better

[13] We say "appears" here because we have only estimated BLPs, not nonparametric regressions. Some nonlinear function of the predictor variables may be more successful in predicting expectations than the linear functions considered here.

match. Job loss is commonly assumed to be unanticipated by the worker and unaffected by worker behavior on the job; the result of plant closings, elimination of positions, and the like. Thus, job loss is often viewed as *exogenous job destruction*. See, for example, Mortensen and Pissarides (1998).

In reality, job loss and voluntary quits may not be entirely distinct events. A voluntary quit may occur when a worker anticipates future job loss and decides that it is preferable to separate sooner, in a manner that the worker controls, rather than later, in a manner that the employer controls. Some job separations may be the mutually agreed outcomes of negotiation between employer and worker, rather than the unilateral decision of one party or the other. Distinguishing job losses from voluntary quits is especially problematic when workers are self-employed. Nevertheless, the idea that workers confront processes of exogenous job destruction has theoretical and empirical appeal.

In this section we use the SEE data to draw some informative but not firm conclusions about workers' expectations of exogenous job destruction in the next twelve months. Section 4.1 explains why firm conclusions are not possible given the information available. We examine the empirical evidence in Section 4.2.

4.1. Expectations of Job Loss, Voluntary Quits, and Exogenous Job Destruction

Let D denote a person's subjective probability of exogenous job destruction in the next twelve months. It is tempting to interpret the SEE job-loss question as eliciting D from respondents. Scrutiny of the wording of the question, however, raises doubts about this interpretation. Recall that the question is

SEE Job Loss Question (L): "I would like you to think about your employment prospects over the next 12 months. What do you think is the percent chance that you will lose your job during the next 12 months?"

A person who answers the question as posed should not give his subjective probability of exogenous job destruction in the next twelve months. Rather he should give the joint probability that exogenous job destruction will occur in the next twelve months and that he will not voluntarily quit prior to this event. Thus, if a respondent answers the question as posed, L gives a lower bound on D.

Similar reasoning shows that the sum L + Q gives an upper bound on D. Recall that the voluntary-quits question is

SEE Voluntary Quits (Q): "What do you think is the percent chance that you will leave your job voluntarily during the next 12 months?"

If a person responds to this and to the job-loss question as posed, then the sum L + Q is at least equal

to the person's subjective probability of job separation, which in turn is at least equal to his subjective probability of exogenous job destruction. Thus we obtain the bound $L \leq D \leq L + Q$.

The above argument is simple but informal. A constructive way to formalize the argument materializes if we think of job loss and voluntary quits as competing risks, much as in Lancaster (1990). Let $t = 0$ denote the date of a respondent's SEE interview. Let $t_L > 0$ denote the future date at which the respondent will lose his current job if he does not quit first. That is, t_L is the date at which exogenous job destruction will take place. Let $t_Q > 0$ denote the future date at which the respondent will quit his current job if he does not lose the job first. The dates t_L and t_Q are latent variables. An observable job separation occurs at the earlier of the two dates.

There are four mutually exclusive and exhaustive possibilities for a SEE respondent's job status twelve months after the date of the interview. These are

* Job separation occurs through job loss if $t_L \leq 12$ and $t_L < t_Q$.
* Job separation occurs through a voluntary quit if $t_Q \leq 12$ and $t_Q < t_L$.
* Job separation occurs through a joint job loss and voluntary quit if $t_L = t_Q \leq 12$.
* Job separation does not occur if if $t_L > 12$ and $t_Q > 12$.

Assume that, at the time of the interview, a respondent has a subjective probability distribution P on the two dates (t_L, t_Q). Then this person's subjective probability of exogenous job destruction in the next twelve months is

$$(1) \qquad D = P(t_L \leq 12).$$

His probability of job loss is

(2) $L = P(t_L \leq 12 \cap t_L \leq t_Q)$

and his probability of a voluntary quit is

(3) $Q = P(t_Q \leq 12 \cap t_Q \leq t_L)$.

If the person responds to the SEE questions as posed, he should give the responses (2) and (3).

Comparison of (1) and (2) shows that

(4) $D - L = P(t_Q < t_L \leq 12)$.

Hence L is a lower bound on D. Comparison of (3) and (4) shows that $Q \geq D - L$. Hence $L + Q$ is an upper bound on D. Thus $L \leq D \leq L + Q$ as asserted earlier.

Observe that the bound on D has width Q. So the SEE data identify the subjective probability of exogenous job destruction if and only if $Q = 0$. Then the bound reduces to $D = L$.

Observe that a respondent with zero subjective probability of job loss does not necessarily have zero subjective probability of exogenous job destruction. If $L = 0$, the bound on D is $0 \leq D \leq Q$. This finding may seem odd but it is actually easy to motivate. Suppose that a worker always receives some advance notice of pending job loss, perhaps in the form of a legally mandated 30-day notice. Suppose that, given this notice, the worker prefers to quit immediately rather than wait out the notice period. Then $P(t_L \leq t_Q) = 0$ and so $L = 0$. Hence exogenous job destruction manifests itself in a voluntary quit rather than in a job loss.

Lacking the opportunity to debrief SEE respondents, we do not know if they answer the job-loss and voluntary-quits questions in the manner argued here. There is some subtlety to the idea that future job losses may be pre-empted by future voluntary quits, and vice versa. It may be that, in the short response period afforded by a telephone interview, some SEE respondents neglect the interaction of job losses and quits. Thus some persons may respond with $L = P(t_L \leq 12)$ and $Q = P(t_Q \leq 12)$ rather than with the more complex joint probabilities $L = P(t_L \leq 12 \cap t_L \leq t_Q)$ and $Q = P(t_Q \leq 12 \cap t_Q \leq t_L)$. If so, the bound $L \leq D \leq L + Q$ nevertheless remains valid.

