

Theme Overview: Farm Labor Issues in the Face of U.S. Immigration and Health Care Reform

Philip Martin

JEL Classifications: J15, J21, I15

Keywords: farm workers, health care, immigration, meatpacking, productivity, reduced labor supply

The Trump Administration has promised to make it more difficult for unauthorized foreigners to enter and work in the United States and for undocumented workers to access health care services. Such policies, if implemented, could have serious negative repercussions on the agricultural sector, which relies heavily on immigrant workers. Replacing foreign workers could be complicated due to difficulties in sourcing and hiring domestic workers to replace displaced undocumented workers. Additionally, the health deterioration of farm workers could negatively impact labor productivity, the sector's viability, and the nation's domestic food supply.

This timely theme highlights issues surrounding foreign-born workers employed in U.S. agriculture and food-processing industries. The U.S. Bureau of Labor Statistics reported that average annual employment in agriculture (NAICS 11) rose 8% over the past decade to over 1.2 million in 2015, while average annual employment in food manufacturing (NAICS 311) rose 2% to 1.5 million (www.bls.gov/cew). The number of unique workers is greater than average employment as more workers are needed to meet peak seasonal labor needs and there is turnover of workers.

Within agriculture, three-fourths of average employment is on crop farms (NAICS 111). Average direct-hire employment on crop farms rose 4% to 561,000 in 2015, and the average employment of workers brought to farms by nonfarm crop support services (NAICS 1151) rose 14% to 324,000 in 2015. Within food manufacturing, a third of average employment is in animal slaughtering and processing (NAICS 3116) where average employment fell by 3% to 486,000 over the past decade.

Farm and farm-related employment is rising slightly, justifying a closer look at health care, worker willingness to accept risk, and the Trump effect on the foreign-born workers who often dominate farm and farm-related jobs. In this issue, Escalante and Luo examine health care utilization among crop workers between 2007 and 2012 using data from National Agricultural Workers' Survey. While over half of U.S. workers have employer-provided health insurance, only a third of crop workers do, explaining why most crop workers turn to private clinics and community health centers for health-care services and why many pay out-of-pocket for health care. Farm worker spouses and children in the United States, on the other hand, mostly receive health care services from government-funded programs.

Articles in this Theme

Sustaining a Healthy Farm Labor Force: Issues for Policy Consideration

Cesar L. Escalante and Tianyuan Luo

Trump, Immigration, and Agriculture

Philip Martin

Anti-Immigration Reform and Reductions in Welfare: Evidence from the Meatpacking Industry

Thomas P. Krumel, Jr.

Krumel explores the roles of foreign-born workers in U.S. meatpacking and finds that migrants are more willing to accept riskier jobs at the going wage than U.S.-born workers. Meatpacking moved from cities closer to consumers to rural areas near livestock production in the 1960s and 1970s. Workers at the plant boxed meat for retail sales, thus eliminating many supermarket-based meat processing positions. Wages fell as meatpacking plants no longer had to compete with other urban employers for workers. However, a lack of local workers in rural areas led plants to recruit foreign-born workers.

Martin emphasizes a current major migration policy issue, primarily what is to be done about the 11 million unauthorized foreigners who represent a quarter of the 43 million foreign-born residents in the United States. At least a million of these unauthorized foreigners are employed on U.S. farms, where they make up at least 50% of the workforce employed for wages in agriculture. Crop farms, especially in Western states, have long relied on newcomers without other job options to fill seasonal jobs, and the slowdown in unauthorized Mexico-U.S. migration since the 2008–09 recession has prompted farmers to respond with 4-S strategies: satisfy current workers to retain them longer, stretch current workers with productivity-enhancing aids, substitute machines for workers where possible, and supplement current workers with H-2A guest workers.

