Examining Differences by Ethnicity in the Propensity to File for Workers' Compensation Insurance

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Abstract

There are concerns that Hispanic workers disproportionately underreport workplace injuries, perhaps out of fear of reprisal from employers. This type of underreporting would place an especially high burden on Hispanic workers who are employed in riskier industries and occupations and who have among the lowest rates of health insurance. Using National Health Interview Survey (NHIS) data, I find that Hispanic workers are 33% less likely to disclose nonfatal workplace injuries to the survey enumerator, and the biggest reporting discrepancy is for minor injuries (i.e., injuries of shorter duration). Using National Longitudinal Survey of Youth – 1979 (NLSY79) data, I explore possible reasons for pattern of underreporting and find that in some cases Hispanic workers are slightly *more* likely to lose their job following receipt of WC benefits than non-Hispanic workers. An additional consequence of underreporting workplace injuries is the cost of medical care not covered by WC. I calculate that these medical costs for uncompensated workplace injuries incurred by Hispanic workers total over $1 million each year.

1. Introduction

Hispanic workers are disproportionately employed in the most dangerous industries (Orrenius and Zavodny, 2009), and the most dangerous occupations, such as health aides, janitors and cleaners, maids and housekeepers, production workers, drivers, and hand laborers (Baron et al., 2013).[1] Hispanic workers also have the highest rate of workplace fatalities of any group (Byer, 2013). It follows that Hispanic workers are at higher risk of workplace injury than non-Hispanic workers.

In addition to concerns about Hispanic workers being at higher risk of workplace injury, the policy community is addressing fears about underreports of workplace injuries among Hispanic workers. In 2010, the Occupational Safety and Health Administration (OSHA) and the National Institute for Occupational Safety and Health (NIOSH) co-sponsored the National Action Summit for Latino Worker and Health Safety.[2] At this summit, Hilda Solis, Secretary of Labor, said, "…too many workers, especially Latino workers do not report violations. Many fear that they will lose their job or they fear discipline when they suffer an injury."[3] The Director of NIOSH, John Howard, said, "…[i]t is likely, though, that …non-fatal occupational injuries and illnesses are undercounted among Latino workers. These workers are reluctant to *report* injuries and illnesses."[4] Concerns about underreporting workplace injuries are especially salient for Hispanic workers who are

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[1] In fact, 24% Hispanics are employed in high risk occupations relative to 21% of non-Hispanic blacks.

[2] https://www.osha.gov/latinosummit/2010latino-summit.html Viewed July 6, 2015.

[3] *Ibid.*

[4] *Ibid.*

employed in jobs with greater risk of injury and because Hispanic workers have among the lowest rates of health insurance of any demographic group.

The existing empirical literature contributes to concerns about Hispanic underreporting of nonfatal workplace injuries because evidence does not universally show that Hispanic workers report more nonfatal workplace injuries than non-Hispanic workers. Smith et al. (2005) find that in the National Health Interview Survey (NHIS), the rate of nonfatal workplace injury is *lower* for Hispanic workers than for whites. And prior estimates examining receipt of Workers' Compensation (WC) insurance benefits, which cover the cost of medical care and lost wages for workers injured on the job, show that Hispanic workers are less likely to receive WC cash payments than whites or blacks, conditional upon benefit generosity, industry, and occupation (Bronchetti and McInerney, 2012). In fact, it is only when researchers restrict attention to the construction industry that they find evidence of Hispanic workers experiencing the same (Goodrum and Dai, 2005) or higher rate of nonfatal injuries (Dong et al., 2010) than similar non-Hispanic workers. Together, this evidence is consistent with Hispanic workers underreporting workplace injuries in most industries.

In this paper, I address two research questions in an attempt to quantify underreporting. First, I will examine whether Hispanic workers underreport both major and minor nonfatal workplace injuries. Using the National Health Interview Survey (NHIS), I find that underreporting is a larger problem for minor injuries than for major injuries. Second, I examine whether those Hispanic workers who report a nonfatal workplace injury to a

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national survey are less likely to file for WC or less likely to receive WC. To address this question, I turn to the National Longitudinal Survey of Youth – 1979 (NLSY79), which captures separate information regarding the incidence of injury, report of injury to one's employer, and receipt of WC benefits.[5] I find no evidence that, conditional on reporting an injury to a national survey, Hispanic workers who are injured on the job are any less likely to file for WC or receive WC benefits. An additional feature of the NLSY79 is the ability to examine one of the hypothesized reasons why workers might underreport injuries: fear of losing their job. The NLSY79 data asks whether workers were laid off or fired following their workplace injury. I find some evidence that Hispanic workers are more likely to lose their jobs following receipt of WC benefits. This suggests that Hispanic workers might be rational in underreporting workplace injuries.

2. Background

Prior work quantifies underreporting of workplace injuries/failure to file for WC benefits and offers reasons why workers might not report an injury.[6] However, this literature does not separately examine Hispanic or Latino workers. Nevertheless, the lessons from this literature can inform some of the reasons why Hispanic workers may be reluctant to file

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[5] The NHIS includes these questions in one year only, 2010, which does not yield a large enough sample size of Hispanic workers who are injured on the job.

[6] A large literature has examined the opposite concern: moral hazard in WC. Fortin and Lanoie (1998) and Krueger and Meyer (2002) provide thorough reviews of this work. In a recent update, Bronchetti and McInerney (2012) show that WC claims are not responsive to benefit levels. In this section, I summarize the concurrent literature examining concerns about *underreports* of workplace injuries.

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for WC or report an injury to an employer.[7] Some of these reasons include fear of reprisal from a worker's current employer (Leigh et al., 2004; Fan et al., 2006; Boone and van Ours, 2006); peer pressure to avoid reporting workplace injuries if an injury report would make a work group ineligible for a safety bonus, such as a steak dinner or trip to Hawaii (Leigh et al., 2004); and some workers are uninformed of the process and their right to file for WC (Leigh et al., 2004; Fan et al., 2006).

