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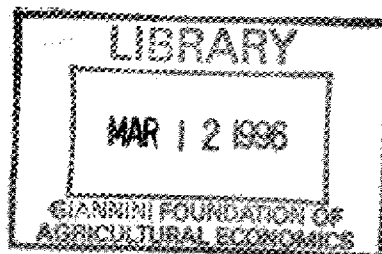Perloff, Jeffrey M

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ALL IT TAKES IS CONFIDENCE: JOB SEARCH CONFIDENCE AND FARM WORKERS' WAGES, BENEFITS, AND WORKING CONDITIONS

by

Susan Gabbard and Jeffrey M. Perloff

All It Takes is Confidence: Job Search Confidence and Farm Workers' Wages, Benefits, and Working Conditions

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All It Takes is Confidence: Job Search Confidence and Farm Workers' Wages, Benefits, and Working Conditions

INTRODUCTION

According to search theory, workers who have higher reservation wages hold out for jobs with higher wages or other attractive attributes. Similarly, worker advocates and others argue that farm workers accept low wages and poor working conditions in agricultural employment because they have limited job opportunities outside of agriculture. We examine whether farm workers who *have* off-farm employment opportunities have better wages, benefits and working conditions in agriculture than other workers without these off-farm opportunities. The National Agricultural Worker's Survey (NAWS) asked workers whether they "could get a nonfarm job within a month." We estimate the effect of this confidence on wages, benefits, and working conditions.

SEARCH THEORY AND RESERVATION WAGES

Workers search to obtain the best available job in an uncertain world. In the process of searching, workers secure job offers and then decide whether the offer should be accepted (e. g., Mortenson, 1986).

While searching for a job, a worker encounters job offers with varying wages from potential employers. That is, each job offer has an associated wage w, where w is a random variable with a cumulative distribution function $F(w)$, which we assume is known to the worker.

The worker has a reservation wage w^*, the minimum wage the worker will accept. The reservation wage depends on the worker's skills, experience, and current labor market information. For a worker to stop searching, the worker must receive an offer that is at least equal to or greater than the worker's reservation wages ($w \geq w^*$). Thus the worker's expected wage is

$$E(w) = \frac{1}{1 - F(w^*)} \int_{w^*}^{\infty} x \, dF(x).$$ (1)

Given the lower limit of integration is w^*, $E(w)$ must be greater than w^*. As a consequence, the higher the worker's reservation wage, w^*, the higher the offer worker's expected wage,

$$\frac{dE(w)}{dw^*} = \frac{f(w^*)}{1 - F(w^*)} \left[E(w) - w^* \right] > 0.$$ (2)

THE EMPIRICAL MODEL

Thus, based on this simple search theory, we expect accepted wages to increasing with the reservation wage. If the reservation wage is based on a worker's "search confidence" that the worker can find jobs in another labor market, more confident workers will work in more attractive jobs. Thus, we estimate the impact of a worker's belief in his or her ability to generate off-farm job offers on that worker's wages, benefits, and working conditions in agriculture.

We use a question asked in the NAWS to identify workers who believe they are likely to be able to obtain off-farm jobs. The NAWS asks respondents "Could you get a U.S.

nonfarm job within a month?"[1] Workers can respond "yes", "no" or "don't know". For this analysis the responses 'no' and don't know are combined to obtain a binary measure of the worker's capability of finding an off-farm job.[2]

To estimate the effect of search confidence on agricultural wages, benefits and working conditions, we treat job-search confidence as an endogenous variable. Let z^* be an index of a worker's confidence in finding a nonagricultural job within a month. This index is a function of the worker's characteristics, X, including the worker's knowledge of and experience with off-farm jobs:

$$z^* = X'\pi + \varepsilon, \tag{3}$$

where ε is normally distributed with variance σ_ε. We do not actually observe this index, which we treat as a latent variable. Instead, we observe a binary variable z, where z equal one if a worker is confident of finding a non-agricultural job and zero otherwise. The worker is confident of getting a job if the latent variable z^* is positive:

$$z = 1 \quad \text{if } z^* > 0, \tag{4}$$

$$z = 0 \quad \text{otherwise.}$$

We estimate a "confidence" probit equation based on Equations 3 and 4, which shows the relationship between a worker's confidence in finding off-farm employment within one month and various time, regional, and demographic characteristics.

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[1] This question asks about farm workers' confidence in their abilities to find such jobs and not the actual outcome of a search for a nonfarm jobs.

[2] We experimented with a model in which "no" and "don't know" were kept separate; however, our multinomial logit model had little ability to distinguish between these two outcomes.

For a farm worker to be confident of finding a nonagricultural job within a month, that workers must hold three beliefs: the worker is qualified for nonfarm jobs, that the worker knows how to find nonfarm jobs, and that the worker will be able to do find a job quickly.