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Sustaining a Healthy Farm Labor Force: Issues for Policy Consideration

Cesar L. Escalante and Tianyuan Luo

JEL Classifications: I10, I13, I18

Keywords: Employer-provided health insurance, Farm labor, Out-of-pocket payments, Private clinics, Undocumented farm workers

The success and viability of farm businesses depend to a certain extent on the quality and quantity of the labor force. Promoting a healthy workforce is a priority for U.S. agriculture because hired labor is an essential production input, accounting for the third largest production expense (Kandel, 2008). Recruiting and retaining farm workers, however, has usually presented a difficult challenge for farm businesses given high physical demands, heavy workloads, and relatively lower wages in the agricultural sector (Luo and Escalante, 2017a). These employment challenges are further aggravated by health risks: farm employees work under volatile weather conditions and risk contamination from chemicals in the production and processing environments (Grzywacz, Quandt, and Arcury, 2008).

Maintaining a healthy farm labor force is further complicated by the reality that a majority of workers on U.S. farms are immigrants, some of whom may not even have legal authorization to work or be in the United States (Kandel, 2008; Martin and Jackson-Smith, 2013). Martin (2016), for instance, claims that between 2007 and 2009 only 30% of U.S. crop workers were born in the United States, while the remaining 70% were foreign-born. Within this category, about 55% were unlawfully residing in the United States and did not have legal employment authorization. Notably, jobs in the agricultural sector are 3.5% more likely to be performed by an undocumented worker than by a local, documented worker (Bump, 2015).

Recent stricter implementation of immigrant control policies has resulted in the deportation of some undocumented immigrants (Escalante, Yu, and Li, 2016). At the same time, employment verification systems and monitored hiring procedures have been established and enforced, as have harsher sanctions (involving higher civil fines and criminal penalties) for employers who violate the law (Smith and Sugimori, 2015). However, even with the intensified immigration control enforcement efforts, the share of undocumented workers dropped in only a few industries, such as construction (Passel, 2015).

Given the legal/illegal status profile of the farm sector labor force, understanding the patterns of workers' health care decisions could illuminate critical health care needs for farm workers. Nurturing a productive farm labor force requires immigrant farm workers' health care needs and access to be given attention and consideration to a similar extent afforded farm workers who are U.S. citizens (Mohanty, 2006; Mohanty et al., 2005; Laroche, 2000). What health care decisions do farm workers make? Do these decisions vary by legal status? Having this information can provide accurate and specific suggestions for farm operators in their efforts to maintain acceptable health standards among their workers.

As the country's new leaders contemplate introducing significant changes to the previous administration's health care policies, the social imperative requires policy-makers to optimally allocate medical resources and promote the health welfare of all agricultural workers. To answer these questions, we first compare the health care utilization patterns of green card and undocumented farm workers with those of citizen farm workers who may be less constrained in accessing health services and benefits. The increasing immigrant population in the United States has created strong public sentiment due to the adverse effect on the adequacy and cost of social welfare programs (Borjas 1999). Given the implementation of public health reforms (e.g., the Personal Responsibility and Work

Opportunity Reconciliation Act of 1996) and stringent immigration enforcement (e.g., E-verify mandates), do immigrants enjoy access to health care services and rates comparable to those enjoyed by U.S. citizens? We answer this question by investigating farm workers' choices among health care provider alternatives and the payment methods they use to settle health care bills. Based on legal status and demographic characteristics, farm workers may have diverse preferences for health care providers and methods of payment.

Existing Farm Worker Health Care

The availability of adequate and reliable health insurance coverage enhances a farm worker's access to health care services and provides relief in the settlement of health care bills. In addition to existing public health programs—such as Medicaid, Medicare, and military health care plans—a farm worker's options may also include employer-provided health insurance (EPHI) or directly purchased health insurance (DPHI).

