The Occupational Cost of Being Illegal: Legal Status and Job Hazard among Mexican and Central American Immigrants

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Background

In the context of rising inequality, understanding the well-being of workers in the low-skill labor market is taking on increased urgency. The employment outcomes of Latino immigrant workers are of particular interest due to their large share of the low-wage labor market. Over 50% of workers lacking a high school diploma are Latino (Bureau of Labor Statistics 2011), with the majority of these foreign-born. A strong cultural narrative portrays immigrant workers, especially the undocumented, as especially likely to be found in dangerous, dirty, or otherwise undesirable jobs – that is, jobs Americans refuse to do. Nonetheless, little scholarly research has focused on the work conditions of the low-skilled immigrant workforce. Previous literature on Latino immigrant workers has investigated a relatively narrow range of employment outcomes, especially earnings or related constructs (Donato and Massey 1993; Hall, Greenman and Farkas 2010; Kossoudji and Cobb-Clark 2002; Rivera-Batiz 1999). Few studies have focused on other key employment characteristics, such as the availability of benefits and employment stability (Flippen 2012) or work-related injuries and fatalities (Orrenius and Zavodny 2009a). Crucially, due to data limitations, previous studies have been unable to consider how lacking authorization to work impacts the conditions of employment.

In the wake of increased immigration enforcement efforts following the 2001 terrorist attacks, the influence of legal status on employment outcomes is likely growing. As enforcement of regulations requiring employers to verify the legal status of new hires has increased, there is evidence that undocumented workers are being pushed further to the periphery of the labor market (Orrenius and Zavodny 2009b). On the other hand, recent evidence indicates that increased border enforcement, as well as practices employed by businesses to ease compliance with the new regulations, such as subcontracting, affect both documented and undocumented immigrant workers (Gentsch and Massey 2011; Flippen 2012). An empirical investigation of the relationship between legal status and employment characteristics is critical to clarify these issues.

This study investigates whether undocumented Mexican and Central American (MCA) immigrant workers, in comparison to other low-skill workers, are disproportionately located in occupations featuring unhealthy or unsafe work conditions. We employ a novel method of imputing the legal status of workers in the Survey of Income and Program Participation in order to compare five groups of low-skill workers: undocumented MCA immigrants, documented MCA immigrants, native Latinos, native blacks, and native non-Latino whites. Combining external data on occupational characteristics with data from SIPP, we compare these groups with respect to occupational fatalities and hazardous occupational conditions (such as exposure to heights and toxic substances). We further investigate the contribution of human capital and other observable characteristics in generating group differences.

Data and Methods

The main source of data for this research is the 2004 and 2008 panels of the Survey of Income and Program Participation (SIPP) – a panel study focused on U.S. households' employment and public program experiences. The SIPP design draws a large, nationally-representative sample of U.S. households and collects information each household member every four months for approximately four years. At each interview, respondents are asked a set of core questions and wave-specific topical questions that cover the reference month and three preceding months. In cases where respondents are non-English speakers, SIPP provides translators. We restrict

our sample to respondents participating in the second wave of each SIPP panel, because a topical module administered during that wave inquires about necessary information regarding place of birth, citizenship, and visa status. Given our interest in the less-skilled labor force, we further limit our sample to prime-age (18 to 64) workers with no more than a high school education who are not enrolled in school during any of the preceeding five months.[1] We also restrict our analysis to foreign-born Mexican and Central American (MCA) immigrants, and U.S.-born Latinos, non-Latino whites, and non-Latino blacks.[2] Our final analytic sample includes 3,103 MCA immigrants, 1,939 native Latinos, 16,120 native whites, and 3,140 native blacks.