The determinants of ability to obtain off-farm work should include factors affecting experience in and knowledge of employability in those jobs as well as factors affecting the ability to search such as time or liquidity constraints. Factors related to employability include experience in off-farm work, education, job training, skills, legal work authorization or other characteristics related to employment in off-farm work. Factors related to search effort include family structure and networks of close friends or relatives nonfarm jobs.

According to our search theory, we expect the worker to have a more attractive job if z is one rather than zero. We estimate wage, benefit, and working condition equations across workers. We estimate a wage equation for those workers who do not believe they can obtain a nonagricultural job quickly ($z = 0$),

$$w_0 = X'\beta_0 + \eta_0, \tag{5a}$$

and another equation for those for whom $z = 1$,

$$w_1 = X'\beta_1 + \eta_1, \tag{5b}$$

where w_0 and w_1 are the natural logarithm of wages, η_0 and η_1 are normally distributed error terms with variances σ_0, σ_1, which are correlated with ε. Similarly, we estimate pairs of equations for benefits and for working conditions variables.[3]

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[3] The only two other studies of which we are familiar that estimate models explaining fringe and other benefits for farm workers are Dunn (1985) and Perloff (1991). Neither has results that are directly comparable to this study.

As worker confidence is probably not randomly determined (ε may be correlated with η_1 and η_2), we estimate the wage (Equations 5), benefit, and working conditions equations using maximum likelihood or instrumental variable methods to avoid sample selection bias.

The confidence probit is used to correct for sample selection bias in Equation 4, the impact of search confidence on the wages, benefits and working conditions. Equation 4 is a linear equation for wages and a probit for binary benefits and working conditions variables.

The data on terms of employment consisted of the observed wages, benefits and working conditions of the sample members at the time of sampling. Besides the worker's belief in their ability to obtain off-farm employment, the agricultural terms of employment are explained by the worker's characteristics including demographic characteristics, experience in farm work, education, skills and training.

THE DATA

The data used in this study are based on the National Agricultural Workers Survey (NAWS). The NAWS is an annual survey of U. S. seasonal agricultural service workers (SAS). SAS workers, as defined by the U. S. Department of Agricultural, are most field workers in perishable crop agriculture.

The sample used in our estimation equations is based on the interviews completed in federal fiscal years 1990 and 1991. Of the total 4,718 interviews, 735 were eliminated due to missing information, leaving 3,982 for our analysis.

How the Survey was Conducted

The respondents were obtained from a national, random sample of SAS workers. To ensure seasonal sensitivity, interview cycles are conducted three times a year: in January, April/May, and October. To guarantee regional coverage, the NAWS uses site area sampling to obtain a nationally representative cross-section of farm workers.

A two-stage approach to sample was used. First, 73 counties in 25 states were selected, which represent 12 distinct agricultural regions. A minimum of four counties were selected within each of these regions. Second, within each interviewing cycle, the NAWS collects interviews in 30 counties randomly selected from the 73 counties on the permanent roster. The number of interviews conducted during a cycle is proportional to the amount of SAS activity at that time of year (Mines, Gabbard and Boccalandro 1991).

A random sample of SAS employers is generated for each of the selected counties. Employer names are obtained from the Bureau of Labor Statistics, the Agricultural Soil and Conservation Service, and Farm Labor Contractor Registration lists, as well as from other sources.

During each data collection cycle, NAWS Regional Coordinators contact the selected employers, explain the purpose of the survey and obtain access to the work site in order to schedule interviews. Bilingual interviewers then visit the farm, ranch or nursery, explain the purpose of the survey to the farm workers and ask a random sample of them to participate. Interviews are conducted outside of work hours in the farm worker's home or at another location chosen by the worker.

Summary Statistics

Summary statistics (means and standard deviations) are reported in Table 1. Separate summary statistics are provided for the entire sample, for confident, and for nonconfident workers.

Total Sample. Farm workers in the NAWS sample made an average of $5.43 per hour, or $213 per week.[4] Most farm workers are paid by the hour (73%), but some are paid by the piece (31%), or receive both hourly and piece rate compensation. Growers employ 78% of the workers, and virtually all the rest are employed by farm labor contractors.

For most farm workers, the wage (hourly or hourly equivalent of the piece rate) is the only form of remuneration they receive. Benefits are the exception among farm employers. Only 25% of worker receive employer provided health insurance, and only 17% receive paid holidays or sick leave. Some farm workers, receive benefits not generally provided in other industries, however. Over a fifth (22%) receive rent-free housing from their employer, but fewer than 5% of workers receive meals provided by an employer or transportation payments.

