Disparities in Access to Health Insurance and Workers' Compensation Benefit between Non-Contingent and Contingent Farm Workers in U.S. Agriculture

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Abstract

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Keywords

Disparity; contingent farm workers; health insurance; workers' compensation; Oaxaca-Blinder decomposition

Cover Page Footnote

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ABSTRACT
The share of contingent employment has increased significantly in the last two decades. Not much is known about the impact of this shift on disparities in access to health insurance and other benefits. I examined disparities in access to any type of health insurance, employer-sponsored health insurance and workers' compensation (WC) benefits between contingent and non-contingent workers in U.S. agriculture. I used the National Agricultural Workers Survey and the extended Oaxaca-Blinder decomposition technique to estimate disparities. Contingent employment could be a barrier to access of health insurance and WC benefit, which in turn could contribute to health inequalities in the long-run.

Keywords: Disparity, contingent, non-contingent, farm workers, health insurance, workers' compensation, extended Oaxaca-Blinder decomposition

INTRODUCTION

Agriculture is one of the most hazardous industries in the United States. In addition to being at high risk of suffering occupational injuries and illnesses, agricultural workers have poor access to health services and social protection programs. According to data collected through the National Health Interview Survey (NHIS), during 2005-2009 more than 65% of all workers in the country had access to employer-based health insurance, compared to only 28% of workers in agriculture. During the same period, 52% of all workers in the country had access to paid sick leave benefits compared to only 15% of agricultural workers. Disparities in access to health services, benefits, and social protection programs could also be observed within the industry due to differences in employment arrangement, location, and farm activities. In this paper, I examined gaps in access to health insurance and workers' compensation benefits by employment arrangements.

Recently, employment arrangements have changed significantly (BLS, 1997; Hipple, 2001; Landsbergis, 2003). The share of part-time, contract, on call, home based, and temporary employment known generally as 'contingent' employment has increased significantly at the expense of full-time, permanent and direct-hire employment (Belous, 1989; Polivka and Nardone, 1989; Kalleberg et al., 2000; Benach et al., 2000; Hipple, 2001; Mayhew and Quinlan, 2002; Virtanen, 2005; Benavides et al., 2006). For instance, in the United States the share of contingent workers was 32.5 in 1995 (Polivka et al., 2000) and increased to 43% in 2005 (Cummings and Kreiss, 2008).

There is a growing body of literature worldwide that examines the impact of employment arrangements on worker health (self-rated health, mental health, sleep deprivation, chronic diseases) and the incidence of fatal and non-fatal occupational injuries (Burchall, 1994; Blank et al., 1995; Mayhew and Quinlan, 1999; Kivimäki et al., 2003; Benach et al., 2004; Gimeno et al., 2004; Virtanen et al., 2005; Benavides et al., 2006). In a more general framework, a 2002 National Institute for Occupational Safety and Health (NIOSH) document highlighted the safety and health implications of new work organization, and management practices and employment relationships, including workforce downsizing, outsourcing, and increasing the use of contract labor (NIOSH, 2002; Landsbergis, 2003).

Various pathways through which contingent employment increases the risk of occupational injury and illness have been suggested. Some have argued that contingent workers (CW) are more likely than non-contingent workers (NCW) to work in outsourced hazardous jobs and therefore are more likely to be sick or injured (Rousseau and Libuser, 1997; Thébaud-Mony, 1999; Benavides et al., 2006). It is also hypothesized that CW are less educated or lack appropriate job experience and therefore are more likely to be injured at work (Aronsson, 1999; Kochan et al., 1994; NIOSH, 2002; Benavides et al., 2006). Lack of understanding of the occupational safety and health responsibilities of contractors versus traditional employers in shared worksites can also lead to inadequate safety training and access to and use of personal protective equipment, also contributing to increased risk of injury and illness for CW (Kochan et al., 1994; Aronsson, 1999; Rousseau and Libuser, 1997; Kochan et al., 1994; Morris, 1999; NIOSH, 2002; Cummings and Kreiss, 2008). CW may also be more vulnerable to occupational injuries due to demanding work schedules, fast-paced work, and discrimination by supervisors and fellow NCW (Salminen et al., 1993; Virtanen et al., 2005; Benavides et al., 2006).

Despite these findings, there is still scant empirical evidence concerning the impact of employment relationships, work organization and management practices, and work schedules on disparities in occupational safety and access to health and other related services between CW and NCW (Benach et al., 2000; NIOSH, 2002; Landsbergis, 2003; Virtanen et al., 2005; Cummings and Kreiss, 2008). Moreover, not much is known about whether these disparities were due to group differences in individual characteristics/endowments or due to unexplained factors that were associated with being a contingent worker. Partly this could be due to lack of information about CW since national surveys in the United States do not regularly collect information on the employment status of workers (NIOSH; 2002; Valenzuela, 2006). The absence of a consistent definition for CW may also hamper efforts to analyze the limited data that are currently available (Virtanen, 1994; Kalleberg et al., 2000; Aronsson, 2001; Landsbergis, 2003; Benavides et al., 2006).