4.2. Empirical Evidence

We have previously examined the distribution of L in Sections 2 and 3. Hence it remains only to examine the distribution of L + Q. The sum L + Q is of interest not only for its status as an upper bound on D but also for its status as an upper bound on the subjective probability of job separation. Indeed, L + Q is the subjective probability of job separation if the respondent answers the SEE questions in the manner argued in Section 4.1 and if, in addition, $P(t_L = t_Q) = 0$.

As a prelude to discussion of the distribution of L + Q, we summarize the distribution of responses Q to the voluntary-quits question. The left panel of Table 6 shows the univariate cross-sectional and time-series pattern of responses, while the right panel shows best linear predictors of the responses. We find that subjective probabilities of quits tend to decrease sharply with age up to age 65 but then rise again in the age group 65+. This upturn among older workers presumably reflects expectations of retirement in the year ahead. Subjective probabilities of voluntary quits vary little if at all with schooling, sex, or year. They vary moderately with race, with black workers

perceiving themselves as somewhat more likely to quit their jobs than do white workers. They vary more strongly by type of employer, with workers who are self-employed or working in family businesses tending to have lower subjective probabilities of quits than do those who work for others.

Now consider the distribution of L + Q, which is summarized in Table 7. The univariate means in the left panel algebraically equal the sum of the corresponding univariate means in Table 3 and the left panel of Table 6. Quantiles of sums do not, however, generally equal sums of quantiles. Hence the quantiles of L + Q shown in Table 7 contain fresh information not conveyed by Tables 3 and 6.

The main new finding is that the various medians of L + Q shown in the left panel of Table 7 are much larger than the sums of the corresponding medians of L and Q, with Med (L + Q) typically 1.5 to 3 times the magnitude of Med (L) + Med(Q). Whereas the overall sample medians of L and Q are both 0.05, the overall sample median of L + Q is 0.20. Disaggregation by age, schooling, sex, race, employer, and year yield broadly similar patterns.

Considered as a statistical phenomenon, the fact that Med (L + Q) much exceeds Med (L) + Med(Q) reflects features of the joint distribution of (L, Q). There is positive statistical association between L and Q; the correlation between the two responses is 0.244. The substantive interpretation of the finding depends on how SEE respondents answer the questions posed to them and on the nature of the interaction between job loss and quits.

The maximal substantive interpretation emerges if we assume that respondents answer in the manner argued in Section 4.1 and that all voluntary quits reflect pending exogenous job destruction, with workers choosing to quit before they are dismissed. These assumptions imply that D = Q + L; hence Med (D) = Med(Q + L). If so, job insecurity is much more pervasive among American

workers than the analysis in Sections 2 and 3 suggested.

The minimal substantive interpretation emerges if we assume that SEE respondents neglect the interaction of job loss and quits when they answer the job-loss question. This assumption implies that D = L; hence Med (D) = Med (L). If so, L + Q is not a substantively interesting quantity from the perspective of job insecurity, although it remains an upper bound on the subjective probability of job separation.

We do not know which interpretation is closer to the truth. Given the data available, we can only report the results of one weak test. If the maximal interpretation is correct, then the value of L + Q must not exceed one. We find that $L + Q \leq 1$ for 3317 of the 3600 respondents. Thus, about 92 percent of the responses are consistent with the hypothesis that L + Q is the worker's subjective probability of exogenous job destruction. The remaining 8 percent are not consistent with this hypothesis. Of the 283 respondents with $L + Q > 1$, the deviation from one is small in some cases but not in others; 82 respondents report $L + Q > 1.5$ and 25 report $L + Q = 2$.

5. Search-Outcome Expectations and The Theory of Job Search

The empirical analysis of workers' expectations in Sections 2 and 3 was entirely descriptive. We summarized the cross-sectional and time-series variation in expectations but did not seek to connect the observed patterns with theories of the operation of labor markets. In Section 4 we made some use of the formalisms of labor market theory but the objective remained description of workers' expectations. In this section, we draw a tight connection between part of our empirical analysis and the theory of job search.

We examine here the consistency of familiar reservation-wage models with our findings on the distribution of search-outcome expectations. Models of sequential job search with time-invariant reservation wages imply that, within each demographic/schooling group, the responses to the SEE search-outcome question should be distributed uniformly on [0, 1]. We derive this theoretical prediction in Section 5.1 and compare it with the empirical evidence in Section 5.2.

5.1. The Theoretical Prediction

It is common in the theory of job search to assume that, should a worker lose his current job and have to search for a new one, he would sample sequentially without recall from a known, time-invariant distribution of wage offers having an invertible distribution function. A basic finding is that the optimal stopping rule is to accept a wage offer if it exceeds a time-invariant threshold called the *reservation wage* (e.g., Lippman and McCall, 1976; Mortenson, 1986). It is common to assume that wage offers are statistically independent across time and workers, implying that accepted wages

are similarly independent. It is also common to assume that the population of workers is decomposable into a set of *types*. Workers of a given type are homogeneous, but wage-offer distributions and reservation wages may vary across types.

Job-search models with these features imply that, among workers of a given type, responses to the SEE search-outcome question should be distributed uniformly on [0, 1]. To see this, let π be the distribution of wage offers faced by the workers of a given type and let R be the time-invariant reservation wage common to workers of this type. Should a worker lose his current job and search for a new one, the wage that he will eventually accept will be drawn from the distribution of wages greater than R; that is, from $\pi(W|W > R)$. For $w \geq 0$, define $F(w) \equiv \pi(W \leq w|W > R)$. Assume that the distribution function $F(\cdot)$ is continuous and invertible on its support.

Let j denote a specific worker and let W_{0j} be his current wage. Should worker j lose his job and search for a new one, $F(W_{0j})$ is the probability that the new wage eventually accepted will not exceed his current wage. The SEE search-outcome question asks for the probability that the new wage will be greater than or equal to the current wage. Thus j's response to the SEE question should be $S_j = 1 - F(W_{0j})$.