Approximately 40% of our sample work for employers who violate work place and labor regulations by failing to provide adequate work-site sanitation (25% of the sample) or force the workers to pay for their work equipment (30% of the sample). Work sites are required to provide toilets, drinking water, and washing water. Eight percent of workers report lack of toilets, 18% claim they are not provided drinking water, and 14% say they lack water for washing their hands.

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[4] The figures presented here are for the unweighted NAWS sample used in this analysis. These figures differ from published figures based on the weighted total sample.

Farm workers sampled by the NAWS are, on average, young (average age 33.5 years), male (77%), married (67%), foreign born (84%), and Mexican (72%). Contrary to stereotype, most of these hired agricultural workers claim to be legally authorized to work in the United States (89%).

Most of the farm workers have low education levels: The median education level was eighth grade. The level was higher for U. S. educated workers (11th grade) and lower for foreign educated workers (6th grade). Almost all farm workers were educated in the country of their birth. On average the workers sampled by the NAWS had 10 years of work experience in farm work.

Most farm workers are not native English speakers (88%). Only 26% of farm workers speak English: 18% report they speak English well and 8% speak some English. Only 18% report that they can read English. Forty-nine percent of farm workers had relatives or close friends in nonfarm work.

Confident vs. Nonconfident Workers. Slightly more than one-third (36%) of the NAWS participants said that they believed that they could find a U. S. farm job within one month. Overall, these workers had better wages, benefits, and working conditions than workers who were not confident of their ability to quickly find an off-farm job.

Workers with the ability to find an off-farm jobs had higher wages. They made $5.57 versus $5.34 for other workers. They also had higher weekly earnings ($222 versus $208).

Workers with greater confidence were more likely to receive a bonus (28% versus 21%), to receive employer-provided health insurance (28% versus 23%), and to have paid

holidays or sick leave (23% versus 15%). They were also more likely to live in rent-free employer-provided housing (26% versus 20%).

Based on these summary statistics, there are few differences between these groups in terms of working conditions. Although workers who thought they could find an off-farm job were less likely to pay for their own equipment (23% versus 34%), virtual identical proportions of each group of workers worked at jobs without toilets, drinking water, and washing water. Confident workers were more likely to be paid by the hour (77% versus 71%), and were less likely to work for a farm labor contractor (19% versus 23%).

Farm workers who are able to get a nonfarm job expect to remain in farm work for a shorter period of time. They expect to remain in farm work for three to five years, whereas other farm workers expect to stay in farm work for over five years.

These two groups of farm workers had different personal characteristics. Confident farm workers were more likely to be young (32 years versus 34 years), male (79% versus 75%), native English speakers (22% versus 7%), legally authorized to work in the United States (94% versus 86%), native born (28% versus 10%), and to have close friends and relatives in off-farm jobs (67% versus 39%).

Those with greater search confidence have higher U. S. education levels and better English skills, primarily because more of these workers were born in the United States. Foreign educated workers have similar levels of education across both groups. Farm workers with good off-farm job prospects are more likely to have job training (3% versus 1%). The econometric model distinguishes whether differences between these farm workers in terms of

wages, benefits and working conditions are due to the greater ability to find an off-farm job or due to the differences in other characteristics.

CONFIDENCE IN FINDING NONFARM JOBS

We estimated the probability that a worker is confident of finding an off-farm job within a month, using a probit model. Our probit equation correctly predicted 64% of the farm workers responses to the NAWS question on off-farm job prospects, as shown in Table 2. The model correctly predicted 49% of those with search confidence and 72% of those without search confidence.

Farm workers who were more confident about their ability to obtain nonfarm employment had many of the characteristics that are associated with wider job opportunities in general. They were older, knew at least some English, had higher levels of education and networks of relatives or friends who were nonfarm workers. These workers tended to be white or Hispanic.

As the sample mean, women farm workers were 12% less likely than men to believe that they could easily find an off-farm job. Unauthorized workers (workers without documentation allowing them to legally work in the United States) were 17% less confident than documented workers about their ability to find off-farm employment. This result confirms other ethnographic findings that unauthorized farm workers feel that it is more difficult for them to get jobs outside of farm work. Legal immigrants and citizens do not statistically significantly differ in their search confidence.

The job-qualification variables were strongly related to search confidence. Both education in the United States and education abroad had a positive effect on farm worker's

confidence in their ability to find nonfarm jobs. The coefficients on the squared education levels were statistically significant although those on the education levels were not indicating a nonlinear relationship. When evaluated at the means, a 1% increase in education levels increased search confidence by 0.16% if the education was in the United States and 0.15% if the education was received abroad. Of the education variables, only job training did not have a statistically significant effect. The probability of being confident increased with age until the age of 32.