The objective of this study was to examine the disparities in access to any type of health insurance (HI), employer-sponsored health insurance (ESHI) and workers' compensation (WC) benefits between CW and NCW controlling for covariates that might lead to obvious disparities, using the National Agricultural Workers Survey (NAWS). These findings might have important implications for the policy debate over the impact of different employment arrangements such as contingent employment on the disparity in access to health insurance and other work related benefits.

I focused on examining disparities in access to health insurance rather than disparities in health status or utilization of health services for three reasons. First, it is difficult to know the impact of current employment status on current health using cross sectional data. The current health status of a worker can be affected by several factors originating from sources other than the status of the current employment, such as past employment history, disadvantage during childhood, adolescence, etc. (Virtanen et al., 2005). Second, since NAWS is a workplace survey, it does not include sick and injured workers who did not work for at least one of the last two consecutive weeks.[1] As a result, the 'healthy worker effect' could affect estimates of health status (NIOSH, 2009). Third, disparity in access to health insurance, workers' compensation benefit, etc., is likely to contribute to inequality in health status and utilization of health services. Therefore, examining disparities in access to these services could suggest pathways to disparities in health status and utilization of health care services.

METHODS

I used the extension of the Blinder-Oaxaca decomposition technique to determine and decompose the contingent-non-contingent farm workers' disparity in access to health insurance and WC benefits. This method helped us to explain how much of the gap was attributed to differences in endowments of the two groups and how much of the gap was attributed to

[1] NAWS might suffer from a healthy worker bias but it is also true that some farm workers work while they were sick or injured, partly owing to lack of health insurance and/or paid or unpaid sick leave (Hansen and Donohoe, 2003). Such workers are sampled in the NAWS.

differences in the effects (coefficients) of the endowments. Knowing the contribution of these variables to the gaps might help policy makers to design different interventions.

If the outcome of interest is a continuous variable, the Oaxaca (1973) and Blinder (1973) decomposition technique can be used as follows:

$$\bar{Y}_j^{NCW} - \bar{Y}_j^{CW} = \left[(\bar{X}^{NCW} - \bar{X}^{CW})\hat{\beta}^{NCW}\right] + \left[(\hat{\beta}^{NCW} - \hat{\beta}^{CW})\bar{X}^{CW}\right] \quad (1)$$

Where $\bar{Y}_j^{NCW}$ and $\bar{Y}_j^{CW}$ are the average outcome j (j = 1,…, J) for NCW and CW respectively, j is one of the dependent variables measuring access, $\bar{X}^{NCW}$ and $\bar{X}^{CW}$ are row vectors of the average values of explanatory variables (endowments), and $\hat{\beta}^{NCW}$ and $\hat{\beta}^{CW}$ are the vectors of estimated coefficients. The first term on the right hand side of equation (1) measures the gap in the outcome j between the two groups of workers due to differences in endowments (characteristics) and the second term captures differences due to coefficients and other unobserved or immeasurable endowments. Since the outcome indicators were binary variables, I used the decomposition method suggested by Fairlie (2005) that extends the Oaxaca-Blinder decomposition method to binary outcomes. For a logit model the decomposition is given as:

$$\bar{Y}_k^{NCW} - \bar{Y}_k^{CW} =$$

$$\left[\sum_{i=1}^{N^{NCW}} \frac{F(X_i^{NCW}\hat{\beta}^{CW})}{N^{NCW}} - \sum_{i=1}^{N^{CW}} \frac{F(X_i^{CW}\hat{\beta}^{CW})}{N^{CW}}\right] + \left[\sum_{i=1}^{N^{NCW}} \frac{F(X_i^{NCW}\hat{\beta}^{NCW})}{N^{NCW}} - \sum_{i=1}^{N^{NCW}} \frac{F(X_i^{NCW}\hat{\beta}^{CW})}{N^{NCW}}\right] \quad (2)$$

Where $\bar{Y}_k$ measures the average probability of getting access to service k (k = 1,…, K) of NCW and CW, F(.) is a logistic cumulative distribution function, and N shows the number of NCW and CW. In equation (2), the distribution of the explanatory variables and the estimated coefficients of the CW are used as weights for the two decomposition terms. Different weights can be used to estimate the model. The common practice is to compute the decomposition using coefficient estimates from the pooled model (Oaxaca and Ransom, 1994). In addition to the total gap, I estimated the specific contribution of each explanatory variable to the gap. This would help us to identify and quantify the sources of the gap between the two groups of farm workers. The detailed method of computing the contribution of each explanatory variable to the total discrimination is described elsewhere (see for instance, Nielsen, 1998; Fairlie, 2006; Buis, 2010).