This prior literature also offers lessons for how to quantify underreporting. One approach is to use a single dataset and examine whether an injured worker also reports filing a WC claim. Fan et al. (2006) use a special module of the Behavioral Risk Factor Surveillance System (BRFSS) for the state of Washington, which asks separate questions about the incidence of workplace injury and whether the individual filed a WC claim with their employer. They find that only 52% of injured workers filed a WC claim. The respondents who indicated they experienced a work-related injury but did not file for WC report were asked why they did not file. The most common response was that their medical costs were paid through their employer. However, a small share reported that they "did not know they could file," "worried about retaliation," or "felt threatened by employer/employer would not support."

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[7] A separate literature examines why *employers* (not employees) might underreport injuries. Leigh et al. (2004) finds that the Survey of Occupational Illnesses and Injuries (SOII) misses between 33 and 69 percent of all injuries. Boden and Ozonoff (2008) compare injuries reported to the SOII with data from state WC systems in six states and find the BLS SOII misses a large share of workplace injuries, but also that a nontrivial number of workplace injuries are unreported to both WC systems and SOII.

A related approach is to identify injury and WC receipt for the same individual, but without a single dataset capturing this information. Biddle and Roberts (2003) link WC administrative data for the state of Michigan to a survey of physicians which identifies every patient who reported work-related pain in their back, wrist, hands, or shoulders. They find that a substantial share of workers (approximately one-third) who may be eligible for WC do not file for the benefits, and that nonwhite workers are less likely to receive WC than white workers. In this paper, the analysis of the NLSY79 will follow this approach. In the NLSY79, I can observe individuals who report a workplace injury and then observe whether these individuals also filed for WC or received WC.

A second method is to examine patterns in the rates of different types of injury that may or may not be underreported. Boone and van Ours (2006) follow this approach and compare the rates of fatal and nonfatal injuries. Since fatal injuries are reported universally, this rate is not sensitive to concerns about underreporting whereas the rate of nonfatal injuries may be. The authors posit that workers are less likely to report nonfatal workplace injuries to employers during poor economic times because the workers fear reprisal from their employer. They show that among OECD countries, when the national unemployment rises, the rate of nonfatal workplace injuries falls but the rate of fatal workplace injuries remains constant. They interpret this as evidence of underreporting of nonfatal injuries during economic downturns, perhaps because of fear of reprisal. In this paper, analysis of the NHIS data will follow a similar approach by comparing patterns of injury for Hispanic versus non-Hispanic workers.

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Prior work has examined take-up of other social benefits among Hispanics and immigrants and offers lessons why we might expect injury reporting (i.e., take-up) to be different for Hispanic and non-Hispanic workers. First, family members may be concerned about immigration enforcement. Watson (2014) shows that Medicaid participation among children whose parents are noncitizens declines as federal immigration enforcement increases. She shows that this result holds even when the children are U.S. citizens. Aizer (2007) shows that overcoming language barriers (by making a bilingual application assistant available) increases take-up of Medicaid among Hispanic children. Therefore, in addition to the same concerns about job security and peer pressure all workers may face when deciding whether or not to report a workplace injury, Hispanic workers may face additional concerns about immigration enforcement as well as language barriers.

3. Examining Underreporting in National Health Interview Survey (NHIS) Data

3a. Data

The National Health Interview Survey (NHIS) is an annual, cross-sectional nationally representative household interview survey that is conducted by the National Center for Health Statistics (NCHS), a part of the Centers for Disease Control and Prevention (CDC). The NHIS provides information on the health of the US population, and since 1997 the survey also contains detailed information about injuries experienced by all household members. Respondents are asked to report each injury or poisoning that

required medical care for any household member within three months of the survey. For those injuries for which a medical professional was consulted, respondents are asked what activity the injured household member was engaged in at the time of injury, including "working at a paid job." The survey also includes information regarding days of work missed, diagnosis, and where the respondent received care. The NHIS also contains detailed information about a worker's industry and occupation for one randomly selected "sample adult" in each household. For this analysis, I restrict attention to sample adult respondents for the 1997 through 2013 NHIS, a sample of 180,520 workers (33,487 Hispanic workers) and 1,650 workers who report a workplace injury (266 Hispanic workers). See Appendix Table 1 for sample construction details.

There are four important limitations to the NHIS data that must be addressed. First, Hispanics are a heterogeneous group. It may not be appropriate to combine workers who report Hispanic ethnicity but have different countries of origin. Unfortunately, the number of injured Hispanic workers in the sample is so small that I am unable to separately examine incidence of injury by country of origin. Although this is a limitation, it is consistent with much work on Hispanic take-up of social programs (see, for example, Bronchetti, 2014; Aizer, 2007; Watson, 2014) and Hispanic wage gaps (see, for example, McHenry and McInerney, 2015).

The second limitation is that the NHIS does not contain any information regarding whether the worker reports the injury to his or her employer (or files for WC). Therefore, if injured workers are more likely to report injuries to NHIS enumerators than to

employers, then results from the NHIS are likely to *understate* the amount of underreporting by Hispanic injured workers. To overcome this limitation, I also include analysis of the NLSY79 which captures the incidence of injury as well as reporting the injury to one's employer.

A third limitation is concern that the NHIS may not be representative of the workforce and the distribution of industry (and corresponding risk of injury). I can address this concern by examining how well characteristics of NHIS respondents match respondents to the CPS. Table 1 compares adults in the NHIS with adults in the Current Population Survey (CPS). Hispanic respondents in the NHIS are not perfectly representative of Hispanic respondents to the CPS; to address these concerns in my empirical work, I will include controls for observable characteristics. Table 2 shows how the distribution of industry among workers in the NHIS approximates the distribution of industry among workers in the CPS. Although the NHIS data do not perfectly match the distribution of industry among workers in the CPS, there are several dangerous industries in which Hispanic workers in the NHIS are more heavily concentrated than Hispanic workers in the CPS: construction, manufacturing, wholesale and retail trade, and agriculture. Therefore, although the distribution of industry among Hispanics in the NHIS does not match the distribution in the CPS, it is not the case that Hispanic respondents in the NHIS are exclusively sorted into safer industries.