The ability to speak English positively affected search confidence. Farm workers who rated themselves as speaking English "somewhat" or "well" placed 19% and 20% higher probabilities of finding nonfarm jobs, all else the same. Interestingly, the ability to read English did not affect search confidence. This variable had a small, statistically insignificant coefficient.

Contact networks played an important role in whether workers expected to obtain off-farm jobs easily. Farm workers with relatives and friends in nonfarm jobs were 18% more likely to express confidence in their off-farm job search capabilities.

Among the race and ethnicity variables, only the Hispanic and white dummy variables had a statistically significant effect. Blacks, Asians, and Native Americans did not have a statistically significantly different effect than those who identified themselves as "other."[5] Workers who identified themselves as Hispanics were 12% more likely to express search confidence and whites were 8% more likely than the residual groups.

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[5] The "other" residual racial group consists mostly of Latinos who do not identify themselves as white or black.

Unauthorized immigrants were 17% less likely than authorized immigrants to think

they could easily get an off-farm job confirming ethnographic findings that unauthorized farm

workers feel that it is more difficult for them to get jobs outside of farm work. Interestingly

legal immigrants and citizens are not significantly different in their search confidence.

Women farm workers were 12% less likely to say they could easily find an off-farm

job. The reason for this is not immediately apparent and might be a topic for further

research.

There were strong regional effects. Farm workers in California and the Southwest had

less search confidence than workers in other states and regions except for Arizona. Farm

workers interviewed in the eastern areas of the United States (excluding Florida) had higher

search confidence than those in the West.

EFFECT OF SEARCH CONFIDENCE

To test the hypothesis that greater search confidence leads to more attractive employ-

ment, we estimated wage, benefit, and working condition equations. On the right-hand side

of each of these equations, we included search confidence, age, gender, race and ethnicity,

education level, farm worker experience, language skills, regional dummies, and year

interviewed dummy variables.

Because search confidence is not randomly distributed in the population, we estimate

these other equation adjusting for possible sample selection. The wage equation is estimated

using a full-information, maximum likelihood method. To correct for the potential simultane-

ity bias in the benefit and working condition probit equations, an instrumental variables

technique is used. The standard errors in these probit equations were estimated using a

Taylor series approximation to the variance of the coefficients conditional on the estimated value of search confidence.[6]

Farm Wages

The probit equation for search confidence and a linear equation for the natural logarithm of farm wages were estimated simultaneously using full-information, maximum likelihood techniques. The coefficient and asymptotic standard errors estimates for the wage equation are shown in Table 3. The estimated correlation of the errors between the two equations is -0.0664, with a standard error of 0.0495. That is, we cannot reject the null hypothesis of no sample selection using the usual 0.05 level.

Farm workers with search confidence had wages that were 4.7% higher than other workers after controlling for workers characteristics and other variables. Apart from search confidence, agricultural wages were higher for those with more farm work experience and for those with higher levels of education abroad and for U. S. legal permanent residents. Agricultural wages were lower for women, unauthorized workers, U. S. citizens, whites and Native Americans. On average, workers interviewed in the fall reported higher wages than those interviewed at other times of the year. Workers in California had higher wages than workers in the midwest, southwest Texas and Florida.

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[6] This technique is described in Appendix A. We are indebted to Paul Ruud for suggesting this method of calculating the standard errors and for deriving the necessary equations which are presented in Appendix A. This method is similar to, but not identical to, the method used in Frisvold, Mines, and Perloff (1988).

Benefits

We examined the effect of search confidence on four job benefits: health insurance, bonuses, paid leave, and rent-free housing. The effects of search confidence on benefits is not as clear cut as for wages.

The effect of search confidence on paid leaves was statistically significantly different from zero at the 0.05 level and had the expected positive sign. Evaluated at the sample mean, a confident worker had a 5.5% greater probability of receiving a paid leave than a nonconfident worker.

The effect of search confidence was not statistically significant in the bonus equation. Controlling for other variables, the coefficient on the search confidence variable was not statistically significant in the rent-free housing equation at the 0.05 level (though, the search confidence coefficient for the rent-free housing equation was statistically significantly different from zero using a 0.07 level).

Perversely, search confidence has a statistically significant, negative effect on health insurance. Workers with search confidence were 6% less likely to have health insurance, controlling for other variables. This negative relationship is difficult to explain. The provision of health insurance has a strong regional pattern. When compared to California, workers in most other regions were less likely to have health insurance. Similarly, paid leave was less common outside of California; the exceptions were Florida and the Rocky Mountain states.

There were some patterns in the relationships between demographic characteristics and bonuses and paid leave and health insurance. In general, workers who were unauthorized or

Hispanic, particularly those born in Mexico, as well as workers who did not speak English as their native language had lower levels of benefits.