DATA

In this study, I used the National Agricultural Workers Survey (NAWS), which is administered by the U.S. Department of Labor (DOL). The NAWS, which began in 1989, is an ongoing, nationally representative, and stratified random survey of the demographic, employment, legal status, health, income, asset, etc., of employed crop farm workers. The data are publically available at http://www.doleta.gov/agworker/naws.cfm. I used the NAWS data set for several reasons. First, it is the only nationally representative data on agricultural workers in

the country (NIOSH, 2009). Second, the sampling procedure takes into account the seasonality, employment structure, production and unique lifestyle of agricultural workers. Third, the information is collected directly from farm workers at their job sites in face-to-face interviews which helps to get information about all types of workers. This way of collecting data increases the probability of CW to be included in the survey (NIOSH, 2009). Data collected from households or employers are more likely to underestimate the number of contingent and undocumented workers and/or to have relatively inaccurate information about these workers (Benavides et al., 2006). A further advantage of the data set is that it is the only nationally representative data set that has information on the legal status of farm workers (Kandel and Donato, 2009).

For the purpose of this study, I restricted the analysis to the years 2000-2009 since health insurance information was available beginning in 2000. I used three different indicators to examine disparities in access to health insurance and WC benefit between CW and NCW. I used the question '*Does the farm worker have health insurance*?' to measure access to HI. Access to ESHI was measured by the question '*For the farmworker who has insurance, who pays, the employer?*', and access to WC benefit by the question '*If you are injured AT WORK or get sick as a result of your work, do you get any payment while you are recuperating (i.e., workers compensation)?*' Respondents who replied '*I do not know*' to any of these questions were dropped from the analysis.[2]

Farm workers who were employed by a contractor at the time of the interview were considered CW while workers who were directly employed by the grower were considered NCW. Overall 22,404 NCW and 3,943 CW were considered. The share of female and married farm workers in the NCW group was relatively high compared to that of the CW group. NCW were also relatively older and more experienced than their counterparts. Overall half of the respondents were not authorized to work. Villarejo, (2003) also reported that at least half of hired farm workers were undocumented. There was a large share of unauthorized and less English proficient workers in the CW group. While only 46% of NCW were not authorized to work nearly 70% of CW didn't have any type of work authorization during the time of the surveys. There was also a 25 percentage point difference in the percentage of NCW and CW who spoke English well or somewhat. The highest concentration of CW was found in California (35%) followed by the Southeast (15%) and the Southwest (13%) regions of the country. The Midwest had the lowest share of CW in the country (1%). Significant variation was also observed in the primary crop that workers were engaged with at the time of the interview. The highest concentration of CW was found in fruits and nuts farms (31%) followed by vegetables farms (23%). As hypothesized, significant variations were observed in the percentage of NCW and CW who had access to HI, ESHI, and WC benefit. Descriptive statistics of the variables used in the study are presented in Table 1.

[2] I tested if there were significant difference in the percentage of CW and NCW who reported '*I don't know*' to each of the above variables, and I didn't find any statistically significant difference.

Table 1. Characteristics of the study population by employment type (2000-2009)

	Type of employment		
	NCW	CW	Total
Number of farm workers	22,404	3,943	26,347
Number of farm workers (weighted)	21,830	4,517	26347
Individual level variables			
Sex (female %)	0.23	19	22
Age	34.80	31.53	34
Married (%)	58	53	57
Authorized to work (%)	54	31	50
Speaking English well or somewhat (%)	37	12	33
Farm experience in the U.S. (years)	12.2	8.8	11.6
Farm level variables			
NAWS Region (row %)			
East	97.00	3.00	
Southeast	85.04	14.96	
Midwest	98.98	1.02	
Southwest	86.91	13.09	
Northwest	94.13	5.87	
California	62.56	37.44	
Primary crop type at the time of the interview (row %)			
Field crop	93.82	6.18	
Fruits and nuts	69.41	30.59	
Horticulture	98.98	1.02	
Vegetable	76.68	23.32	
Miscellaneous/Multi crop	98.28	1.72	
Disparity indicators (dependent variables) (%)			
Access to all types of health insurance (HI)	31.5	13.4	28.4
Access to employer-sponsored health insurance (ESHI)	15.3	3.0	13.2
Access to workers' compensation benefit (WC)	75.5	62.5	73.4

RESULTS

The descriptive results presented in table 2 detail the mean differences in the percentage of NCW and CW who had access to HI, ESHI and WC benefit between 2000 and 2009. Standard errors, 95% confidence intervals, and absolute and percentage differences are also presented. These results indicated that 30% of NCW had some type of health insurance compared to only 14% of CW and this difference was statistically significant ($p<1\%$). The disparity was much higher in the case of access to ESHI. Only 3% of CW compared to 15% of NCW had access to ESHI. The descriptive results also showed that both NCW and CW had

better access to WC benefit than to health insurance benefits. Seventy five percent of NCW and 69% of CW had access to WC benefit between 2000 and 2009. However, as shown in Table 2, there was a 7 percentage point difference in access to WC benefit between these groups of workers and the difference was statistically significant.