The final concern with the NHIS data is that of recall bias, which arises when there is differential recall of information across two different groups. Ruser (2008) raises the

concern of recall bias in the NHIS survey data, citing evidence that workers have been found to forget about minor injuries after approximately six weeks. If Hispanic workers *recall* fewer injuries than non-Hispanic workers, I might erroneously be ascribing underreporting to differential recall. To examine concerns about recall bias, I examine whether any differential between Hispanic and non-Hispanic injuries is eliminated when the recall period is shorter. In Table 3, I examine injuries that occurred in the year prior to the interview.[8] Although it appears that recall bias explains some of the difference in non-work-related injury rates between Hispanic and non-Hispanic workers, it does not explain the whole differential. The gap between the rate of workplace injury between Hispanic and non-Hispanic injuries falls when the recall period shrinks from one year to the same quarter as the interview. However, even when considering injuries that occurred in the same quarter of interview, Hispanic workers are less likely to disclose a work-related injury. In this analysis, I use the horizon of one year from the interview in order to maximize the number of injuries in the sample.

3b. Conceptual Framework

The analysis below makes several assumptions about the likelihood of injury at work and the relationship between the disclosure of a workplace injury to a survey enumerator and report of a workplace injury to the worker's employer. The empirical approach rests on the underlying assumption that, conditional on observable characteristics, the underlying risk of injury is the same for Hispanic workers as it is for workers of other races and ethnicities. I also assume that injured workers are more likely to disclose workplace injuries to survey enumerators than to employers. That is, I assume that all workplace

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[8] Warner et al. (2005) recommend using a five-week recall period to examine injuries in the NHIS beginning with the 2004 survey. With the publicly available NHIS data, I do not observe the exact date of interview, just interview quarter, month, or week.

injuries that are reported to employers are disclosed to survey enumerators. This means that estimates from the NHIS are likely to understate the extent of underreporting if more injuries are disclosed to the NHIS than to employers.

From these assumptions, the empirical approach follows from the literature on wage gaps by race and ethnicity. That is, I control for all observable determinants of report of a workplace injury in addition to an indicator for Hispanic ethnicity, as in the linear probability model presented in equation (1) below. If, conditional on observables Hispanic workers are equally likely to report workplace injuries, then the coefficient estimate for β will be zero. In contrast, a negative coefficient for β would be consistent with Hispanic workers being *less likely* to report workplace injuries than non-Hispanic workers.

(1) $$WorkInjury_{i,t} = \alpha + \beta Hisp_i + \gamma Blk_i + \delta OthRaceEth_i \Gamma X_{i,t} + \theta_t + \varepsilon_{i,t}$$

Where *X* is a vector of worker characteristics, including citizenship status, age, gender, marital status, educational attainment, industry, occupation, and year fixed effects. Because the dependent variable is binary, I also present results from probit models.[9]

3c. Results

The results presented in Table 4 show the impact of observable characteristics on the likelihood of disclosing a workplace injury to the NHIS. I first describe the estimated

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[9] In future work, I will incorporate state fixed effects to control for permanent differences across states and state-specific WC benefit generosity, which changes over time and varies across workers with different levels of earnings. This requires access to the restricted use NHIS. At this time, my proposal has been approved but I am still awaiting final approval of my Special Sworn Status to access the data at the Boston Census Research Data Center (RDC).

effects for observable determinants of injury report common to all races and ethnicities. The effects are largely as expected: younger workers are more likely to disclose a workplace injury, as are less educated workers, and workers employed in more dangerous industries and occupations. US citizens are also more likely than non-citizens to disclose an injury to the NHIS. Even conditional on all of these observable characteristics, Hispanic workers are *less* likely to disclose a workplace injury to the NHIS than white workers. In fact, Hispanic workers are 0.3 percentage points less likely to disclose a workplace injury to the NHIS than a similar white worker. With a mean rate of nonfatal workplace injury of 0.9 percent of all NHIS respondents disclosing an injury to the survey enumerator, this means Hispanic workers are one third less likely to disclose a workplace injury than white workers.

This effect is not unique to Hispanic workers; as shown in Table 4, black workers are also less likely than white workers to disclose nonfatal workplace injuries to survey enumerators, though the effect size is smaller. Nor is this effect solely driven by undocumented Hispanic workers. As shown in columns (3) and (4), the effect persists when the sample is restricted to US citizens.

Of course, I cannot rule out an alternative explanation that is consistent with these findings—it may be that the distribution of injury severity for Hispanic workers lies to the right of the corresponding distribution of injury severity for white workers. In the analysis that follows, I attempt to distinguish between these two alternative explanations.

In Table 5, I examine the likelihood of reporting injuries of different severity. This exercise will allow me to identify the biggest gaps in injury reports. Panel A in Table 5 replicates the main results from Table 4 for injuries of all durations. Panels B through D contain results examining the likelihood that Hispanic workers disclose injuries of different duration: injuries for which a worker misses less than a full day of work, misses between one and five days of work, and misses six or more days of work. As shown in Table 5, the biggest gap in reported injuries arises among the least severe injuries—the coefficient estimate falls in magnitude moving down the table to the most severe injuries. Hispanic workers are 0.21 percentage points less likely to disclose injuries resulting in less than one full day of missed work to the NHIS but only 0.06 percentage points less likely to disclose injuries resulting six or more days of work. In addition, the impact relative to the mean is larger for the least severe injuries: Hispanic workers are 46 percent less likely to disclose the least severe injuries and only 30 percent less likely to disclose the most severe injuries. In Panel E of Table 5, I quantify severity as a hospital stay and find no difference between Hispanic and white workers. Of course, the results presented in Table 5 are consistent with both underreporting of less severe injuries as well as a shift to the right in the distribution of injury severity. In the analysis that follows, I attempt to distinguish between these two alternative explanations.