Now consider the distribution of the responses S among currently working persons of the given type. The current wages W_0 of these persons are independently drawn from the same distribution as will be their future wages should they engage in search; that is, from $P(W|W > R)$. It follows that, for each $t \in [0, 1]$, [14]

[14] Equation (5) is an instance of a well-known result in probability theory, sometimes called the *probability integral transformation*. Let z be any continuous real random variable and let G be its distribution function. Then the random variable G(z) is uniformly distributed. See, for example, Johnson and Kotz (1970), p. 58.

$$(5) \qquad \pi[F(W_0) \leq t \mid W_0 > R] = \pi[W_0 \leq F^{-1}(t) \mid W_0 > R] = F[F^{-1}(t)] = t.$$

This shows that the distribution of $F(W_0)$ among workers of the given type is uniform on [0, 1]. Hence the distribution of S is also uniform.

It remains only to aggregate the responses from types, which are unobservable, to demographic and schooling groups, which are observable. If the distribution of S is uniform among workers of a given type, then it is uniform among workers of any aggregation of types. Thus, however we stratify the SEE respondents, the distribution of responses to the search-outcome question should be uniform on [0, 1].

5.2. The Empirical Evidence

The empirical evidence on search-outcomes expectations in Tables 2 through 5 rejects the theoretical prediction as a point null hypothesis. The bunching of responses at multiples of 5 shown in Table 2 is not compatible with uniformity of the marginal distribution of responses. The (.25, .50, .75) quantiles of some of the empirical distributions shown in Tables 3 and 4 are different enough from (.25, .50, .75) to reject the point hypothesis that these distributions are uniform conditional on the specified covariates. The best linear predictors of S shown in Table 5 indicate that responses to the SEE question vary to some degree across schooling/demographic groups, whereas the theory predicts that S should be statistically independent of all covariates.

Yet consideration of the theoretical prediction as a point null hypothesis seems to us too strict a criterion. As we view Tables 2 through 4, our main impression is that the overall and group-

specific distributions of responses to the search-outcome question tend to be reasonably close to uniform. The overall distribution of responses can be scrutinized fully in Table 2, which indicates that rounding to multiples of 5 is the main departure from uniformity. The group-specific distributions can be inspected through the means and quantiles shown in Tables 3 and 4, which mostly show only modest deviations from uniformity. As we view Table 5, our main impression is that the schooling and demographic covariates brought to bear collectively explain little of the observed variation in response across the sample of respondents. It seems to us that, for some purposes, it may be a reasonable approximation to assume that search-outcome expectations are distributed uniformly.

The most notable departures from the theoretical prediction appear in the breakdowns by age shown in Tables 3 through 5. The distribution of responses to the search-outcome question clearly shifts leftward with increasing age. This pattern may perhaps be explainable by job-search models with finite rather than infinite horizons. Finite horizon models generally predict that reservation wages tend to fall as workers age and approach their planning horizons. The age-pattern may also be explainable by models that suppose workers search for new jobs while employed. Models with on-the-job search predict that observed wages rise with time spent in the labor force, hence with age, as workers periodically trade up to more attractive jobs. In these models older workers tend to have better job matches than do younger ones. Hence, older worker have more to lose than younger ones if they should become unemployed and have to engage afresh in job search.

6. Conclusion

We have presented empirical evidence on worker subjective probabilities of job insecurity in the mid-1990s. We believe that the SEE probabilistic questions on job expectations have substantial advantages relative to the qualitative questions posed in surveys of attitudes. General arguments for elicitation of subjective probabilities were given in Section 1. Here we would call attention to two specific aspects of our analysis that illustrate well the power of probabilistic elicitation. One was our construction of the composite measure of job insecurity $L \times (100 - S)$. The other was our derivation of the upper bound $L + Q$ on a worker's subjective probability of exogenous job destruction. It would be infeasible to develop analogous measures using qualitative questions on job loss, search outcomes, and voluntary quits.

We believe that elicitation of probabilistic job expectations has substantial advantages relative to inference on expectations from realizations. Data on realizations provide at most indirect measures on how workers see their futures. It is of interest to learn how workers use available information on the state of labor markets to predict their futures. This use of data on realizations is distinct, however, from the longstanding practice among economists of assuming that workers have rational expectations with specified information sets.[15]

We do not assert that the specific procedures used in our analysis of the SEE data are the best

[15] Economists wishing to assess the validity of rational expectations assumptions may use expectations data to study how well workers are able to predict their futures. Perhaps the most powerful approach is to elicit respondents' expectations and then follow up with a survey asking for their subsequent realizations, as in Dominitz (1998). A repeated cross-section survey like SEE permits only a much weaker approach, whereby the mean expectations of the persons interviewed in one year are compared with the mean realizations of persons interviewed the next year. See Dominitz and Manski (1997b) for further discussion.

possible. The discussion of exogenous job destruction in Section 4 makes clear that there is much scope for research on the appropriate interpretation of responses to the existing questions and for research developing refined versions of the questions. Even with refinement, however, there are limits on what can be accomplished within a short telephone survey such as SEE. To realize much of the promise of expectations elicitation will require the development of instruments that probe respondents' thinking more deeply. Such modules will, we think, require either face-to-face interviews or the use of self-administered computer-assisted interview approaches.

The long-term objective should be to use elicited expectations to study the effects of job insecurity on worker behavior. Does job insecurity impel workers to bargain less hard for wage increases and to defer purchases of homes, as suggested by some (see footnote 1)? To understand how job insecurity affects behavior, it will be necessary to join data on perceptions of job insecurity with data on the risk-related choices that workers make.