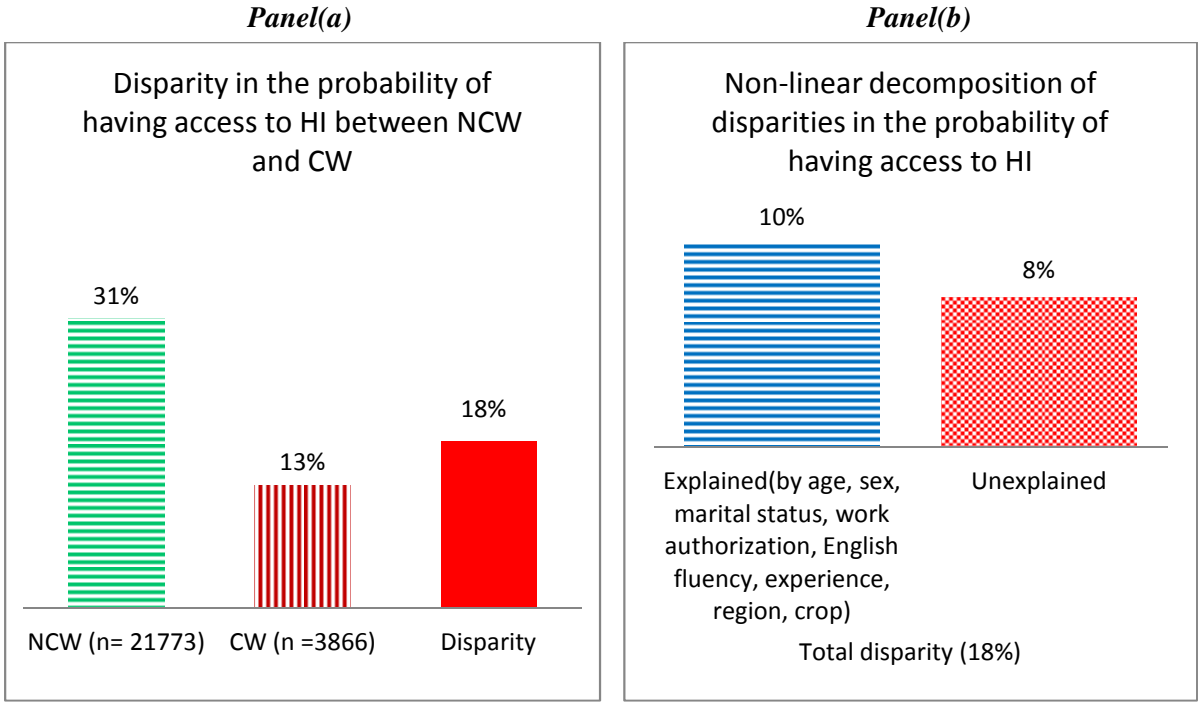
Table 2. Sample mean difference in access to health insurance and workers' compensation benefit between NCW and CW in U.S. agriculture (2000-2009)

	Access to any type of health insurance		Access to employer-based health insurance		Access to Workers' compensation benefit	
	Type of farm worker		Type of farm worker		Type of farm worker	
	NCW	CW	NCW	CW	NCW	CW
Mean (%)	30.3	14.0	14.9	2.9	75.2	68.5
Standard error	0.003	0.006	0.002	0.003	0.003	0.009
95% CI (%)	29.7-30.9	12.9-15.1	14.5-15.4	2.3-3.4	74.5-75.9	66.9-70.2
Number of obs.	22191	3915	22404	3943	16803	2940
Absolute difference	16.3		12.0		6.7	
Percentage difference	116.4		413.8		9.8	
Mean(dif) >0:						
T	21.08		20.84		7.63	
Pr(T>=t)	0.001		0.001		0.001	

I used the extension of the Blinder-Oaxaca decomposition technique to decompose these disparities into factors that were attributed to individual characteristics and to the type of employment (being contingent farm worker) and other unobserved endowments. Based on the literature in this area I used individual characteristics such as age (Carrasquillo et al., 2000), sex (Villarejo, 2003), marital status, work authorization or legal/immigration status (Carrasquillo et al., 2000; Arcury and Quandt, 2007; Ku and Matani, 2001; Kandula, 2004), English language proficiency (Villarejo, 2003; Arcury and Quandt, 2007), farm experience, and length of stay in the United States (Thamer et al, 1997) to decompose the disparities. I also included crop type and location (region) as indicators of farm characteristics. The coefficients of the pooled sample over all cases were used for the decomposition. However, the results remain basically the same when the decomposition was estimated using the coefficients of the NCW only.

Figures 1 presents the regression-based disparity in the probability of having access to HI between NCW and CW (panel a). For the analysis 21,773 NCW and 3,866 CW (with non-missing health insurance and other information) were used. Consistent with the descriptive analysis, the probability of NCW to have HI was 31% compared to only 13% for CW, yielding a probability gap of 18 percentage points. I plotted the non-linear Blinder-Oaxaca decomposition results in panel b of Figure (1). The figure shows to what extent the NCW-CW disparity in the probability of getting access to HI was attributed to differences in individual and farm characteristics rather than to employment type (contingent vs. non-contingent) and other unmeasured differences. Out of the 18 percentage point disparity, 56% (10/18) was explained by the variables included in the model while the remaining 44% was unexplained.