One way to attempt to identify underreporting is to compare effects among a subset of injuries that prior work has identified as more sensitive to reporting incentives versus the effects among a sample of injuries identified as less sensitive to reporting incentives. Prior work examining the WC program has identified cuts, fractures, and burns as

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"traumatic" injuries which are less sensitive to incentives to under- or over-report and back sprains and repetitive trauma injuries (e.g., carpal tunnel syndrome) as "non-traumatic" injuries which are more sensitive to incentives to under- or over-report (Biddle, 2001; Biddle and Roberts, 2003; McInerney, 2010; Ruser, 1998). Concerns of underreport would likely be larger among "non-traumatic" injuries, and in Table 6 I separately examine differences by ethnicity in the report of traumatic versus non-traumatic injuries. As shown in Table 6, there are no statistically significant gaps in report of traumatic injury between Hispanic and white workers. In contrast, there are statistically significant differences in the report of non-traumatic injuries, which is suggestive of underreporting. Among the sample of non-traumatic injuries, Hispanic workers are 0.1 percentage points less likely to report a workplace injury than a similar white worker. With a mean injury rate of 0.3 percent of workers reporting workplace injuries, this is a large effect reflecting Hispanic workers being 30% less likely to report workplace injuries.

Another way to examine whether the results reflect underreporting or a shift in the distribution of injury severity is to consider the cost associated with reporting (or not reporting) an injury. For workers lacking health insurance, there are larger financial benefits to having the medical care associated with an injury covered by WC, since the cost of any medical care would be out of pocket for these workers. Therefore, it is somewhat surprising in Table 7 to see that injury disclosing discrepancies are *largest* among those *lacking* health insurance. It may be the case that health insurance is

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correlated with job security.[10] To better examine whether workers with lower levels of job security are less likely to disclose a nonfatal injury In Panels D and E, I instead split the sample of workers by those who are paid by the hour versus those who are salaried. Consistent with those Hispanic workers who have the least secure jobs being the most likely to underreport, I find the biggest discrepancy in injury disclosure to the NHIS among those who are paid by the hour.

In summary, analysis of the NHIS data is consistent with Hispanic workers underreporting minor workplace injuries to NHIS enumerators (and, presumably) their employers. The ethnic differential is larger for those non-traumatic injuries which have been shown to be more responsive to incentives in WC, and it is also larger for workers who lack health insurance and who are paid by the hour. To examine whether Hispanic respondents who report injuries to survey enumerators are any less likely to file for WC (or receive WC, conditional on filing), I now turn to the NLSY79 data which separately asks questions on workplace injury and report of injury to one's employer. With the NLSY79, I am also able to test reasons for underreport.

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[10] Recall that the NHIS analysis spans the years 1997 through 2013, so ended before the health insurance mandates from the Affordable Care Act (ACA) were implemented.

4. Examining Rates of Workers' Compensation Receipt with the National Longitudinal Survey of Youth 1979 (NLSY79)

4a. Data

The NLSY79 is a longitudinal survey of approximately 10,000 individuals, conducted by the Bureau of Labor Statistics. The NLSY79 includes questions regarding the incidence of workplace injuries in the 1988, 1989, 1990, 1992, 1994, 1996, 1998, and 2000 surveys. Whereas the NHIS asked about any injury that required medical care, the NLSY79 asks respondents to report "… any incident at any job we previously discussed that resulted in injury or illness to you?" The NLSY79 does not ask whether the injured worker received medical care for the injury. See Appendix Table 2 for more details on sample construction of the NLSY79 data. The first key advantage of the NLSY79 data is that I am able to observe whether injured workers filed a WC claim with their employers or not. And, conditional on filing a claim, did the individual receive WC benefits. The second key advantage of this dataset is that I also observe whether an injured worker was terminated from his or her job following a workplace injury (or report of a workplace injury). For each workplace injury, the NLSY79 questionnaire asks "Did the illness/injury cause you to be laid off?" and "Did the illness/injury cause you to be fired?"

As shown in Table 8, in the NLSY79 data, Hispanic workers have no greater propensity to file for (and receive) WC, conditional on injury.[11] Surprisingly, Hispanic workers are more likely to be terminated following a workplace injury or report of injury.

4b. Empirical approach

To examine whether Hispanic workers are any less likely to file for WC, conditional on experiencing an injury, I estimate the following linear probability model.

$$(2)\ FileForWC_{ist} = \alpha + \beta Hispanic_i + \Gamma X_{ist} + \theta_t + \theta_s + \varepsilon_{ist}$$

The vector X includes the same controls from the analysis of the NHIS data, and, since the analysis is now restricted to the sample of injuries, I am also able to control for injury duration and type of injury. Because I have access to the restricted use NLSY79 data, I am now able to identify the respondent's state of residence. This enables me to include state effects to control for permanent differences in WC programs across states, including the generosity of WC cash benefits.

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[11] In addition to including a broader definition of injury than the NHIS (since it does not condition on medical care receipt), the design of the NLSY79 may result in fewer concerns about respondents failing to disclose workplace injuries to survey enumerators. By the time the first question regarding workplace injury was asked of survey respondents, respondents in this longitudinal panel had participated in nine rounds of the survey. Therefore, survey respondents likely had fewer concerns about a disclosed injury being shared with their employer since they had experience with the confidentiality of the survey.

I also conduct a similar analysis to examine whether Hispanic workers are any less likely to receive WC, conditional on filing a claim:

$$(3)\ ReceiveWC_{ist} = \alpha + \beta Hispanic_i + \Gamma X_{ist} + \theta_t + \theta_s + \varepsilon_{ist}$$

A finding that the coefficient estimate for β is negative would be consistent with Hispanic workers being less likely to file for WC (or receive WC), conditional upon a workplace injury (or filing a WC claim). As with the analysis of the NHIS data, I also present results from probit models.

Following a similar approach, I examine what happens to injured workers' jobs. I run linear probability models (and probits) examining whether Hispanic injured workers are any more or less likely to be terminated from their jobs following an injury or report of an injury.