Our analysis explores occupational hazard and safety along several different dimensions. We use data from the Bureau of Labor Statistics' Census of Fatal Occupational Injuries, which documents characteristics of all workplace fatalities, to calculate occupational-specific fatality rates (in thousands of employees). To broaden the scope of occupations covered and to account for potential outliers in the distribution of fatalities, we smooth fatality rates for each occupation over the 2003 to 2008 period. Occupations in which no fatalities are reported are treated as having a fatality rate of "0." Because of both the positive skew, resulting from a few occupations with very-high fatality (e.g., fishers and tree fallers), and the peakedness of the distribution due to a clustering of occupations with no fatalities, we take the square-root of occupational fatality rates.[3]

To measure occupational hazard, we use data from the Department of Labor's Occupational Information Network (O*NET), which provides detailed information on the characteristics, transferable skills and job requirements that define occupations and is meant to replace the outmoded Dictionary of Occupational Titles used in related work (e.g., Cain and Treiman 1981; Bielby and Baron 1986; England et al. 1988; Kalleberg et al. 2000). The data is based on a detailed survey of workers in every occupation, including data elements on worker skills, knowledge, and abilities, job tasks, generalized work activities, and work context. To develop measures of occupational hazard, we extract data from the Physical Work Conditions subcategory of the Work Context module in the 2011 update to O*Net (version 16.0), which includes detailed items on exposure to various hazardous conditions and materials, physical work environments, and the repetition of work tasks, among others. To develop the measures used in our analysis, we identify the occupations present in our sample of SIPP workers, and reduce the corresponding O*Net data using factor analytic techniques. More specifically, we reduce 22 items to 6 factors using principal factor analysis with an orthogonal varimax rotation, which we refer to as: physical strain, exposure to toxic materials, environmental exposure, exposure to heights, repetitive motions, and exposure to radiation and disease.[4] Regression-based factor scores for each occupation are linked to SIPP respondents using their own "first" or primary occupation.

The key explanatory variable in our analysis is legal status. To do so, we apply the approach developed by Hall et al. (2010), which uses information on respondents' citizenship, legal permanent resident (LPR) status, and participation in federal public assistance programs to impute documentation status for less-skilled Mexican and Central American immigrants. Specifically, respondents who indicate that they are citizens or legal permanent residents (either currently or at entry) as classified as legal.[5] We also track respondents' participation in all federal assistance programs that undocumented immigrants are not eligible for (e.g., Food Stamps, Medicaid, SSI, TANF) throughout the entire SIPP observation period; if an immigrant reports receiving benefits from one of these federal programs in their own name (as opposed to dependently through someone else in the household [e.g., a U.S.-born child]) at any observable point, they are also classified as legal. The balance is either

[1] We exclude respondents enrolled in school at the first wave because wave 2 of the 2004 panel was administered between May and August of 2004; a period during which many college students will be between academic years.
[2] The 2008 panel of SIPP does not differentiate between Mexican and Central American immigrants; thus we use the more inclusive definition of the study group than previous related work (Hall et al. 2011).
[3] Results based on a log transformation produce statistically and substantively similar results, but the shape of the distribution better approximates normality under the square-root transformation.
[4] Factor loadings for each dimension are available on request.
[5] To correct for over-reporting of citizenship among new immigrants (Passel et al. 1997; Passel and Cohn 2008), we classify all immigrants who have been in the country for fewer than four years but say they are naturalized, as noncitizens. The results are not sensitive to this correction.

undocumented or fall into one of the following categories: refugees and asylees, students and exchange visitors, tourist /business travelers, temporary workers, and diplomats and other political representatives (U.S. Department of Homeland Security 2011). SIPP does not sample tourists and other short-term visitors. Those admitted as diplomats are accounted for by deeming MCA foreigners who are themselves or are married to a high-ranking public official to be in the country legally. The residual group that we are unable to infer is temporary workers. Authorized temporary workers, however, form a comparatively small portion of MCA immigrants (Department of Homeland Security 2011). Nevertheless our results should be assessed with some caution as the group we refer to as undocumented workers potentially includes a small proportion of legal temporary workers.[6]

Other explanatory variables included in our analyses are age (in years), educational attainment (in years of schooling [between 0 and 12]), and union membership. For immigrants, we consider two important measures of assimilation: arrival recency, defined as having arrived in the U.S. in the last 5 years, and English ability, which refers to a binary indicator of whether an immigrant worker reports speaking English only or "very well." Our models also account for any potential differences between SIPP panels by including a dummy variable for whether the respondent is drawn from the latest panel. In addition, we incorporate state fixed effects to account for variation in the geographic distribution of racial/ethnic groups (see Black et al. 2012).