In several cases, demographic characteristics that were negatively related to bonuses, paid leave and medical coverage were positively related to living in employer provided housing. Workers who lived in farm worker housing were more likely to be unauthorized, Hispanic and/or born in Mexico.[7] The opposing relation ships among demographic characteristics seems to indicate a trade off in benefits. Workers who receive employer provided housing are unlikely to receive other employee benefits.

Working Conditions

To examine whether search confidence resulted in better terms of employment, the search confidence was included in probits equations for five different working conditions indicators. The first three measures cover work-site sanitation: whether the work site had drinking water, washing water, or portable toilets. The two additional measures indicated whether the worker was employed by a farm labor contractor and whether the worker had to pay for necessary work equipment. Some worker advocates contend that farm labor contractors provide poorer working conditions than other employers. These advocates also believe that employers who illegally require workers to pay for equipment usually provide poor working conditions more generally.

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[7] Although these results are not directly comparable due to differences in the data sets and methodologies, Perloff (1991) finds that Hispanics are less likely to receive rent-free housing, all else the same.

Search confidence did not have a statistically significant effects on the probability that drinking water, toilets, or washing water were provided.[8] Workers with confidence were statistically significantly less likely to pay for their own equipment. At the sample mean, they were 6.1% less likely to pay for their work equipment than workers without search confidence. Farm workers with search confidence were statistically significantly less likely to work for a farm labor contractor though the marginal impact was negligible for the average worker.

There were few common themes in the determinants of working conditions. One of the few trends seemed to be that workers born in Mexico were more likely to work at jobs with poor work-site sanitation than other workers. Work site sanitation was better in 1991 than it was at the end of 1989. The latter finding may indicate that new federal regulations on work site sanitation had a positive impact.

A surprising result is that, when search confidence is included in the labor contractor equation, there is no significant relationship between legal status and working for labor contractors. Other studies of labor contracting have shown a strong positive relationship between these two variables (e. g., Vandeman 1988). In contrast, our regression shows that, although undocumented workers had less search confidence than documented workers, there was no significant relationship between undocumented workers and labor contracting when controlling for search confidence.

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[8] The corrected standard error for the effect of search confidences on the provision of washing water calculated using a Taylor approximation was negative. Some earlier writers have suggested using the uncorrected standard error in such a situation; however, even using that measure, we cannot reject the null hypothesis of no effect.

SUMMARY

Farm workers vary in their confidence that they can find a nonfarm employment. Only 36% believe they can find a nonfarm job within a month. Farm workers who believed themselves capable of easily finding off-farm jobs tended to be experienced workers with higher education levels and better English skills as well as those with relatives and friends who worked in nonfarm jobs. Women and unauthorized immigrants tended to believe they had limited job search options.

We hypothesized that farm workers with greater labor market options have higher reservation wages and, as a result, these workers find better jobs: Jobs with higher wages, better benefits, and better working conditions. Our hypothesis is confirmed with respect to the wage. Farm workers who were confident that they could quickly find nonfarm work earned farm wages that were 4.7% higher than those earned by less confident workers.

The effect of search confidence on benefits and working conditions were not as clear cut, however. We are perplexed by the result that workers with search confidence are less likely to have health insurance. With that exception, confidence either had no effect or the expected effect with respect to the other benefits and working condition measures. Confident workers were more likely to receive paid leave and have equipment provided by their employer. They were also less likely to work for farm labor contractors.

As a result of the Immigration Reform and Control Act of 1986, many formerly undocumented farm workers gained legal status to work in the United States. Over time, these workers aged, and many of these workers gained additional farm work experience and learned English. All of these factors increase the probability that these workers were

confident of finding nonfarm work quickly. As a result, our estimates indicate, we would expect that these workers received higher wages and otherwise better jobs over time as a consequence. We also expect that other government policies that affect workers' abilities to obtain nonfarm worker jobs should also positively affect the quality of workers' farm employment.

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Appendix

A Taylor-Series Approximation to the Covariance Matrix

of a Two-Stage Probit Estimate

We estimate systems of probit equations using an instrumental variable techniques. The first equation is the confidence probit based on Equations (3) and (4): $z^* = X'\pi + \varepsilon$, $z = 1$ if $z^* > 0$, and $z = 0$ otherwise.