EPHI is a major means of providing employee health insurance coverage in the United States and covers over 54% of the U.S. population (Smith and Medalia, 2014). Among working-age adults (ages 18–64), the overall EPHI coverage rate for U.S. citizens is 67%, compared to 46% among legal permanent residents and 31% among undocumented immigrants (Capps, Rosenblum, and Fix, 2009). Immigrant workers are less likely to be covered by EPHI because 40% of them work in construction or agricultural industries, which generally have lower EPHI coverage rates (Ku and Jewers, 2013). The Affordable Care Act (ACA) passed in 2010 mandated that employers with at least 50 employees must provide health insurance coverage to full-time employees and their dependents. But the ACA excluded companies in the farm and service industries that either hired fewer than 50 employees or depended on seasonal workers. The 2012 annual average number of hired workers per farm business ranged from 18.5 to 85.8 in the sixteen farm labor regions (excluding state-level estimates provided separately for California and Hawaii) defined under the NASS farm labor survey system. Only three regions (Pacific, Lake, and Southern Plain) reported an average of more than 50 workers per firm (USDA-NASS, 2012).

Directly purchased health insurance (DPHI) is a costly but important alternative for individuals in the United States who not eligible for both EPHI and public health insurance programs. According to Smith and Medalia (2014), 11% of the U.S. population choose DPHI and paid the premium out-of-pocket in 2010.

U.S. immigrant health care policies are inextricably linked to the effectiveness of the public health insurance program, which the Trump administration has explicitly targeted for a significant overhaul. A major immigration policy reform in 1996, the PRWORA1996, requires a five-year waiting period for all lawful permanent residents to be eligible for Medicaid and Children's Health Insurance program (CHIP), regardless of financial situation. Undocumented immigrants remain ineligible for all public insurance programs (Ku, 2006). As a result, immigrant workers, especially those who are undocumented, have lower rates of health insurance coverage than citizens (Derose, Escarce, and Lurie, 2007).

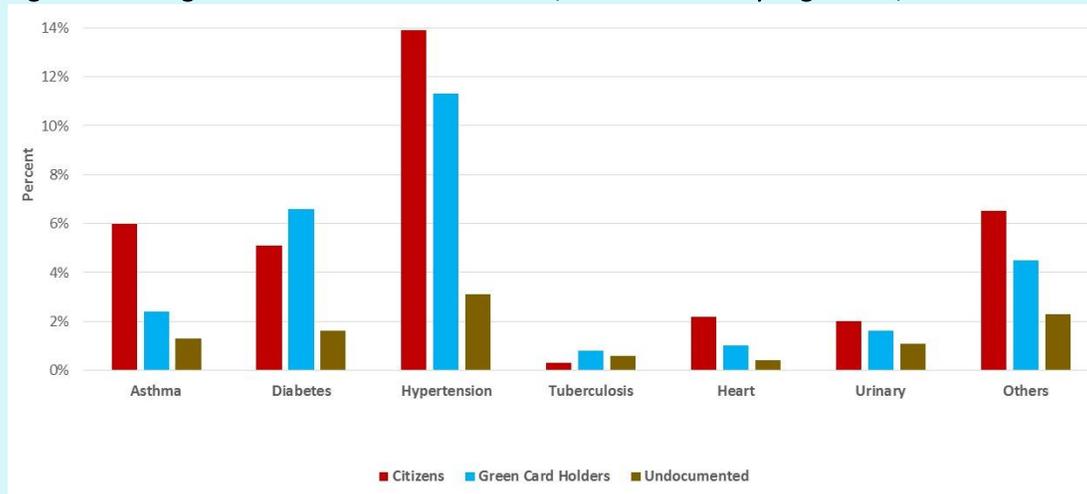
Are Farm Workers Healthy?

The demographic and health-related profiles of about 28,000 farm workers were compiled from National Agricultural Workers Survey (NAWS) annual datasets from 2007 to 2012. Workers fall into three legal status classes: citizens, green card holders, and undocumented workers.

Based on average demographic attributes, undocumented workers are usually younger, with an average age of 30 years, relative to other workers, who are at least 10 years older on average. The age profile of undocumented workers is supported by the supposition that younger people are healthier and thus more likely to migrate to where there is work (McDonald and Kennedy, 2004). This would also explain the small incidence of chronic diseases (e.g., asthma, diabetes, and hypertension) among the younger undocumented cohorts compared to the other groups of workers as compiled from the NAWS (Figure 1). Better health status of undocumented farm workers may result in lower utilization rate of health care services than that of the average U.S. citizen of the same age.