Preliminary Results

Our initial examination of the relationship between legal status and occupational hazard reveal several noteworthy and theoretically-relevant findings. Proposal Table 1 shows basic group differences in occupational fatality and occupational hazard for prime-age, low-skilled male workers in SIPP.[7] For five of the seven outcomes, undocumented workers are employed in jobs with higher levels of occupational hazard. This includes higher rate of occupational fatality, greater exposure to physical strain, environmental conditions and heights, and higher levels of repetitive motions (i.e., recurring hand movements). They differ significantly (at $p<.05$) from native workers of all race/ethnicities on all of these outcomes, but differ from their documented counterparts on three (physical strain, exposure to heights, and repetitive motions). On the other two outcomes, undocumented immigrants exhibit lower levels of occupational hazard. Low-skilled native whites, on average, occupy jobs with the highest levels of exposure to toxic materials, followed by documented MCA immigrants and native Latinos. Exposure to radiation and disease is highest among native black workers, with undocumented workers being, on average, the least exposed to this potentially dangerous form of occupational hazard. That undocumented immigrants are least exposed to arguably the most potent types of occupational hazard is consistent with some related work (Kandel and Donato 2009) and theoretical arguments related to the segmentation of labor markets and social closure in risky, but potentially high-paying and/or stable jobs.

Preliminary work examining how human capital and immigrant assimilation characteristics relate to occupational hazard and attenuate differences between documented and undocumented workers in these outcomes also yields numerous important observations. Shown in Proposal Table 2 are parameter estimates from OLS models regressing occupational fatality and each of the measures of occupational hazard on sociodemographic and acculturation variables for low-skill MCA immigrant men. The results indicate that,

[6] While very few Mexican immigrants have been granted asylum in the U.S., immigrants from several Central American countries – particularly Nicaragua, El Salvador, and Guatemala – have been admitted as refugees (or have been eligible to have their immigration status adjusted to "asylee") following the conflicts in the region in the 1980s. Other Central Americans, including Hondurans, have been granted Temporary Protected Status following natural disasters during the late 1990s and early 2000s. Our imputation strategy may classify some such immigrants as undocumented when their legal status would be better described as "liminal legality" (Menjivar 2006). As Menjivar's (2006) work has shown, such temporary and provisional legal status is in many ways more similar to being undocumented than to being a legal immigrant. Overall, the number of refugees in our sample misclassified as undocumented is likely small given the numerical dominance of Mexicans among immigrants from the region.

[7] Corresponding results are women indicate similar patterns of inequality in the distribution of occupational fatalty and hazard across legal/racial groups, but for women, differences between undocumented and documented MCA immigrants tend to be smaller and less statistically significant (owning partly to the relatively small sample of 185 undocumented women). The implication that legal status is less influential in shaping women's labor market outcomes is consistent with previous work (Baker 1999; Hall et al. 2011) and is being developed and explored further in ongoing work.

accounting for differences between the two groups in observable human capital and assimilation traits, documented immigrants tend to hold jobs that are less physically straining, have lower exposure to heights, and are less likely to require repetitive hand movements than are undocumented workers' jobs. By contrast, documented immigrants jobs have, on average, higher levels of exposure to radiation and disease than undocumented immigrants, plausibly because strict regulations and certifications in the health and related sectors limit undocumented workers' access to those jobs. Other variables in the model generally work in expected directions: physical strain declines with age, but exposure to toxic materials and radiation/disease increases over immigrant workers' careers; schooling exerts a mostly-consistent negative effect on occupational hazard; the jobs of recently-arrived immigrants tend to have higher levels of occupational hazard but only significantly so for a few outcomes; and the ability to speak English fluently has perhaps the most consistent effect on occupational hazard for immigrants, reducing it on five of the outcomes (albeit significantly so on only three).