Figure 1. Disparities in access to any type of health insurance



The regression-based disparities in access to ESHI and WC benefit and the non-linear decomposition results are presented in Figures 2 and 3, respectively. As expected, the overall probability of farm workers to be insured by their employers was very low. At the same time, the disparity in access to ESHI between NCW and CW was very large. While the probability of NCW to be insured by their employers was 15% it was only 3% for CW, yielding a 12 percentage point gap between the two groups of farm workers. Compared to HI and ESHI, agricultural workers had better access to WC benefits though the disparity between NCW and CW was still relatively high (13 percentage points). The results presented in panels B of Figures 2 and 3 showed the percentage of the gaps explained by differences in observed characteristics and the unexplained gaps that were attributed to contingent employment and unobserved factors.

Figure 2. Disparities in access to Employer Sponsored Health Insurance (ESHI)

Panel(a) ***Panel(b)***

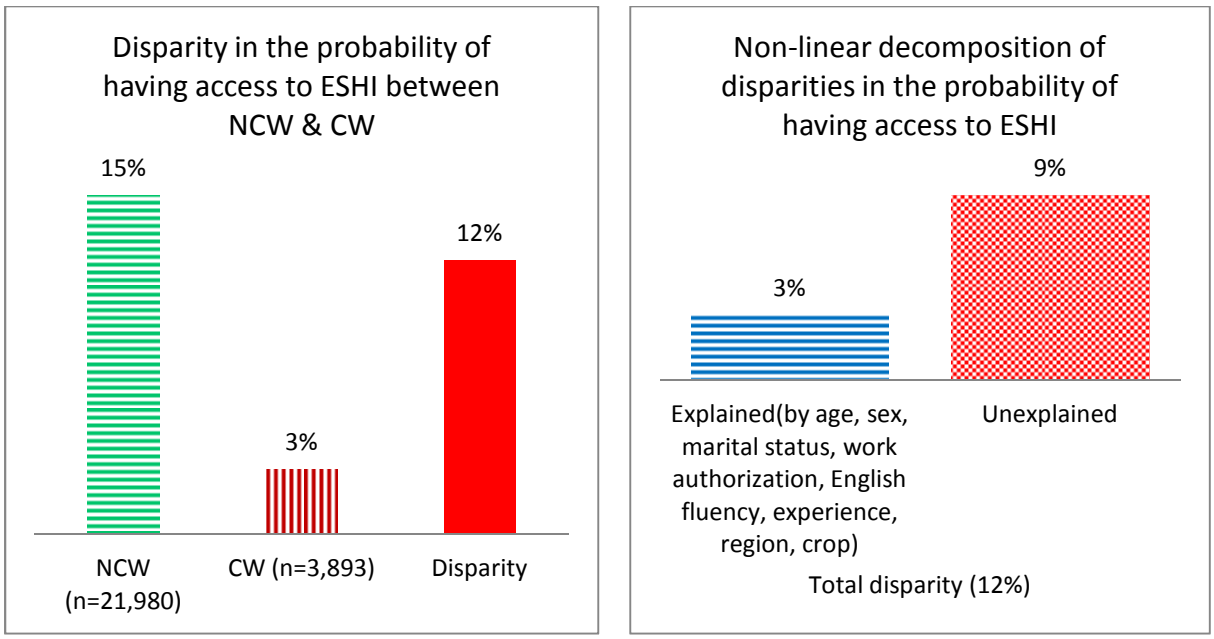
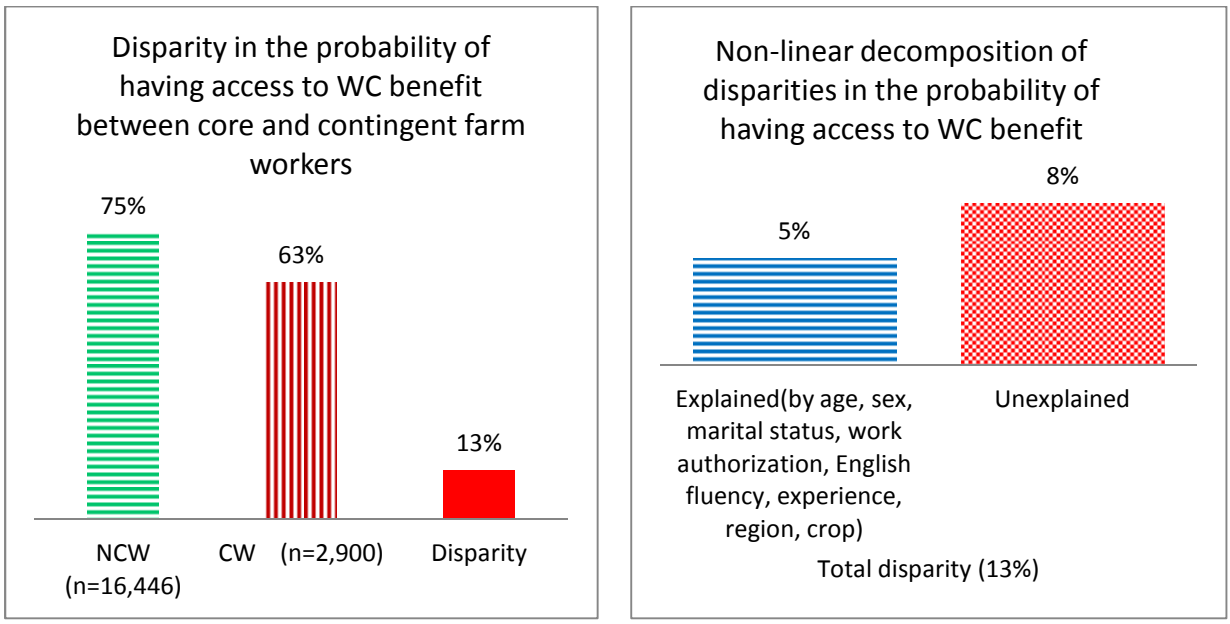