4c. Results

The results are presented in Panel A of Table 9. Among all injured respondents, conditional on reporting a workplace injury to a survey enumerator, there is little evidence that Hispanic workers are any more or less likely to file for WC with their employer. In fact, in the case of citizen respondents to the NLSY79, Hispanic workers are somewhat *more* likely to file for WC following a workplace injury. For the whole sample, the coefficient estimates are not statistically significant, and the estimates are small in magnitude, especially compared with the average share of injured workers who

file for WC: 58%.[12] This suggests that, conditional on reporting a workplace injury to a survey enumerator, Hispanic workers are no less likely to file for WC benefits.

In Panel B of Table 9, I examine the probability an injured worker receives WC benefits, conditional on filing for them. Encouragingly, the marginal effects are never statistically significant and the estimated effects are even smaller, suggesting that there are no differences by ethnicity in the likelihood an injured worker who has applied for WC ultimately receives WC.

Results in Table 10 show that, surprisingly, in some cases Hispanic workers are *more* likely to be terminated from their job following receipt of WC. This might explain any underreporting of workplace injuries by Hispanic workers.

Results from the NLSY79 are encouraging of the fact that, conditional on reporting an injury to a survey enumerator, Hispanic workers are not missing out on benefits to which they may be entitled. There is no evidence that injured Hispanic workers are any less likely to file for WC (or receive WC, conditional on filing) than white workers. However, other results from the NLSY79 paint a more discouraging picture: Hispanic workers are more likely to be terminated from their job following receipt of WC.

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[12] The 95% confidence interval ranges from a decline of 3.7 percentage points to an increase in filing of 9.2 percentage points (column (1)).

5. Discussion

Together, the evidence from the NHIS and NLSY79 suggest the biggest threat to Hispanics receiving WC benefits at the same rate as non-Hispanic workers is in the initial report of injury to a worker's employer. Since the problem of under-reporting appears to be more pronounced for injuries of shorter duration, this underreporting is less likely to impact cash benefit receipt and more likely to affect who pays for the medical coverage of the workplace injury (or whether medical care is obtained). This is especially important because the rate of uninsurance is highest among Hispanic workers, according to recent estimates from the American Community Survey.[13]

A conservative back of the envelope calculation can help quantify the cost of underreporting. First, assume the true rate of minor workplace injuries for Hispanics is equal to the rate of injuries reported for non-Hispanic workers (.46%). Since .42% of Hispanic workers report seeking care for a workplace injury to the NHIS, we can assume that .0046-.0042=.0004 (or 0.04%) of Hispanic workers do not seek care for their injury. There are 22.5 million Hispanic workers[14] and a conservative estimate of the average medical cost associated with medical only WC claims is the cost of an office visit for an uninsured individual: $130 (the average cost of a medical only claim is closer to the cost of an ER visit, ranging from $799 in Massachusetts to over $1,500 in Louisiana, Alaska,

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[13] http://kff.org/uninsured/state-indicator/rate-by-raceethnicity/

[14] Bureau of Labor Statistics. August 2015. "Labor Force Characteristics by Race and Ethnicity." *BLS Reports.* http://www.bls.gov/cps/cpsrace2013.pdf. Viewed August 3, 2015.

and New Hampshire).[15,16] Then \$130*(22.5 million*.0004)=\$1.2 million per year in

medical costs for workplace injuries that are not covered by WC. These costs either

represent foregone medical care, costs borne out of pocket by uninsured Hispanic

workers, or costs paid for by Hispanic worker's health insurers.

Although injured workers who do not report an injury bear the cost of the medical care

(or cost of foregoing medical care), evidence from the NLSY79 shows that in some cases,

those Hispanic workers who report a workplace injury and receive WC are more likely to

lose their jobs.

The evidence in this paper is consistent with Hispanic workers underreporting workplace

injuries. Hispanic workers may underreport injuries if they do not know their rights or the

process of applying for WC. As Aizer (2007) showed, language barriers may make it

difficult for non-English speaking workers to complete applications for benefits. Several

states still do not publish applications for other social benefits in Spanish; for example,

21 states still do not post downloadable Supplemental Nutrition Assistance Program

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[15] http://www.bluecrossma.com/blue-iq/pdfs/TypicalCosts_89717_042709.pdf Viewed
August 20, 2015.

[16] http://www.oliverwyman.com/content/dam/oliver-
wyman/global/en/files/archive/2012/Examining_Costs_and_Trends_MA(NYC-
ADM89901-006).pdf and http://www.oliverwyman.de/content/dam/oliver-
wyman/global/en/files/archive/2012/NYC-ADM90101-004_Examing_cost_final.pdf
Viewed August 3, 2015.

(SNAP) application forms in Spanish.[17] Making application materials available in Spanish would help to reduce this barrier.

If it is instead the case that Hispanic workers underreport injuries because the cost of the associated medical care is less than job loss, then making application forms available in Spanish will not increase reporting rates. Then a critical policy implication is enhanced job protection for injured workers, especially Hispanic workers.

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[17] http://www.cbpp.org/research/snap-online-a-review-of-state-government-snap-websites, viewed August 28, 2015.

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Table 1: Hispanics in the National Health Interview Survey (NHIS) and the Current Population Survey (CPS), 1997-2013

	NHIS	CPS	t-stat (p-val)	NHIS	CPS	t-stat (p-val)
	All Hispanic Respondents			*U.S. Citizens Only*		
% US Citizens	.573 (.495)	.617 (.486)	-22.45 (p<.001)	1.00	1.00	
% Employed	.756 (.429)	.751 (.433)	2.88 (.004)	.770 (.421)	.760 (.427)	4.46 (<.001)
Age	37.224 (11.988)	36.696 (12.145)	10.85 (<.001)	38.144 (12.724)	37.241 (12.802)	13.40 (<.001)
% Male	.449 (.497)	.493 (.500)	-21.93 (<.001)	.424 (.494)	.471 (.499)	-17.90 (<.001)
% Married	.497 (.500)	.523 (.499)	-12.97 (<.001)	.446 (.497)	.495 (.500)	-18.62 (<.001)
Education:						
% Less than High School	.402 (.490)	.367 (.482)	18.02 (<.001)	.259 (.438)	.241 (.428)	7.94 (<.001)
% High School Degree	.251 (.434)	.297 (.457)	-25.31 (<.001)	.286 (.452)	.323 (.468)	-15.10 (<.001)
% Some College	.229 (.420)	.220 (.414)	5.40 (<.001)	.309 (.462)	.292 (.454)	7.08 (<.001)
% College or More	.118 (.322)	.115 (.319)	1.56 (.120)	.146 (.354)	.144 (.351)	1.08 (.28)
N	77,471	309,635		44,356	191,093	