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Table 1: Characteristics of The SEE Respondents

	WISCON Sample	SEE Sample of Workers	Distribution of SEE Sample of Workers
All	5426	3600	1.00
Male	2429	1821	0.506
Age 18-34	777	670	0.186
Age 35-49	855	761	0.211
Age 50-64	465	334	0.093
Age 65 or more	332	56	0.016
No Postsecondary	619	392	0.109
Some Postsecondary	586	444	0.123
Bachelors Degree	1224	985	0.274
White	2122	1594	0.443
Black	148	109	0.030
Female	2997	1779	0.494
Age 18-34	882	641	0.178
Age 35-49	1006	761	0.211
Age 50-64	566	316	0.088
Age 65 or more	543	61	0.017
No Postsecondary	900	400	0.111
Some Postsecondary	777	471	0.131
Bachelors Degree	1320	908	0.252
White	2610	1549	0.430
Black	219	131	0.036

Table 2: Distribution of Responses to Job Expectations Questions

Subjective Probability	Job Loss			Search Outcome			Voluntary Quits		
	Freq	Percent	Cum %	Freq	Percent	Cum %	Freq	Percent	Cum %
0	1251	34.8	34.8	264	7.3	7.3	1265	35.1	35.1
1	172	4.8	39.6	15	0.4	7.8	106	2.9	38.1
2	269	7.5	47.1	49	1.4	9.1	172	4.8	42.9
3	27	0.8	47.9	5	0.1	9.3	10	0.3	43.1
4	9	0.3	48.2	1	0.0	9.3	8	0.2	43.4
5	471	13.1	61.3	113	3.1	12.4	304	8.4	51.8
6-9	15	0.4	61.7	4	0.1	12.5	3	0.1	51.9
10	400	11.1	72.6	151	4.2	16.7	255	7.1	59.0
11-14	2	0.0	72.7	1	0.0	16.8	2	0.1	59.0
15	48	1.3	74.0	25	0.7	17.4	38	1.1	60.1
16-19	1	0.0	74.0	0	0.0	17.4	0	0.0	60.1
20	249	6.9	80.9	207	5.8	23.2	200	5.6	65.6
21-24	1	0.0	81.0	1	0.0	23.2	1	0.0	65.7
25	56	1.6	82.5	78	2.2	25.4	73	2.0	67.7
26-29	0	0.0	82.5	2	0.1	25.4	0	0.0	67.7
30	73	2.0	84.6	117	3.3	28.7	85	2.4	70.1
31-34	0	0.0	84.6	1	0.0	28.7	0	0.0	70.1
35	10	0.3	84.8	13	0.4	29.1	9	0.3	70.3
36-39	0	0.0	84.8	0	0.0	29.1	0	0.0	70.3
40	37	1.0	85.9	113	3.1	32.2	56	1.6	71.9
41-44	0	0.0	85.9	0	0.0	32.2	0	0.0	71.9
45	9	0.3	86.1	21	0.6	32.8	12	0.3	72.2
46-49	0	0.0	86.1	0	0.0	32.8	2	0.1	72.3
50	254	7.1	93.2	625	17.4	50.2	422	11.7	84.0
51-54	0	0.0	93.2	0	0.0	50.2	0	0.0	84.0
55	4	0.1	93.3	14	0.4	50.6	6	0.2	84.1
56-59	0	0.0	93.3	0	0.0	50.6	0	0.0	84.1
60	24	0.7	93.9	111	3.1	53.6	56	1.6	85.7
61-64	0	0.0	93.9	0	0.0	53.6	0	0.0	85.7
65	4	0.1	94.1	8	0.2	53.9	6	0.2	85.9
66-69	0	0.0	94.1	2	0.1	53.9	0	0.0	85.9
70	15	0.4	94.5	124	3.4	57.4	31	0.9	86.7
71-74	0	0.0	94.5	0	0.0	57.4	0	0.0	86.7
75	29	0.8	95.3	224	6.2	63.6	74	2.1	88.8
76-79	0	0.0	95.3	0	0.0	63.6	0	0.0	88.8

Subjective Probability	Job Loss			Search Outcome			Voluntary Quits		
	Freq	Percent	Cum %	Freq	Percent	Cum %	Freq	Percent	Cum %
80	51	1.4	96.7	345	9.6	73.2	109	3.0	91.8
81-84	0	0.0	96.7	1	0.0	73.2	0	0.0	91.8
85	8	0.2	96.9	73	2.0	75.2	10	0.3	92.1
86-89	0	0.0	96.9	5	0.2	75.4	0	0.0	92.1
90	23	0.6	97.6	278	7.7	83.1	82	2.3	94.4
91-94	0	0.0	97.6	1	0.0	83.1	1	0.0	94.4
95	17	0.5	98.0	115	3.2	86.3	29	0.8	95.2
96	0	0.0	98.0	0	0.0	86.3	1	0.0	95.2
97	0	0.0	98.0	2	0.1	86.4	0	0.0	95.2
98	7	0.2	98.2	48	1.3	87.7	11	0.3	95.5
99	1	0.0	98.2	17	0.5	88.2	7	0.2	95.7
100	63	1.8	100.0	426	11.8	100.0	154	4.3	100.0
Total	**3600**	**100.0**		**3600**	**100.0**		**3600**	**100.0**	