Figure 3. Disparities in access to WC benefit

Panel(a) ***Panel(b)***

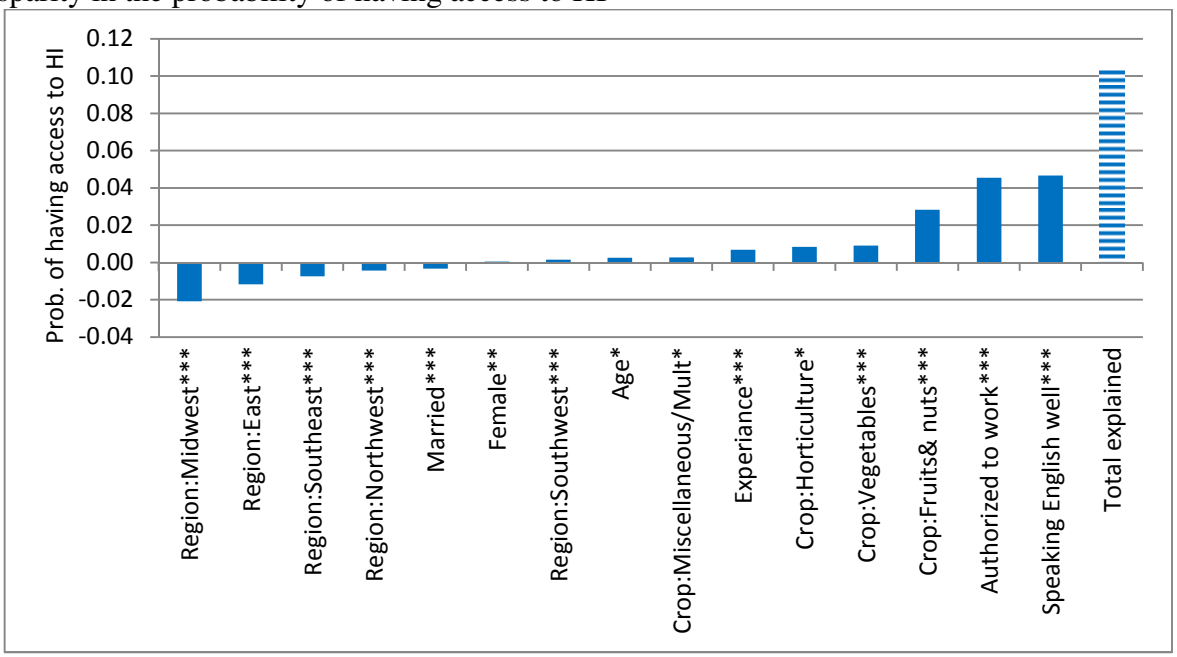


DISCUSSION

Disparity in access to health insurance (HI)

Consistent with the literature in this area, I found large and statistically significant disparities in the probability of having access to HI between NCW and CW. According to the regression results, the probability of CW to have HI was 2.4 times less than that of NCW, holding other factors constant. Using the extended Oaxaca-Blinder decomposition technique I identified and quantified the contribution of group differences in individual and working characteristics to this NCW-CW disparity and the results are presented in Figure 4.

Figure 4. Contribution of group differences in individual and farm characteristics to NCW-CW disparity in the probability of having access to HI



***, **, * significant at less than the one, five and ten percent levels, respectively

In this analysis, several characteristics of CW are strongly associated with lower access to HI when compared with NCW. For instance, the high share of unauthorized and low share of English proficient farm workers among CW accounted for more than 80% of the total 10% of the NCW-CW explained gap in the probability of having HI. This means that among CW, unauthorized and less English proficient workers had the smallest chance of having access to HI. The relatively high concentration of CW in fruits and nuts farms (see Table 1) also reduced their probability of having HI. Overall, farm workers working in fruits and nuts farms had the lowest probability of having HI compared to farm workers working in vegetables, multi crop, field crops, and horticulture farms. Nearly one-third of CW were working in fruits and nuts farms. On the other hand, the relatively small disparity between NCW and CW in access to HI in the Eastern and Midwest parts of the country contributed to reduce the gap. Finally, individual

characteristics such as gender, age and marital status did not have a strong contribution in explaining the HI gap.