Ongoing work further develops the relationship between these characteristics of workers and the occupational quality of the jobs they have and assesses the impact of these traits on relationships between legal status and the measures of occupational hazard. Preliminary work (not shown) indicates that immigrant characteristics – especially language ability – are particularly important in reducing overall differences between documented and undocumented immigrant workers. We will also consider how other job-related characteristics, such as union membership, and locational characteristics influence the association between legal status and occupational fatality and hazard. Continuing work is also evaluating these relationships for female workers and will examine temporal variation in legal/racial differences in occupational hazard by incorporating earlier waves of SIPP data.

Proposal Table 1: Group Differences in Occupational Fatality and Hazard among Less-Skilled Workers, Men

	Undocumented MCA Immigrants		Documented MCA Immigrants	U.S.-born Latinos	U.S.-born non-Latino whites	U.S.-born non-Latino blacks
Fatality rate	10.679	*l,w,b*	10.529	8.271	9.023	8.049
Fatality rate (sqrt)	2.908	*l,w,b*	2.863	2.454	2.568	2.399
Physical strain	.881	*d,l,w,b*	.739	.480	.350	.516
Exposure to toxic materials	-.142	*d,w*	-.067	-.120	.041	-.152
Environmental exposure	.584	*l,w,b*	.581	.421	.454	.389
Exposure to heights	.346	*d,l,w,b*	.116	.086	.034	-.164
Repetitive Motions	.484	*d,l,w,b*	.384	.256	.199	.374
Exposure to radiation/disease	-.305	*d,l,w,b*	-.235	-.093	-.143	.041
N of persons	616		1,458	1,079	8,689	1,537

Notes: *d* , *l* , *w* , and *b* indicate that means for undocumented MCA immigrants differ from documented MCA immigrants, native Latinos, native whites, and native blacks significantly at p<.05 (two-tailed t)

Proposal Table 2: Multivariate Models of Occupational Hazard for MCA Less-Skilled Immigrant Workers, Men

	Fatality Rate (sqrt)	Physical strain	Exposure to toxic materials	Environmental exposure	Exposure to Heights	Repetitive Motions	Exposure to radiation/disease
Documented immigra	-.023	-.081 +	.064	.011	-.295 ***	-.092 *	.061 +
	(.080)	(.042)	(.040)	(.051)	(.074)	(.037)	(.033)
Age (in years)	.000	-.005 **	.004 *	-.001	.003	-.002	.003 *
	(.004)	(.002)	(.002)	(.002)	(.003)	(.002)	(.001)
Education (in years)	-.023 *	-.004	-.010 +	-.027 ***	.012	-.008 +	.003
	(.011)	(.005)	(.005)	(.007)	(.010)	(.005)	(.004)
Arrived in last 5 years	.199 *	-.012	.020	.043	.037	-.006	.015
	(.081)	(.042)	(.041)	(.051)	(.075)	(.037)	(.033)
Speaks English	-.098	-.138 **	.079 +	.023	-.028	-.158 ***	-.003
	(.088)	(.046)	(.044)	(.056)	(.082)	(.040)	(.036)
2008 SIPP panel	.137 +	-.029	.013	.149 **	.051	.009	.032
	(.073)	(.038)	(.036)	(.046)	(.067)	(.033)	(.030)
Constant	2.968 ***	1.116 ***	-.193 *	.722 ***	.136	.654 ***	-.472 ***
	(.181)	(.093)	(.090)	(.114)	(.167)	(.083)	(.073)
R-squared	.011	.018	.010	.014	.011	.020	.007

Notes: + p < .10; * p < .05; ** p < .01; *** p < .001; N=1833