Table 3: Distributions of Perceptions of Job Insecurity, by Group

TABLE 3 Univariate Patterns	Job Loss Quantile				Search Outcome Quantile				Composite Job Insecurity Quantile			
	Mean	.25	.50	.75	Mean	.25	.50	.75	Mean	.25	.50	.75
All Workers (n = 3600)	.145 (.004)	.00 (.005)	.05 (.005)	.20 (.004)	.563 (.006)	.25 (.009)	.50 (.007)	.85 (.009)	.063 (.002)	.00 (.003)	.00 (.003)	.06 (.002)
By Age												
Age 18-34 (n = 1311)	.157 (.007)	.00 (.009)	.05 (.018)	.20 (.015)	.620 (.008)	.45 (.012)	.70 (.012)	.90 (.015)	.060 (.003)	.00 (.016)	.01 (.013)	.06 (.013)
Age 35-49 (n = 1522)	.147 (.006)	.00 (.008)	.05 (.008)	.20 (.013)	.564 (.012)	.30 (.013)	.50 (.021)	.85 (.013)	.065 (.004)	.00 (.004)	.01 (.004)	.06 (.004)
Age 50-64 (n = 650)	.123 (.009)	.00 (.011)	.01 (.013)	.10 (.010)	.474 (.014)	.10 (.026)	.50 (.018)	.80 (.023)	.065 (.006)	.00 (.007)	.00 (.008)	.05 (.006)
Age 65 + (n =117)	.114 (.022)	.00 (.026)	.00 (.030)	.08 (.024)	.405 (.038)	.00 (.067)	.20 (.054)	.90 (.085)	.066 (.015)	.00 (.017)	.00 (.020)	.02 (.017)
By Schooling												
No Postsec. (n = 792)	.171 (.008)	.00 (.012)	.05 (.013)	.20 (.010)	.494 (.011)	.20 (.019)	.50 (.015)	.80 (.020)	.082 (.005)	.00 (.007)	.01 (.008)	.10 (.006)
Some Postsec. (n = 915)	.159 (.008)	.00 (.011)	.05 (.011)	.20 (.009)	.559 (.011)	.25 (.018)	.55 (.014)	.80 (.015)	.070 (.004)	.00 (.005)	.01 (.006)	.08 (.005)
Bach Degree (n = 1893)	.128 (.005)	.00 (.006)	.05 (.007)	.10 (.005)	.594 (.008)	.30 (.012)	.60 (.009)	.90 (.013)	.052 (.003)	.00 (.003)	.01 (.003)	.05 (.003)
By Sex												
Male (n=1821)	.136 (.005)	.00 (.007)	.05 (.007)	.15 (.006)	.558 (.008)	.25 (.013)	.50 (.010)	.85 (.012)	.061 (.003)	.00 (.004)	.01 (.003)	.05 (.003)
Female (n=1779)	.155 (.006)	.00 (.008)	.05 (.008)	.20 (.006)	.567 (.008)	.30 (.012)	.60 (.010)	.90 (.014)	.066 (.003)	.00 (.004)	.01 (.004)	.06 (.003)
By Race												
White (n=3143)	.137 (.004)	.00 (.005)	.05 (.006)	.15 (.004)	.564 (.006)	.25 (.010)	.60 (.008)	.90 (.011)	.059 (.002)	.00 (.003)	.01 (.003)	.05 (.002)
Black (n=240)	.233 (.018)	.00 (.027)	.10 (.025)	.50 (.031)	.545 (.020)	.30 (.029)	.50 (.025)	.80 (.030)	.106 (.010)	.00 (.013)	.04 (.013)	.15 (.011)
Other (n=217)	.160 (.016)	.00 (.022)	.05 (.023)	.20 (.018)	.571 (.022)	.40 (.027)	.50 (.028)	.80 (.030)	.070 (.009)	.00 (.011)	.01 (.012)	.10 (.010)

TABLE 3 Univariate Patterns	Job Loss				Search Outcome				Composite Job Insecurity			
		Quantile				Quantile				Quantile		
	Mean	.25	.50	.75	Mean	.25	.50	.75	Mean	.25	.50	.75
By Employer												
Self (n=458)	.103	.00	.00	.10	.533	.14	.50	.90	.040	.00	.00	.03
	(.010)	(.012)	(.014)	(.011)	(.018)	(.033)	(.022)	(.031)	(.004)	(.005)	(.006)	(.005)
Family (n=124)	.092	.00	.00	.05	.529	.11	.50	.80	.037	.00	.00	.02
	(.020)	(.023)	(.027)	(.022)	(.032)	(.068)	(.041)	(.046)	(.009)	(.010)	(.012)	(.010)
Other (n=3009)	.153	.00	.05	.20	.568	.30	.55	.85	.067	.00	.01	.07
	(.004)	(.006)	(.006)	(.005)	(.006)	(.009)	(.007)	(.009)	(.002)	(.003)	(.003)	(.003)
By Year												
1994 (n=813)	.145	.00	.05	.20	.540	.25	.50	.85	.065	.00	.01	.06
	(.009)	(.011)	(.011)	(.009)	(.012)	(.018)	(.015)	(.019)	(.005)	(.006)	(.006)	(.005)
1995 (n=773)	.162	.00	.05	.20	.534	.25	.50	.85	.073	.00	.01	.09
	(.009)	(.012)	(.012)	(.010)	(.012)	(.021)	(.015)	(.020)	(.005)	(.006)	(.007)	(.005)
1996 (n=879)	.139	.00	.05	.15	.576	.30	.60	.85	.059	.00	.01	.05
	(.008)	(.010)	(.010)	(.008)	(.011)	(.017)	(.014)	(.017)	(.004)	(.005)	(.006)	(.004)
1997 (n=842)	.142	.00	.03	.17	.586	.30	.60	.90	.060	.00	.01	.05
	(.008)	(.011)	(.012)	(.009)	(.011)	(.018)	(.014)	(.019)	(.004)	(.005)	(.006)	(.005)
1998 (n=293)	.133	.00	.05	.20	.597	.35	.70	.90	.053	.00	.01	.05
	(.012)	(.016)	(.016)	(.014)	(.019)	(.028)	(.025)	(.032)	(.006)	(.008)	(.009)	(.007)

Table 4: Distributions of Perceptions of Job Insecurity of Black Respondents, by Group