However, as indicated above, group differences associated with individual and farm characteristics explained only 56% (10/18) of the NCW-CW disparity in the probability of having HI and the remaining 44% (8/18) of the gap was attributed to unexplained factors associated to being a contingent farm worker. This means that adjusting the endowment levels of CW to that of NCW would increase the mean probability of CW to have HI by 10 percentage points to 23% (10%+13%), leaving an 8 percentage point contingent disparity. This implies that even if CW had similar endowments (included in the model) to that of NCW, their mean probability of having health insurance would be 35% lower than that of NCW.

Disparities in access to employer-sponsored health insurance (ESHI)

One potential contributing factor for the large insurance gap between NCW and CW could be low access of CW to ESHI. Different studies have shown that ESHI is vital to the American health care system (Custer et al., 1999; Blumenthal, 2006; Clemans-Cope and Garrett, 2006). For instance, in 2000 two out of three non-elderly Americans were insured through ESHI (Clemans-Cope and Garrett, 2006). Custer et al. (1999) also showed that ESHI covered between 65% and 75% of the health insurance premium in large firms. This implies that the U.S. largely depends on ESHI to provide health care delivery for its working population (Starr, 1982; Blumenthal, 2006).

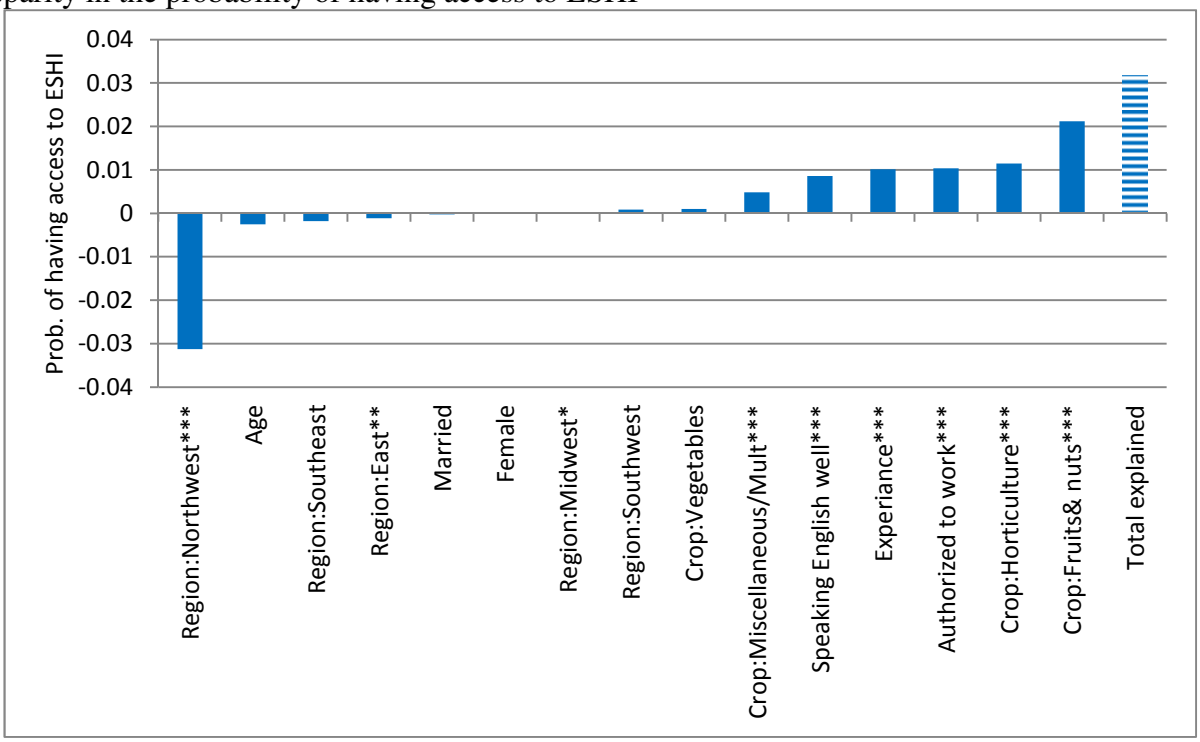
The results presented in Figure (2) shows that the percentage of farm workers covered by ESHI was generally low, only 13%. Significant variation also was observed between NCW and CW. While 15% of NCW were insured by their employers only 3% of CW were insured by their employers. This means that holding other factors constant, the probability of CW to be insured by their employers was 5 times less than that of NCW. The decomposition results also showed that variables included in the model explained only 25% (3/12) of the 12 percentage point gap and the remaining 75% (9/12) of the gap was attributed to contingent employment and other unobserved factors. This is expected result since most farm labor contractors do not have sufficient assets that would enable them to offer health insurance policies to their workers.

Figure 5 presented the contribution of group differences in individual and farm characteristics to this large disparity. Again high concentration of CW in fruits and nuts farms significantly contributed to the observed disparity. At the same time, the very small share (1%) of CW in horticulture farms, where 17% of farm workers had access to ESHI, positively and significantly contributed to the observed disparity. The relatively high share of undocumented, less proficient in English language and less experienced farm workers among CW also contributed positively to the disparity in the probability of having ESHI. Most of these impacts were statistically significant ($p < 1\%$).