Table 2: Distribution of Industry Among Hispanic Workers in National Health Interview Survey (NHIS) and Current Population Survey (CPS), 1997-2013

	NHIS	CPS	t-statistic (p-value)	NHIS	CPS	t-statistic (p-value)
	All Hispanic Respondents			*U.S. Citizens Only*		
Mining	.007 (.086)	.006 (.079)	2.13 (.03)	.009 (.095)	.008 (.089)	1.42 (.16)
Construction	.107 (.310)	.087 (.282)	11.92 (<.001)	.067 (.250)	.057 (.235)	5.37 (<.001)
Manufacturing	.160 (.367)	.144 (.351)	7.72 (<.001)	.139 (.346)	.123 (.328)	6.16 (<.001)
Transportation and Utilities	.052 (.222)	.055 (.228)	-2.25 (.02)	.064 (.244)	.065 (.247)	-.52 (.61)
Wholesale Trade	.035 (.183)	.033 (.180)	1.89 (.06)	.037 (.189)	.033 (.180)	2.81 (.01)
Retail Trade	.148 (.355)	.143 (.350)	2.43 (.02)	.165 (.371)	.156 (.363)	3.18 (.002)
Finance, Insurance, and Real Estate	.069 (.253)	.048 (.214)	16.29 (<.001)	.098 (.297)	.063 (.244)	17.67 (<.001)
Services	.381	.449	-23.37	.408	.476	-17.39

	NHIS	CPS	t-statistic (p-value)	NHIS	CPS	t-statistic (p-value)
		All Hispanic Respondents			U.S. Citizens Only	
	(.486)	(.497)	(<.001)	(.491)	(.499)	(<.001)
Agriculture	.040	.034	5.56	.014	.016	-2.04
	(.195)	(.182)	(<.001)	(.118)	(.126)	(.04)
N	33,487	217,286		18,925	133,473	

Table 3: Examining Recall Bias for Injury Reporting, National Health Interview Survey (NHIS), 1997-2013

	Hispanic	Non-Hispanic	t-statistic (p-value)	Hispanic	Non-Hispanic	t-statistic (p-value)
	All Respondents			U.S. Citizens Only		
Injury requiring medical attention in past year.						
% Any injury	.020	.032	-11.66	.024	.032	-5.92
	(.140)	(.176)	(<.001)	(.152)	(.177)	(<.001)
% Work-related injury	.008	.009	-1.73	.007	.009	-2.74
	(.089)	(.097)	(.08)	(.086)	(.095)	(.001)
% Non-work related injury	.012	.023	-12.75	.016	.023	-6.08
	(.109)	(.149)	(<.001)	(.126)	(.151)	(<.001)
Injury requiring medical attention in same quarter as interview						
% Any injury	.010	.016	-8.26	.012	.016	-4.21
	(.100)	(.124)	(<.001)	(.109)	(.124)	(<.001)
% Work-related injury	.004	.005	-2.48	.004	.004	.000
	(.065)	(.067)	(.01)	(.063)	(.066)	(1.00)
% Non-work related injury	.006	.011	-8.31	.008	.011	-3.74
	(.076)	(.104)	(<.001)	(.089)	(.105)	(.0002)
N	33,487	147,033		18,925	130,733	

Table 4: Impact of Hispanic Ethnicity on Probability a Respondent Reports a Workplace Injury to the NHIS, Results from Linear Probability Models (LPM)

	LPM	Probit	LPM	Probit
	All respondents		US Citizen Respondents Only	
Hispanic	-.003***	-.129***	-.003***	-.140***
	(.001)	[-.003***]	(.001)	[-.003***]
		(.030)		(.034)
Black	-.002**	-.060**	-.002***	-.093***
	(.001)	[-.001**]	(.001)	[-.002***]
		(.029)		(.031)
Other	-.002	-.098*	-.002	-.097
	(.001)	[-.002*]	(.001)	[-.002]
		(.050)		(.061)
White	--	--	--	--
US citizen	.003***	.117***	--	--
	(.001)	[.003***]		
		(.040)		
Ln(Earnings)	.0001	.001	.0002	.007
	(.0003)	[.00002]	(.0003)	[.0002]
		(.015)		(.016)
Age	-.00005**	-.001	-.00004*	-.001
	(.00002)	[-.00003]	(.00002)	[-.00002]
		(.001)		(.001)
Female	-.002***	-.080***	-.001**	-.051**
	(.001)	[-.002***]	(.001)	[-.001]
		(.022)		(.025)
Married	-.002***	-.101***	-.003***	-.120***

	LPM	Probit	LPM	Probit
	All respondents		*US Citizen Respondents Only*	
	(.0005)	[-.002***]	(.001)	[-.003***]
		(.020)		(.022)
Less than HS	.003***	.190***	.003***	.201***
	(.001)	[.005***]	(.001)	[.005***]
		(.040)		(.045)
HSD	.003***	.169***	.003***	.184***
	(.001)	[.004***]	(.001)	[.005***]
		(.023)		(.037)
Some college	.004***	.219***	.004***	.222***
	(.001)	[.005***]	(.001)	[.005***]
		(.034)		(.034)
College or more	--	--	--	--
Mining	.008***	.323***	.009***	.361***
	(.003)	[.008***]	(.003)	[.008***]
		(.105)		(.109)
Construction	.006***	.275***	.007***	.283***
	(.001)	[.007***]	(.001)	[.007***]
		(.057)		(.062)
Manufacturing	.001	.155***	.001	.152***
	(.001)	[.004***]	(.001)	[.004***]
		(.052)		(.056)
Transportation/Utilities	.001	.123**	.001	.129**
	(.001)	[.003**]	(.001)	[.003**]
		(.060)		(.066)
Wholesale trade	.004***	.264***	.003**	.225***
	(.001)	[.006***]	(.002)	[.005***]