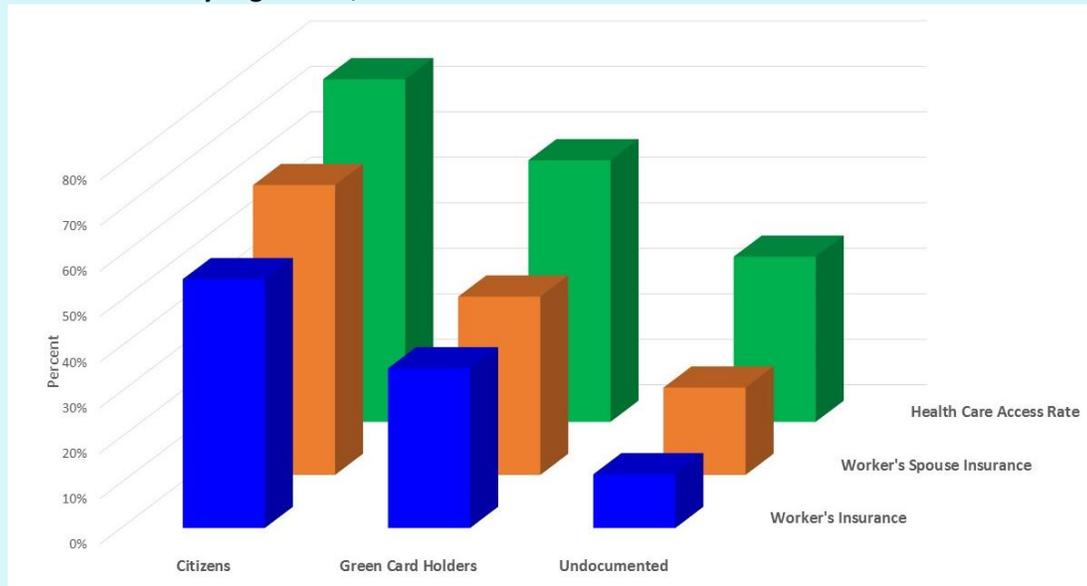
The NAWS dataset also provides information on health insurance coverage for farm workers and their spouses. The indicator of health insurance availability considers a farm worker's acquisition of single or multiple coverage of public (e.g., Medicaid and Medicare) and private (e.g., EPHI and DPHI) health insurance. In the United States, EPHI coverage can also be extended to spouses and children, which creates a reliable health insurance bond between farm workers and their families. Moreover, in regard to public health insurance such as Medicaid, if one person in the household is eligible, there is a higher chance that the spouse may also be able to benefit from a public health insurance plan. Even if only one person is eligible, it would increase the chance that additional coverage would be purchased to cover other family members. The trends in Figure 2 confirm a large discrepancy in health insurance

Figure 1: Average Incidence of Chronic Diseases, Farm Workers by Legal Class, 2007-2012



Source: National Agricultural Workers Survey, 2007-2012

Figure 2: Average Health Insurance Coverage and Frequency of Access to Health Care, Farm Workers by Legal Class, 2007-2012



Source: National Agricultural Workers Survey, 2007-2012

availability among the different legal classes of workers. Citizens usually enjoy more access to health insurance coverage opportunities, while undocumented workers experience more hurdles and constraints in obtaining health insurance, whether these were obtained by the workers themselves or through their spouses.

The health care utilization rate for undocumented workers is significantly lower compared to that of other workers. This is validated by the trends in the workers' rate of access to health care services during the two-year period prior to the start of the 2007 survey. Figure 2 shows that citizens registered the highest frequency rate of health care use (75.3%), while undocumented workers had the lowest frequency rate (36.3%).