TABLE 4 Univariate Patterns	Job Loss				Search Outcome				Composite Job Insecurity			
		Quantile				Quantile				Quantile		
	Mean	.25	.50	.75	Mean	.25	.50	.75	Mean	.25	.50	.75
Black Workers (n = 240)	.233	.00	.10	.50	.545	.30	.50	.80	.106	.00	.04	.15
	(.018)	(.027)	(.025)	(.031)	(.020)	(.029)	(.025)	(.030)	(.010)	(.013)	(.013)	(.011)
By Age												
Age 18-34 (n = 100)	.258	.01	.10	.50	.584	.40	.50	.80	.116	.00	.05	.60
	(.028)	(.045)	(.041)	(.044)	(.029)	(.038)	(.037)	(.041)	(.016)	(.023)	(.021)	(.017)
Age 35-49 (n = 96)	.205	.00	.10	.30	.526	.30	.50	.80	.093	.00	.03	.15
	(.025)	(.039)	(.035)	(.029)	(.030)	(.044)	(.038)	(.050)	(.013)	(.019)	(.018)	(.016)
Age 50-64 (n = 39)	.233	.00	.05	.50	.459	.15	.45	.80	.119	.00	.03	.20
	(.051)	(.072)	(.075)	(.078)	(.057)	(.090)	(.071)	(.097)	(.029)	(.039)	(.041)	(.034)
Age 65 + (n = 5)	.240	.00	.20	.50	.780	.50	.90	1.00	.070	.00	.00	.12
	(.112)	(.191)	(.142)	(.207)	(.116)	(.242)	(.160)	(.179)	(.049)	(.065)	(.075)	(.084)
By Schooling												
No Postsec. (n = 48)	.269	.00	.20	.50	.444	.16	.48	.65	.141	.00	.05	.24
	(.043)	(.070)	(.055)	(.063)	(.048)	(.074)	(.060)	(.062)	(.028)	(.039)	(.039)	(.034)
Some Postsec (n = 62)	.251	.00	.10	.50	.571	.48	.60	.80	.107	.00	.05	.14
	(.036)	(.057)	(.052)	(.057)	(.035)	(.040)	(.044)	(.053)	(.018)	(.026)	(.025)	(.020)
Bach Degree (n = 130)	.210	.00	.10	.36	.569	.34	.50	.90	.094	.00	.03	.15
	(.023)	(.034)	(.031)	(.029)	(.027)	(.039)	(.034)	(.052)	(.011)	(.016)	(.016)	(.014)
By Sex												
Male (n=109)	.218	.00	.10	.50	.504	.20	.50	.80	.112	.00	.04	.16
	(.024)	(.038)	(.033)	(.049)	(.031)	(.052)	(.038)	(.051)	(.015)	(.021)	(.060)	(.071)
Female (n=131)	.245	.00	.10	.50	.579	.40	.50	.80	.102	.00	.04	.15
	(.026)	(.039)	(.036)	(.040)	(.025)	(.033)	(.033)	(.037)	(.013)	(.018)	(.018)	(.015)
By Year												
1994 (n=63)	.202	.00	.10	.40	.547	.30	.50	.75	.084	.00	.03	.13
	(.033)	(.048)	(.044)	(.047)	(.035)	(.056)	(.044)	(.049)	(.016)	(.022)	(.022)	(.018)
1995 (n=52)	.245	.00	.20	.50	.558	.40	.50	.84	.105	.00	.08	.19
	(.034)	(.061)	(.044)	(.063)	(.044)	(.053)	(.055)	(.070)	(.017)	(.026)	(.021)	(.023)
1996 (n=50)	.204	.01	.10	.31	.491	.20	.50	.80	.111	.00	.06	.15
	(.035)	(.052)	(.048)	(.042)	(.043)	(.073)	(.053)	(.078)	(.021)	(.030)	(.028)	(.024)
1997 (n=51)	.261	.00	.10	.50	.578	.30	.50	.90	.120	.00	.01	.20
	(.046)	(.068)	(.065)	(.065)	(.047)	(.072)	(.060)	(.080)	(.027)	(.035)	(.039)	(.031)
1998 (n=24)	.282	.01	.20	.50	.551	.25	.70	.80	.129	.00	.05	.22
	(.059)	(.101)	(.077)	(.085)	(.063)	(.110)	(.089)	(.094)	(.035)	(.050)	(.049)	(.043)