The second probit equation expresses a benefit or job condition b_i as a function of independent variables X, the estimated value of the index of search confidence, $\hat{z}$, and unknown parameter vector θ.

$$b_i = g(X'\theta_i, \hat{z}_i) + \eta_i \tag{A.1}$$

where $\hat{z} = X_i\hat{\pi}$, $\hat{\pi} \sim N(\pi_o, V_\pi)$, and $\hat{\pi}$ is treated as though it were π_o, yielding

$$\hat{\theta} = f(y, \hat{\pi}). \tag{A.2}$$

A Taylor series approximation to Equation (A.2) is

$$\hat{\theta} \approx f(y, \pi_o) + f_\pi(y, \pi_o)(\hat{\pi} - \pi_o), \tag{A.3}$$

where f_π is the derivative of f with respect to π. As a result, an approximation to the variance of $\hat{\theta}$ is

$$\text{Var}(\hat{\theta}) = \text{Var}[(f(y, \pi_o) + f_\pi(y, \pi_o)(\hat{\pi} - \pi_o)].$$

$$\text{Var}(\hat{\theta}) = \text{Var}(f) + f_\pi'\text{Var}(\hat{\pi} - \pi_o)f_\pi + \text{Cov}(\hat{\pi} - \pi_o, f) + \text{Cov}(f, \hat{\pi} - \pi_o), \tag{A.4}$$

where the covariance terms are

$$\text{Cov}(\hat{\theta}, \hat{\pi}) = [L_{\pi P}]^{-1}\text{Cov}(L_\theta, L_\pi)[L_{\pi\pi}]^{-1}f_\pi,$$

$$\text{Cov}(f, \hat{\pi} - \pi_o) = \text{Var}(f)\text{Cov}(L_\theta, L_\pi)\text{Var}(\hat{\pi} - \pi_o)f_\pi,$$

and L_θ and L_π are n (number of observations) by k (number of variables) matrices of log likelihood derivatives with respect to θ and π at convergence and $L_{\pi\theta}$, $L_{\pi\pi}$, and $L_{\theta\theta}$ are the second derivatives of the likelihood function at convergence.

Table 1
Summary Statistics: Means (Standard Deviations)

	Total Sample	Not Confident Can find Nonfarm Job	Confident Can Find Nonfarm Job
Binary Variables			
Confident Can Get Nonfarm Job	35.9		
Citizen	18.2	12.1	29.1
Unauthorized	11.4	14.2	6.4
Female	23.5	25.1	20.6
Born in U. S.	16.6	10.2	27.9
Born in Mexico	72.1	76.6	64.0
Native American	3.3	3.6	2.8
White	53.9	52.4	56.7
Black	3.9	4.1	3.4
Asian	2.4	2.5	2.1
Hispanic	85.7	89.0	79.8
Spouse Abroad	20.5	23.4	15.4
Spouse in Household	43.4	42.9	44.2
Job Training	1.4	0.6	2.8
Not Native English Speaker	87.7	93.1	78.0
Speaks English Well	18.4	10.8	32.0
Reads English Well	17.7	10.3	31.0
Speaks English Some	8.0	5.8	12.0
1990	47.8	47.7	48.0
1991	38.8	39.3	37.9
Spring	41.4	39.7	44.5
Winter	26.9	28.9	23.4
Florida	24.7	26.1	22.1
Southeast	1.4	0.9	2.1
Midwest	5.3	2.4	10.5
Southwest	1.5	1.2	2.0
Northeast	4.3	2.5	7.5
Northwest	8.8	7.2	11.6
Texas	6.0	4.7	8.4
Arizona	7.0	8.6	3.9

Farm worker parents	54.3	51.5	59.4
Farm labor contractor	21.6	23.1	19.0
Worksite toilets	92.6	92.8	92.1
Worksite washing water	81.7	81.5	82.1
Worksite drinking water	86.2	86.8	85.0
Paid by the Piece	31.4	33.3	27.9
Paid by the Hour	73.4	71.4	77.0
Paid-Leave	17.8	15.0	22.9
Rent-free Housing Provided	22.4	20.4	26.0
Health Insurance Benefit	24.8	23.2	27.7
Pays for Own Work Equipment	29.9	33.8	22.9
Relative in Nonfarm Work Job	48.9	38.6	67.3
Continuous Variables			
Age	33.47	34.27	32.05
	(11.96)	(12.36)	(11.09)
Children Abroad	0.58	0.64	0.49
	(1.34)	(1.40)	(1.21)
Children in U. S.	0.84	0.81	0.89
	(1.37)	(1.36)	(1.39)
U. S. Farm Work Experience	10.34	10.50	10.04
	(9.15)	(9.43)	(8.62)
High grade completed abroad	4.14	4.21	4.00
	(3.66)	(3.39)	(4.09)
High Grade Completed in U. S.	1.88	1.01	3.42
	(4.12)	(3.04)	(5.20)
Hourly Wage	5.42	5.34	5.57
	(2.36)	(2.21)	(2.62)

Table 2
Confidence Probit:
"Believes Can Get U. S. Nonfarm Job within a Month"