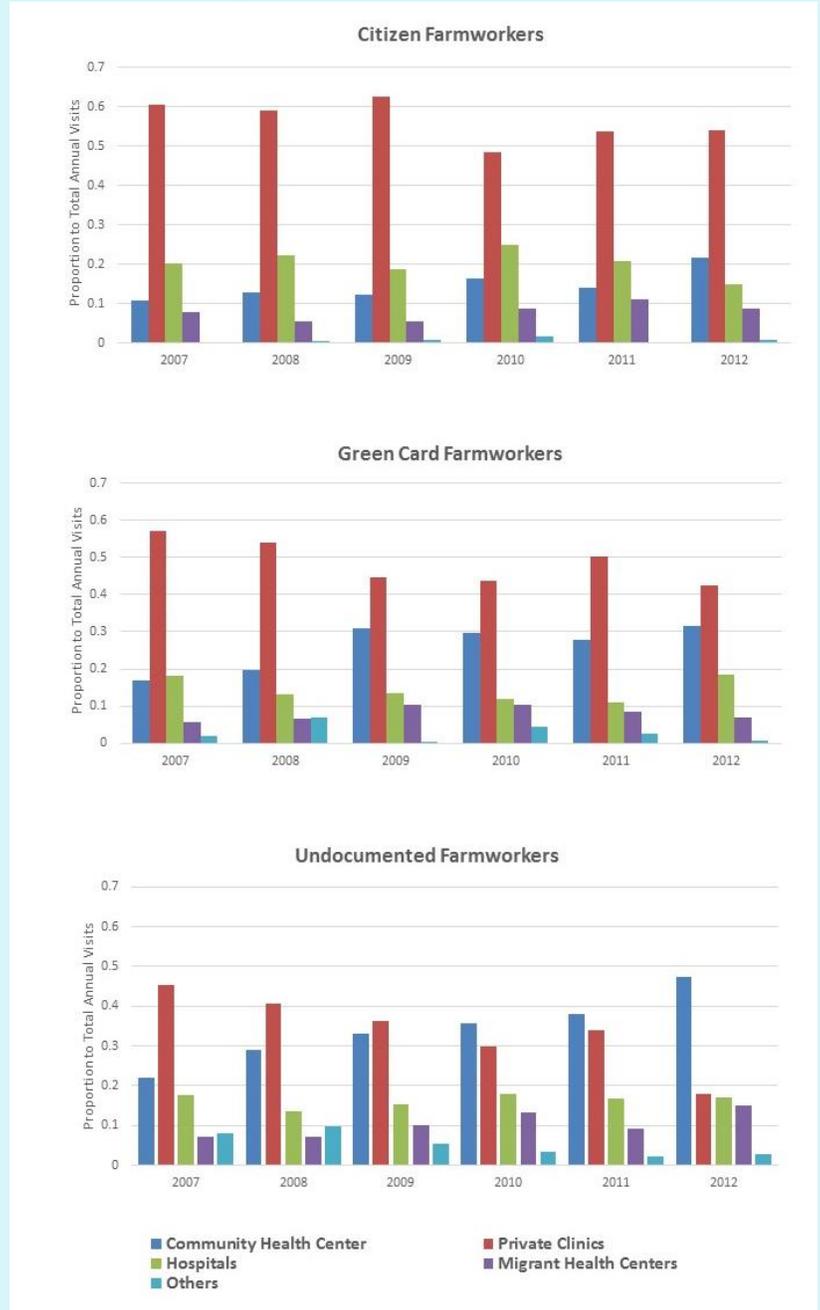
Health Care Provider Selections

If certain farm workers experience more constrained access to health care services than others, which service providers do they rely more on for their urgent health concerns? Figure 3 presents separate plots of the annual health care provider choices among citizen, green card, and undocumented farm workers (calculated as the proportion of visits made to each service provider alternative to total visits) from 2007 to 2012.