	LPM	Probit	LPM	Probit
	All respondents		US Citizen Respondents Only	
		(.065)		(.073)
Retail trade	.004***	.233***	.003***	.229***
	(.001)	[.006***]	(.001)	[.005***]
		(.052)		(.056)
Finance, insurance, real estate	--	--	--	--
Services	.002**	.169***	.002**	.175***
	(.001)	[.004***]	(.001)	[.004***]
		(.048)		(.052)
Agriculture	.008***	.387***	.011***	.463***
	(.003)	[.009***]	(.003)	[.011***]
		(.114)		(.124)
Manager	--	--	--	--
Professional worker	.0004	-.004	.0002	-.019
	(.0009)	[-.0001]	(.0010)	[-.0004]
		(.050)		(.054)
Support worker	.003**	.177***	.004**	.195***
	(.001)	[.004***]	(.001)	[.005***]
		(.063)		(.068)
Sales	-.0002	.001	-.0001	.006
	(.0010)	[.00001]	(.0011)	[.0001]
		(.051)		(.056)
Administrative worker	.0001	-.009	-.0004	-.039
	(.0009)	[-.0002]	(.0010)	[-.001]
		(.049)		(.053)
Services worker	.004***	.209***	.004***	.219***
	(.001)	[.005***]	(.001)	[.005***]

	LPM	Probit	LPM	Probit
	All respondents		*US Citizen Respondents Only*	
		(.045)		(.049)
Production worker	.012***	.422***	.013***	.430***
	(.001)	[.010***]	(.001)	[.010***]
		(.045)		(.050)
Laborer	.011***	.379***	.011***	.387***
	(.001)	[.009***]	(.001)	[.009***]
		(.048)		(.053)
Transportation worker	.010***	.360***	.010***	.373***
	(.001)	[.009***]	(.001)	[.009***]
		(.052)		(.057)
Farming occupation	.003	.135	.003	.130
	(.003)	[.003]	(.004)	[.003]
		(.124)		(.145)
N	180,520	180,520	149,658	149,658
Mean of dep. Var.	.009	.009	.009	.009

Notes: Each regression also includes year fixed effects. Marginal effects for probit

models in brackets.

Table 5: Impact of Hispanic Ethnicity on Probability Report a Workplace Injury of Certain Duration to NHIS, Results from Linear probability Models (include hospitalization)

	LPM	Probit	LPM	Probit
	All respondents		US Citizen Respondents Only	
Panel A: All Workplace Injuries Disclosed to NHIS				
Hispanic	-.003***	-.129***	-.003***	-.140***
	(.001)	[-.003***]	(.001)	[-.003***]
		(.030)		(.034)
N	180,520	180,520	149,658	149,658
Mean work injury	.0091	.0091	.009	.009
Panel B: =1 if injured, miss < full day of work				
Hispanic	-.0021***	-.151***	-.002***	-.159***
	(.0005)	[-.002***]	(.001)	[-.002***]
		(.041)		(.046)
N	180,205	180,205	149,530	149,530
Mean dep. Var.	.0046	.0046	.0046	.0046
Panel C: =1 if injured, miss 1-5 days work				
Hispanic	-.0007**	-.077	-.001	-.076
	(.0004)	[-.001]	(.0004)	[-.001]
		(.049)		(.055)
N	180,205	180,205	149,350	149,350
Mean work injury	.0025	.0025	.002	.002
Panel D: =1 if injured, miss 6+ days work				
Hispanic	-.0006*	-.092*	-.0007**	-.120*
	(.0003)	[-.001*]	(.0004)	[-.001*]

	LPM	Probit	LPM	Probit
	All respondents		*US Citizen Respondents Only*	
		(.055)		(.063)
N	180,205	180,205	149,350	149,350
Mean work injury	.0020	.0020	.0019	.0019
Panel E: =1 if injured, hospitalized				
Hispanic	.00004	.059	5.34 e-06	.012
	(.00010)	[.0001]	(.0001)	[.00001]
		(.144)		(.159)
N	180,073	146,600	149,415	114,889
Mean work injury	.0002	.0002	.0002	.0003

See notes to Table 4.

Table 6: Impact of Hispanic Ethnicity on Probability Report a Traumatic or Non-Traumatic Injury to NHIS, Results from Linear probability Models

	LPM	Probit	LPM	Probit
	All respondents		US Citizen Respondents Only	
Panel A: All Workplace Injuries Disclosed to NHIS				
Hispanic	-.003***	-.129***	-.003***	-.140***
	(.001)	[-.003***]	(.001)	[-.003***]
		(.030)		(.034)
N	180,520	180,520	149,658	149,658
Mean work injury	.0091	.0091	.009	.009
Panel B: =1 if Workplace Injury Traumatic Injury				
Hispanic	-.0001	-.054	-.0001	-.072
	(.0004)	[-.0004]	(.0004)	[-.001]
		(.046)		(.053)
N	180,520	180,520	149,658	149,658
Mean dep. Var.	.003	.003	.003	.003
Panel C: =1 if Workplace Injury Non-traumatic injury				
Hispanic	-.0010**	-.130**	-.0010**	-.107*
	(.0004)	[-.001**]	(.0004)	[-.001*]
		(.053)		(.058)
N	180,520	169,669	149,658	139,921
Mean work injury	.003	.002	.003	.002

See notes to Table 4. Traumatic injuries are burns, cuts, and fractures. Non-traumatic injuries are back injuries, repetitive motion strain, and bruises.