	Coefficient	Asymptotic Standard Error
Constant	-2.0805	0.295
Unauthorized	-0.5179	0.081
Citizen	-0.1972	0.170
Female	-0.3572	0.056
Not Native English Speaker	0.2125	0.146
Hispanic	0.3584	0.127
Born in Mexico	0.0841	0.099
Born in the U. S.	0.2614	0.223
Black	-0.1630	0.153
White	0.2166	0.055
Asian	-0.0020	0.234
Native American	0.1611	0.136
Age	0.0256	0.012
Age Squared	-0.0004	0.0001
Education Abroad	-0.0153	0.022
Education Abroad Squared	0.0047	0.002
U. S. Education	-0.0389	0.039
U. S. Education Squared	0.0074	0.003
Job Training	0.2971	0.194
Live with Spouse	-0.02061	0.049
Speaks English Well	0.51422	0.173
Speaks Some English	0.48934	0.081
Reads English Well	0.0773	0.173
1990	-0.0691	0.081

1991	-0.0770	0.099
Winter	-0.0004	0.076
Spring	0.0943	0.070
Northeast	0.8358	0.119
Southeast	0.7563	0.187
Midwest	0.8674	0.128
Southwest	0.3388	0.185
Northwest	0.5939	0.083
Arizona	-0.2820	0.098
Texas	0.4685	0.095
Florida	0.4584	0.069
Relative in Nonfarm Work Job	0.4978	0.047

Log-likelihood function = -2151.6   (-2589.6 with only a constant)
Likelihood Ratio Test = 876.059, with 35 degrees of freedom
Pseudo R^2 Measures
  Maddala = 0.198
  Cragg-Uhler = 0.272
  Chow = 0.21012
  McFadden = 0.169
Hensher-Johnson Normalized Success Index = 0.210
Correct Predictions = 73%

Prediction Success Table

		Actual	
		0	1
Predicted	0	2242	777
	1	310	643

Table 3
Log Wage Equations

	Coefficient	Asymptotic Standard Error
Constant	1.6811	0.0639
Confident	0.0460	0.0127
Unauthorized	-0.0623	0.0181
Citizen	0.0581	0.0303
Female	-0.0423	0.0128
Born in Mexico	0.0370	0.0225
Born in the United States	-0.1035	0.0424
Hispanic	-0.0415	0.0282
Black	-0.0440	0.0325
White	-0.0823	0.0118
Asian	-0.0913	0.0534
Native American	-0.0662	0.0318
Age	-0.0013	0.0026
Age Squared	0.0000	0.0000
Highest Grade Completed Abroad	0.0130	0.0047
Highest Grade Abroad Squared	-0.0006	0.0004
Highest Grade Completed in the U. S.	-0.0075	0.0080
Highest U. S. Grade Squared	0.0009	0.0006
U. S. Farm Work Experience	0.0124	0.0019
U. S. Farm Work Experience Squared	-0.0002	0.0000
Not a Native English speaker	0.0245	0.0315
Speaks English well	0.0423	0.0331
Speaks Some English	-0.0006	0.0184
Reads English Well	0.0364	0.0332
1990	-0.0110	0.0165
1991	0.0093	0.0209

Winter	-0.0337	0.0164
Spring	-0.0391	0.0162
Northeast	-0.0068	0.0205
Southeast	-0.1705	0.0405
Northwest	-0.0841	0.0337
Southwest	-0.1615	0.0423
Arizona	-0.0259	0.0178
Texas	-0.2763	0.0240
Florida	-0.0652	0.0140
Sigma	0.2958	0.0028
Rho	-0.0664	0.0495

Table 4
Benefit Equations

	Bonuses	Paid Leave	Health Insurance	Rent-free Housing
Constant	0.600*	-1.540*	-0.762	-1.007+
Confident	0.073	0.196*	-0.255*	0.160
Unauthorized	-0.551*	-0.292	-0.715*	0.181*
Citizen	-0.022	0.163	0.311	-0.092
Female	-0.053	0.080*	-0.098	-0.508*
Not Native English Speaker	-0.417*	-0.249*	-0.394*	0.255
Born in Mexico	-0.345*	-0.358*	-0.087	0.316*
Born in U. S.	-0.222*	-0.728*	-0.403*	0.476
Hispanic	-0.204	-0.187*	-0.241+	0.589*
Black	0.296*	0.055	0.145	0.335*
White	-0.018	0.090*	0.087	-0.053
Asian	0.278	-0.437*	0.286	0.008
Native American	0.306*	0.308*	-0.080	-0.221
Age	-0.027*	0.040	0.021	-0.019
Age squared	-0.0004*	-0.0004	-0.0002	0.0002
Highest grade abroad	0.021	0.045*	0.038	-0.083*
Highest Grade Abroad Squared	-0.002	-0.002	0.0005	0.005*
Highest Grade Completed in U. S.	-0.005	0.093	0.091*	-0.072*
Highest U. S. Grade Squared	0.0002	-0.006*	-0.003	0.003
Job Training	-0.302	-0.194+	0.173+	0.116
U. S. Farm Work Experience	0.028	0.0189	0.024*	0.016
Farm Work Experience Squared	-0.0004*	-0.0004*	-0.0004*	-0.0004
Speaks English Well	0.109	0.167	0.020+	-0.013
Speaks Some English	0.084	0.080	0.051	0.051
Reads English Well	-0.152	-0.072	-0.193	0.001
1990	-0.037	0.250	-0.046	-0.362*