Table 5: Best Linear Predictors of Job Insecurity

TABLE 5 Best Linear Predictors	Job Loss				Search Outcome				Composite Job Insecurity			
		Quantile				Quantile				Quantile		
	Mean	.25	.50	.75	Mean	.25	.50	.75	Mean	.25	.50	.75
Constant	.078	0	.03	.083	.476	.20	.39	.95	.045	0	.01	.02
	(.026)	0	(.000)	(.027)	(.037)	0	(.072)	0	(.014)	0	(.001)	(.014)
Age												
Age 18-34	.036	0	.02	.05	.209	.35	.41	0	-.011	0	.01	.02
	(.023)	0	(.000)	(.023)	(.032)	0	(.062)	0	(.012)	0	(.001)	(.012)
Age 35-49	.032	0	.02	.05	.146	.20	.31	-.05	-.002	0	.01	.02
	(.023)	0	(.000)	(.023)	(.031)	0	(.062)	0	(.012)	0	(.001)	(.012)
Age 50-64	.008	0	0	.02	.062	.05	.19	-.05	-.001	0	0	.02
	(.024)	0	0	(.024)	(.033)	0	(.064)	0	(.013)	0	(.001)	(.013)
Schooling												
No Postsec.	.044	0	0	.07	-.091	-.10	-.15	-.10	.030	0	0	.04
	(.010)	0	0	(.010)	(.014)	0	(.027)	0	(.005)	0	0	(.005)
Some Postsec	.030	0	0	.05	-.038	-.05	-.05	-.05	.019	0	0	.02
	(.009)	0	0	(.010)	(.013)	0	(.026)	0	(.005)	0	0	(.005)
Sex												
Female	.015	0	0	.02	.010	0	.04	0	.002	0	0	0
	(.008)	0	0	(.008)	(.011)	0	(.021)	0	(.004)	0	0	(.004)
Race												
Black	.090	0	.05	.28	-.030	0	-.08	-.05	.046	0	.03	.09
	(.016)	0	(.000)	(.017)	(.022)	0	(.043)	0	(.009)	0	(.001)	(.008)
Other	.018	0	0	.05	-.015	0	-.04	-.05	.011	0	0	.03
	(.017)	0	0	(.017)	(.023)	0	(.045)	0	(.009)	0	(.001)	(.009)
Employer												
Self	-.039	0	-.03	-.08	-.016	-.10	-.03	.05	-.026	0	-.01	-.03
	(.012)	0	(.000)	(.012)	(.017)	0	(.032)	0	(.006)	0	0	(.006)
Family	-.065	0	-.03	-.11	-.027	-.05	-.04	0	-.033	0	-.01	-.04
	(.021)	0	(.000)	(.022)	(.030)	0	(.058)	0	(.012)	0	0	(.011)
Year												
1994	.011	0	0	.00	-.058	-.10	-.11	-.05	.011	0	0	.013
	(.016)	0	0	(.016)	(.022)	0	(.043)	0	(.009)	0	0	(.009)
1995	.030	0	0	.05	-.056	-.10	-.14	-.05	.020	0	0	.026
	(.016)	0	0	(.017)	(.022)	0	(.044)	0	(.009)	0	0	(.009)
1996	.010	0	0	.00	-.016	-.05	-.05	-.05	.007	0	0	.010
	(.016)	0	0	(.016)	(.022)	0	(.043)	0	(.009)	0	0	(.009)
1997	.013	0	0	.00	-.008	-.05	-.04	0	.009	0	0	.010
	(.016)	0	0	(.016)	(.022)	0	(.043)	0	(.008)	0	0	(.009)
Ave. Residual Variation												
from marginal	.237	.073	.139	.169	.333	.235	.289	.198	.129	.032	.062	.080
from BLP	.234	.073	.136	.162	.326	.218	.278	.194	.127	.032	.062	.077

Table 6: Distributions by Group and Best Linear Predictors of Expectations of Voluntary Quits

TABLE 6 Expectations of Voluntary Quits	Distributions by Groups				Best Linear Predictors			
		Quantile				Quantile		
	Mean	.25	.50	.75	Mean	.25	.50	.75
All Workers (n = 3600)	.241 (.005)	.00 (.008)	.05 (.008)	.50 (.008)	not applicable			
Constant	not applicable				.248 (.035)	.00 (.000)	.06 (.000)	.46 (.082)
By Age								
Age 18-34 (n = 1311)	.319 (.009)	.01 (.015)	.20 (.012)	.50 (.012)	.066 (.030)	.01 (.000)	.15 (.000)	.10 (.071)
Age 35-49 (n = 1522)	.203 (.007)	.00 (.010)	.05 (.011)	.30 (.008)	-.047 (.030)	.00 (.000)	-.01 (.000)	-.10 (.070)
Age 50-64 (n = 650)	.174 (.012)	.00 (.015)	.00 (.017)	.20 (.013)	-.068 (.031)	.00 (.000)	-.03 (.000)	-.18 (.073)
Age 65 + (n =117)	.237 (.030)	.00 (.042)	.05 (.044)	.50 (.045)	0 (by normalization)			
By Schooling								
No Postsec. (n = 792)	.210 (.011)	.00 (.015)	.05 (.016)	.50 (.014)	-.033 (.013)	.00 (.000)	-.03 (.000)	-.06 (.031)
Some Postsec. (n = 915)	.210 (.011)	.00 (.015)	.05 (.016)	.50 (.014)	.020 (.012)	.00 (.000)	.00 (.000)	.06 (.030)
Bach Degree (n = 1893)	.240 (.007)	.00 (.010)	.05 (.011)	.50 (.011)	0 (by normalization)			
By Sex								
Male (n=1821)	.223 (.007)	.00 (.010)	.05 (.010)	.50 (.012)	0 (by normalization)			
Female (n=1779)	.259 (.008)	.00 (.012)	.05 (.012)	.50 (.011)	.032 (.010)	.00 (.000)	.00 (.000)	.05 (.025)
By Race								
White (n=3143)	.233 (.006)	.00 (.008)	.05 (.008)	.50 (.009)	0 (by normalization)			
Black (n=240)	.309 (.023)	.00 (.036)	.10 (.034)	.50 (.028)	.060 (.021)	.00 (.000)	.05 (.000)	.16 (.050)
Other (n=217)	.284 (.023)	.00 (.035)	.10 (.033)	.50 (.030)	.029 (.022)	.00 (.000)	.01 (.000)	.10 (.051)