Citizen and green card workers had almost identical patterns of health provider selection, notably the consistently higher patronage of private hospitals, during the six-year period. The only deviation in these workers' choices can be observed during the last four years of the time period, when green card holders started increasing their patronage of community health centers. Such modified choices could have been induced by tighter household budgets and income constraints due to the effects of the recession and its aftermath.

With their lower socioeconomic status and constrained mobility, undocumented workers find themselves in a more disadvantageous position in accessing social resources, especially during recessionary periods (Massey, Gross, and Shibuya, 1994). Figure 3 indicates that these workers are initially inclined to use the relatively more

Figure 3: Health Care Provider Choices of Different Legal Classes of U.S. Farm Workers, 2007-2012



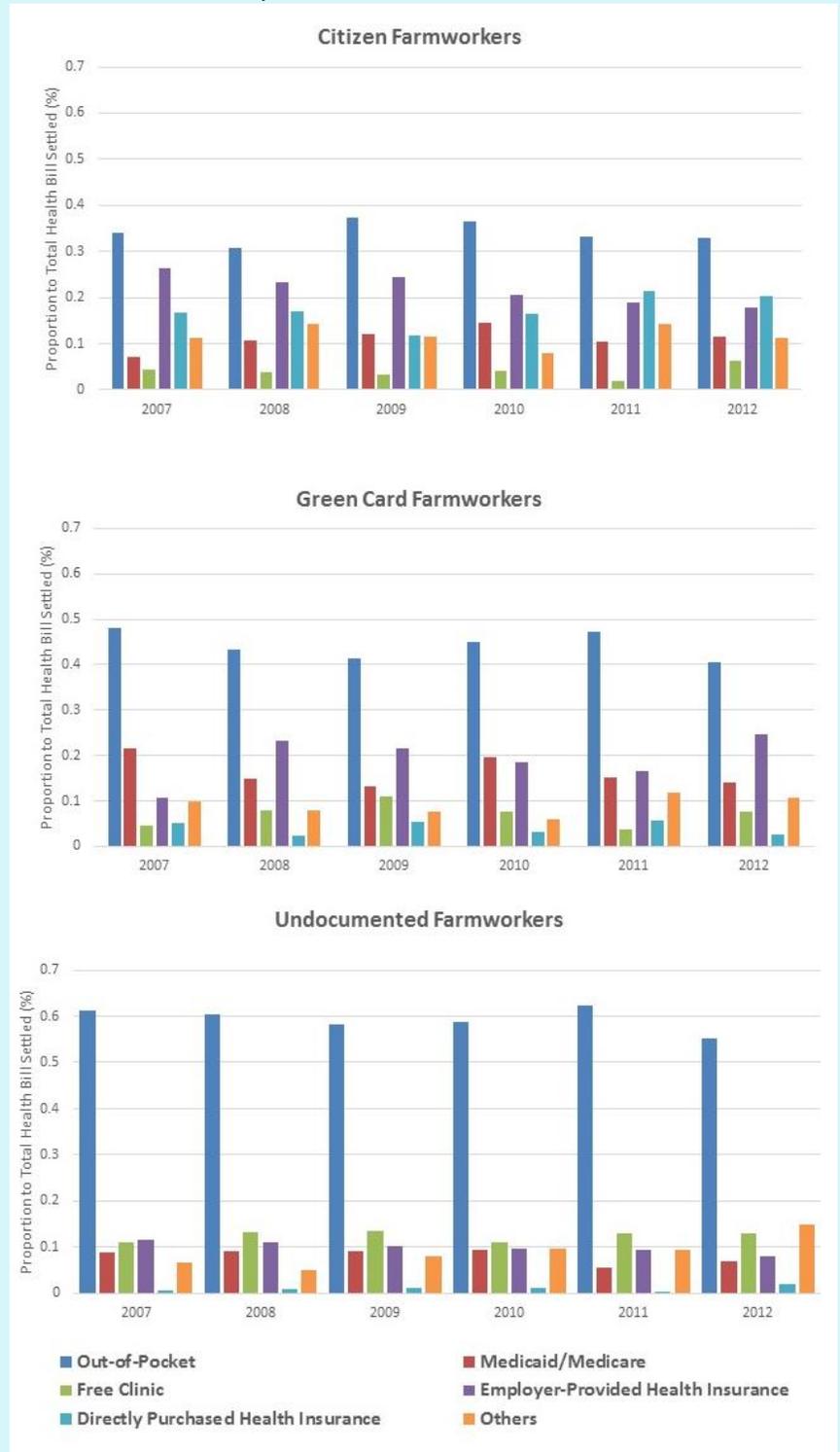
Source: National Agricultural Workers Survey, 2007-2012