1991	0.105	0.242*	0.037	-0.078
Winter	0.149	0.115*	0.016	-0.078
Spring	-0.174*	-0.272	-0.035	-0.073
Northeast	0.359*	-0.123*	-0.512+	1.347*
Southeast	0.332	-0.699	-0.614*	1.432*
Midwest	0.054	-0.158+	-0.055+	0.650*
Southwest	0.482*	1.227*	0.136	-0.555
Arizona	0.196	-0.123*	-0.803*	0.264*
Texas	-0.485	-0.156*	-0.129*	-0.093
Florida	-0.061	0.178*	-0.690*	0.0267

* Based on an asymptotic t-test we can reject the null hypothesis that the coefficient equals zero at the 0.05 level.

+ Corrected standard error was negative and no significance test reported.

Table 5
Working Condition Equations

	Drinking Water	Paid for own Equipment	Toilets	Washing Water	FLC
Constant	1.366+	-2.297*	2.113+	1.262	-2.156*
Confident	0.007	-0.212*	0.073	-0.107+	-0.532*
Unauthorized	-0.040	0.111	-0.212+	-0.194	-0.244
Citizen	0.668*	0.076	0.311+	0.334	-0.352*
Female	0.145*	0.125*	0.502+	0.254	0.249
Not Native English Speaker	0.080	0.324*	0.193	-0.025+	0.305*
Born in Mexico	-0.206	0.765*	-0.920*	-0.397*	0.263
Born in U. S.	-0.440	0.516*	-1.124	-0.548+	-0.188
Hispanic	-0.118	0.442*	0.026	-0.137+	0.065
Black	0.502	0.198	0.741+	0.104	0.214
White	0.185*	0.184*	0.111	0.109	-0.095
Asian	-0.252	2.28*	-0.656+	-0.679	0.140
Native American	0.581*	-0.330*	-0.044	0.084+	0.032*
Age	-0.022	0.007	-0.018	-0.016+	-0.0005*
Age Squared	0.0004	-0.0001	0.0004	0.0003*	-0.012
Highest Grade Abroad	0.007	0.044*	0.021	0.0120	0.005*
Highest Grade Abroad Squared	0.002	-0.002	0.00001	0.0013	-0.047
Highest Grade U. S.	0.030	0.066	0.115+	0.048	0.008*
Highest U. S. Grade Squared	-0.001	-0.007*	-0.006	0.0003+	0.401*
Job Training	-0.318	0.007+	-0.477	-0.211+	-0.028
U. S. Farm Work Experience	0.014	-0.013	-0.012	0.002	0.495*
Farm Work Experience Squared	-0.0004	0.0005*	-0.00001	-0.0002	0.463*
Speaks English well	-0.552	0.012	-0.360	-0.323+	0.0951

Speaks Some English	-0.030	0.055	-0.047	0.068+	-0.051
Reads English Well	0.139	0.158	0.029	0.230+	-0.041
1990	-0.004	-0.124	-0.059+	0.120	-0.048
1991	0.348*	-0.322*	0.180*	0.453*	0.061
Winter	-0.026	0.159*	-0.091	-0.031	0.792*
Spring	0.040	-0.019	-0.080	-0.154+	0.781*
Northeast	0.995	0.711*	-0.072	0.138+	0.858*
Southeast	0.232	-0.183	-1.254*	-0.764+	0.287
Midwest	0.340	-0.762+	0.894	0.363+	0.586*
Southwest	0.015	0.560*	0.396	0.342+	-0.285*
Arizona	0.805*	0.525*	0.515+	0.221	0.474*
Texas	-0.097	0.370*	-0.873*	-0.132+	0.439*
Florida	0.148	0.275*	-1.0432*	-0.552+	0.505*

*   Based on an asymptotic t-test we can reject the null hypothesis that the coefficient equals zero at the 0.05 level.

+   The "corrected" standard error is negative and no significance test is conducted.