As indicated above, individual and farm characteristics explained only 3% from the total 12 percentage points gap, yielding a 9 percentage point (15% - 6%) disparity gap in having access to ESHI. This shows that while group differences in individual and farm characteristics explained more than half of the gap in the probability of access to HI, these factors explained only a quarter of the gap in the probability of having access to ESHI. This also implies that if CW had all the characteristics of NCW workers included in the model except being a contingent

worker, their mean probability of access to ESHI would have increased only by 3 percentage points to 6%, leaving 9 percentage point unexplained gap. These results indicated that contingent employment might negatively affect the probability of farm workers to get access to ESHI in U.S. agriculture.

Figure 5. Contribution of group differences in individual and farm characteristics to NCW-CW disparity in the probability of having access to ESHI



***, **, * significant at less than the one, five and ten percent levels, respectively

Disparities in access to workers' compensation (WC) benefit

Different states have different regulations regarding the provision of WC benefits to agricultural workers (Migrant Clinicians Network, 2013). Appendix 1 presents states that required farm employers to provide WC benefit for their farm employees. In 29% of the states and territories, farm employers are not required to provide WC benefits at all and in 42% they are required to provide WC benefits only in limited circumstances. For instance, in Alaska farm employers are not required to provide WC benefit for farm workers hired for harvest or for part-time or temporary workers. In addition, undocumented workers are not eligible for WC benefits in some states.

Compared to health insurance and ESHI, agricultural workers had better access to WC benefits. Controlling for covariates, the probability of NCW and CW to have WC benefit was 75% and 63%, respectively, during the time under study. Panel (b) of Figure 3 showed that variations in individual endowments explained only 38% (5/13) of the gap between the two

groups of farm workers and the remaining 62% (8/13) was associated with the unexplained factors related to the employment type.

I also explored to what extent group differences in the mean of individual and farm characteristics explained the disparity in access to WC benefit. The non-linear decomposition results (not shown for the sake of brevity) revealed that work authorization and experience positively contributed to the disparity. However, fluency of English language had no statistically significant contribution. The relatively high concentration of CW in the Southwest region (13%) contributed to the disparity. The Southwest region had the lowest percentage of farm workers with WC benefit (57% compared to the 73% of the national average). The decomposition results also revealed that if CW had the characteristics of average NCW, their probability of having WC benefit would increase only by five percentage points to 67%, leaving an eight percentage point gap between the two groups of workers unexplained.

The study has the following limitations. First, NAWS is based on self response of workers and most of the responses could not be validated. For instance, there could be some uncertainty on the part of some workers when it came to knowing who exactly their employer was. Second, I used the primary crop that the worker was engaged in at the time of the interview to measure farm type. Sometimes, this might not be an accurate reflection of the farm type.

CONCLUSION

Employment arrangements in the U.S. have changed significantly in the last two decades. The share of workers employed under different arrangements has increased significantly at the expense of the share of workers hired under traditional arrangements. However, not much is known about the impact of this shift on disparities in access to different health and other social protection programs, particularly in the agricultural sector. This study examined the impact of contingent employment on disparities in access to health insurance and WC benefits in U.S. agriculture. By going one step further, it also examined whether the observed disparities between NCW and CW were due to group endowment differences or due to unexplained factors associated with contingent employment.

The findings of this study have important implications for the policy debate over the impact of contingent employment on the disparity in getting access to health insurance and other work related benefits. The results revealed large disparities in access to health insurance and WC benefits between NCW and CW. These large disparities have important policy implications since inequality in access to health insurance and WC benefit may lead to large health inequalities in the long-run. Providing different economic and non-economic incentives could encourage employers to offer health insurance and WC benefits to their legal employees and this might help to reduce disparities in health status and utilization of health care services between NCW and CW. Very detailed studies might be needed to examine if the economic and non-economic incentives provided in the Affordable Care Act could encourage small growers to hire workers directly and to provide health insurance for most of their employees. The implication of other

regulations such as E-verify[3] and the slow-down in the number of new farm workers from Mexico in encouraging some growers to use farm labor contractors or to keep their workers employed for longer periods also needs to be examined.

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Appendix 1. Workers' Compensation benefit in different states

Are farm employers required to provide workers' compensation?		
Required	Required (Limited)	Optional
Arizona, California, Connecticut, District of Columbia, Hawaii, Idaho, Illinois, Massachusetts, Montana, New Hampshire, Oregon, Puerto Rico, Virgin Islands, Washington,	Alaska, Delaware, Florida, Iowa, Kansas, Louisiana, Maine, Maryland, Michigan, Minnesota, Nebraska, New York, North Carolina, Oklahoma, Pennsylvania, Rhode Island, South Dakota, Utah, Vermont, Virginia, West Virginia, Wisconsin	Alabama, Arkansas, Georgia, Indiana, Kentucky, Mississippi, Missouri, Nevada, New Jersey, New Mexico, North Dakota, South Carolina, Tennessee, Texas, Wyoming
15	22	15

Source: Migrant Clinicians Network, available at http://www.migrantclinician.org/. Accessed on March 11, 2013.

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[3] E-Verify is an Internet-based system that compares information from an employee's Form I-9, Employment Eligibility Verification.

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