Table 7: Impact of Hispanic Ethnicity on Probability Report a Workplace Injury to the NHIS, Results from Linear Probability Models (LPM), Selected Sample Characteristics

	LPM	Probit	LPM	Probit
	All respondents		*US Citizen Respondents Only*	
Panel A: Full sample				
Hispanic	-.003***	-.129***	-.003***	-.140***
	(.001)	[-.003***]	(.001)	[-.003***]
		(.030)		(.034)
N	180,520	180,520	149,658	149,658
Mean work injury	.0091	.0091	.009	.009
Panel B: Sample of workers with no health insurance				
Hispanic	-.007***	-.232***	-.008***	-.265***
	(.002)	[-.007***]	(.002)	[-.008***]
		(.057)		(.067)
N	35,415	35,415	24,283	24,283
Mean work injury	.0116	.0116	.0124	.0124
Panel C: Sample of workers with health insurance				
Hispanic	-.002***	-.100***	-.002***	-.108***
	(.001)	[-.002***]	(.001)	[-.002***]
		(.036)		(.040)
N	144,866	144,866	125,167	125,167
Mean work injury	.0085	.0085	.0082	.0082
Panel D: Sample of workers paid by the hour				
Hispanic	-.004***	-.144***	-.004***	-.155***
	(.001)	[-.004***]	(.001)	[-.004***]
		(.035)		(.039)

	LPM	Probit	LPM	Probit
	All respondents		*US Citizen Respondents Only*	
N	111,354	111,354	90,530	90,530
Mean work injury	.0112	.0112	.0110	.0110
Panel E: Sample of salaried workers				
Hispanic	-.002*	-.093	-.002*	-.111
	(.001)	[-.004]	(.001)	[-.002]
		(.062)		(.070)
N	69,166	69,166	59,128	59,128
Mean work injury	.0058	.0058	.0056	.0056

See notes to Table 4.

Table 8: Summary Statistics from the NLSY79 (1988-2000)

	Hispanic	Non-Hispanic	t-test (p-val.)
File for WC, conditional on injury	.62 (.49)	.58 (.49)	1.43 (.15)
Receive WC, conditional on filing	.48 (.50)	.44 (.50)	1.04 (.30)
Injured, miss no work	.46 (.50)	.47 (.50)	-.35 (.73)
Injured, miss 1-5 days	.22 (.42)	.25 (.43)	-1.23 (.12)
Injured, miss 6 or more days	.32 (.47)	.28 (.45)	1.54 (.12)
Terminated, if injured	.09 (.29)	.06 (.24)	2.10 (.04)
Terminated, if file for WC	.12 (.33)	.07 (.26)	2.31 (.02)
Terminated, if receive WC	.18 (.38)	.12 (.32)	1.60 (.11)
N (Injured)	376	1,653	
N (File for WC)	211	849	
N (Receive WC)	101	374	

Table 9: Results from NLSY79: Likelihood Report Injury to Employer and Receive WC, if Injured

	LPM	Probit	LPM	Probit
	All respondents		US Citizen Respondents Only	
Panel A: File for WC				
Hispanic	.047	.151	.075**	.236*
	(.034)	[.051]	(.036)	[.079]
		(.100)		(.106)
N	2,029	2,017	1,901	1,889
Mean dep. Var.	.586	.587	.586	.587
Panel B: Receive WC, if File				
Hispanic	.010	.048	.002	.022
	(.041)	[.013]	(.043)	[.006]
		(.150)		(.157)
N	1,060	1,054	997	991
Mean dep. Var.	.447	.446	.441	.440

Probit marginal effects are presented in brackets. Each regression also includes control for: marital status, gender, race (white is the left out category), age (and age-squared), highest educational attainment (less than high school, high school degree, Associate's degree, bachelor's degree, more than college is the left out category), controls for missing between 1-5 days of work or missing 6+ days of work (missing less than one full day of work is the omitted category), citizenship status (columns (1) and (2) only), controls for union membership and health insurance coverage, measures of job tenure (less than one month, tenure of 2-12 months, and tenure of one year or more is the omitted category), controls for type of injury (sprain or strain, cut, crushing injury, burn, injury to nervous system, bruise, musculoskeletal injury, fracture, dislocation, foreign object, 1-digit industry, 1-digit occupation, year fixed effects, and state fixed effects. Each regression also include the ln(average weekly wage) and ln(expected weekly WC benefit) to control for WC benefit generosity specific to that worker.

Table 10: Probability worker loses job, if injured, NLSY79

	LPM	Probit	LPM	Probit
	All respondents		US Citizen Respondents Only	
Panel A: Laid off or fired, if injured				
Hispanic	.022	.207	.019	.183
	(.017)	[.020]	(.018)	[.018]
		(.172)		(.182)
N	2,029	1,883	1,901	1,760
Mean dep. Var.	.070	.073	.068	.073
Panel B: Laid off or fired, if file for WC				
Hispanic	.029	.257	.031	.310
	(.024)	[.028]	(.025)	[.033]
		(.215)		(.231)
N	1,190	1,062	1,115	994
Mean dep. Var.	.083	.091	.083	.091
Panel C: Laid off or fired, if receive WC				
Hispanic	.063	.710**	.085	.814**
	(.051)	[.106]	(.053)	[.148]
		(.349)		(.379)
N	475	397	441	290
Mean dep. Var.	.131	.149	.132	.190

See notes to Table 9.

Appendix Table 1: Construction of the NHIS, 1997-2013

	Number of Observations
Total persons in survey (adults and children)	1,598,006
Sample adult	516,140
Under age 65	414,151
Citizenship status not missing	412,961
Worked last year	330,035
Worked for wages at private company	234,129
Industry not missing (also drop farming, public sector employees, and military)	227,088
Occupation not missing (also drop farming, public sector employees, and military)	225,929
Earnings information not missing	187,760
Weekly earnings greater than zero	180,520
Experience a workplace injury	1,650

Appendix Table 2: Construction of the NLSY79, 1988-2000

	Number of Observations
NLSY79 respondents in years with injury questions	49,526
Has information on number of days missed, if injured	38,373
Was employed in year t-1	38,035
Worked for private employer	30,956
Has industry information	30,648
Has occupation information	30,617
Has job tenure information	29,946
Has information on health insurance	28,462
Experience workplace injury	2,041
Information on filing for WC	2,034
Reside in 50 states + DC	2,029