TABLE 6 Expectations of Voluntary Quits	Distributions by Groups				Best Linear Predictors			
		Quantile				Quantile		
	Mean	.25	.50	.75	Mean	.25	.50	.75
By Employer								
Self (n=458)	.163 (.013)	.00 (.017)	.01 (.019)	.20 (.014)	-.067 (.016)	.00 (.000)	.01 (.000)	-.16 (.038)
Family (n=124)	.193 (.027)	.00 (.017)	.02 (.040)	.40 (.037)	-.066 (.028)	.00 (.000)	.02 (.000)	-.14 (.067)
Other (n=3009)	.255 (.006)	.00 (.009)	.10 (.008)	.50 (.008)	0 (by normalization)			
By Year								
1994 (n=813)	.235 (.011)	.00 (.016)	.05 (.017)	.50 (.017)	-.022 (.021)	.00 (.000)	-.01 (.000)	-.06 (.050)
1995 (n=773)	.252 (.012)	.00 (.017)	.05 (.018)	.50 (.017)	.005 (.021)	.00 (.000)	.00 (.000)	-.02 (.051)
1996 (n=879)	.231 (.010)	.00 (.015)	.05 (.015)	.50 (.016)	-.013 (.021)	.00 (.000)	.00 (.000)	-.05 (.050)
1997 (n=842)	.243 (.011)	.00 (.016)	.05 (.016)	.50 (.016)	-.005 (.021)	.00 (.000)	.00 (.000)	-.02 (.050)
1998 (n=293)	.252 (.018)	.00 (.027)	.10 (.025)	.50 (.027)	0 (by normalization)			
Ave. Residual Variation								
from marginal	not applicable				.315	.120	.231	.241
from BLP					.308	.120	.223	.231

Table 7: Distributions by Group and Best Linear Predictors of Subjective Job Separation Probabilities (L+Q)

TABLE 7 Expectations of Job Separation (L + Q)	Distributions by Groups Quantile				Best Linear Predictors Quantile			
	Mean	.25	.50	.75	Mean	.25	.50	.75
All Workers (n = 3600)	**.386** (.007)	**.02** (.011)	**.20** (.010)	**.60** (.009)	not applicable			
Constant	not applicable				**.326** (.048)	**.02** (.013)	**.21** (.038)	**.50** (.084)
By Age								
Age 18-34 (n = 1311)	**.476** (.012)	**.07** (.020)	**.40** (.016)	**.80** (.017)	**.102** (.041)	**.06** (.011)	**.15** (.033)	**.20** (.072)
Age 35-49 (n = 1522)	**.350** (.011)	**.02** (.016)	**.15** (.015)	**.55** (.013)	**-.015** (.041)	**.01** (.011)	**- .06** (.033)	**-.00** (.071)
Age 50-64 (n = 650)	**.297** (.017)	**.00** (.023)	**.10** (.123)	**.50** (.020)	**-.060** (.043)	**.00** (.011)	**-.11** (.034)	**-.08** (.107)
Age 65 + (n =117)	**.351** (.039)	**.00** (.060)	**.20** (.052)	**.60** (.050)	0 (by normalization)			
By Schooling								
No Postsec. (n = 792)	**.380** (.016)	**.00** (.025)	**.185** (.022)	**.60** (.020)	**.011** (.018)	**-.01** (.005)	**-.01** (.015)	**.00** (.031)
Some Postsec. (n = 915)	**.428** (.015)	**.04** (.023)	**.25** (.020)	**.75** (.021)	**.050** (.017)	**.00** (.005)	**.04** (.014)	**.08** (.030)
Bach Degree (n = 1893)	**.368** (.010)	**.02** (.015)	**.20** (.013)	**.60** (.012)	0 (by normalization)			
By Sex								
Male (n=1821)	**.359** (.010)	**.02** (.015)	**.20** (.013)	**.60** (.013)	0 (by normalization)			
Female (n=1779)	**.414** (.011)	**.02** (.017)	**.22** (.015)	**.70** (.014)	**.047** (.014)	**.00** (.004)	**.04** (.011)	**.10** (.025)
By Race								
White (n=3143)	**.370** (.008)	**.02** (.012)	**.20** (.010)	**.60** (.010)	0 (by normalization)			
Black (n=240)	**.542** (.031)	**.10** (.051)	**.50** (.039)	**.90** (.044)	**.151** (.029)	**.04** (.008)	**.21** (.023)	**.23** (.038)
Other (n=217)	**.444** (.031)	**.045** (.049)	**.30** (.040)	**.76** (.042)	**.046** (.030)	**.01** (.008)	**.06** (.024)	**.08** (.052)

TABLE 7 Expectations of Job Separation (L + Q)	Distributions by Groups Quantile				Best Linear Predictors Quantile			
	Mean	.25	.50	.75	Mean	.25	.50	.75
By Employer								
Self (n=458)	**.266** (.019)	**.00** (.025)	**.05** (.027)	**.41** (.022)	**-.106** (.022)	**-.02** (.006)	**-.10** (.017)	**-.23** (.038)
Family (n=124)	**.285** (.038)	**.00** (.052)	**.05** (.056)	**.50** (.047)	**-.132** (.039)	**-.02** (.011)	**-.13** (.031)	**-.18** (.068)
Other (n=3009)	**.409** (.008)	**.04** (.012)	**.25** (.011)	**.70** (.011)	0 (by normalization)			
By Year								
1994 (n=813)	**.380** (.016)	**.01** (.024)	**.20** (.021)	**.60** (.019)	**-.011** (.029)	**- .01** (.008)	**-.04** (.023)	**.00** (.050)
1995 (n=773)	**.414** (.017)	**.02** (.026)	**.22** (.023)	**.70** (.022)	**.035** (.029)	**- .00** (.008)	**.01** (.023)	**.05** (.051)
1996 (n=879)	**.369** (.014)	**.02** (.022)	**.20** (.019)	**.60** (.018)	**-.00** (.029)	**- .01** (.008)	**-.01** (.023)	**.00** (.050)
1997 (n=842)	**.385** (.015)	**.02** (.023)	**.20** (.021)	**.60** (.018)	**.01** (.029)	**- .01** (.008)	**.00** (.023)	**.00** (.050)
1998 (n=293)	**.385** (.023)	**.04** (.036)	**.20** (.032)	**.675** (.033)	0 (by normalization)			
Ave. Residual Variation								
from marginal	not applicable				**.438**	**.192**	**.337**	**.321**
from BLP					**.428**	**.189**	**.320**	**.306**