costly private clinic services for most health care needs. Interestingly, this choice could have been influenced by their need for less visibility to immigration enforcement authorities, as legal identities are not essential requirements for receiving services at these clinics. During the recession (from 2009 onwards), however, these workers have relied more on community health centers, which were apparently the more affordable option during those times. These workers also used migrant health centers at higher rates than the other two worker groups, but these rates did not exceed their utilization rates for private clinics and community health centers. These trends can be partly attributed either to the inadequacy of extensive or comprehensive medical services at these centers or the need to elude immigration authorities, who may have closely monitored activities because of the possible presence of deportable undocumented persons in such places.

Health Bill Payment Arrangements

Given workers' varied preferences for certain health service providers, their usual payment arrangements for settling their health care services bills can also provide important indications of motivations and choices, thus leading to financial and welfare implications. As can be seen in Figure 4, farm workers in general have a high probability of paying for health care services using their own funds, with undocumented farm workers registering the highest probability at 48%. For those with legal immigration status, this could be caused primarily by lack of health

Figure 4: Health Bill Payment Arrangements of Different Legal Classes of U.S. Farm Workers, 2007-2012



Source: National Agricultural Workers Survey, 2007-2012

insurance. Workplace hazards and risks raise health insurance premiums significantly, such that farm workers could have been discouraged from purchasing any individual health plan (Sundaram-Stukel and Deller, 2009). Only 32.6% of farm workers actually enjoyed EPHI benefits in 2010. This rate is considered low compared to management and professional jobs, where 89.4% of workers are provided health services benefits (U.S. Census Bureau, 2010). Without any health insurance plans, even farm workers with legal immigration status may need to absorb all medical costs themselves.

In Figure 3, EPHI is the second most frequently used payment method by citizens and green card holders in most years, although this option's probability is less than half of that of out-of-pocket payments. Green card holders also use more Medicaid/Medicare assistance than the other two worker groups. Given their lower average reported incomes in the NAWS datasets compared to citizens, they may have resorted to avail themselves of such payment relief services after they have completed the five-year residence requirement for availing of certain public health benefits.

Undocumented workers are least accommodated by EPHI benefits at the discretion of some employers because U.S. labor laws only guarantee these workers basic rights, which exclude such benefits (Contreras, 2015; Bray, 2016). Their conditions are compounded by their illegal immigration status, which inhibits them from accessing any public benefit programs such as Medicare. As a result, undocumented workers are most likely to pay for health care costs out-of-pocket. As Figure 4 indicates, their personal funds account for a much larger proportion of their health bill payments compared to other workers. The average proportion of this payment option for these workers is almost 60%, while citizens and green card holders pay average out-of-pocket rates of only 34% and 44%, respectively.

Implications

The goal of sustaining a healthy farm workforce is an important policy consideration given the sector's dependence on labor inputs. This priority is a challenge that must consider several issues. First, replacing foreign workers could be complicated due to difficulties in sourcing and hiring domestic workers to replace displaced undocumented workers. Citizens and green card holders have usually been unwilling to endure demanding, strenuous farm work in favor of better pay, more employee benefits, and more favorable working conditions in other industries (Wozniacka 2013; Wells 2012). When documented domestic workers are hired, some farmers have had to contend with levels of farm labor productivity that are significantly lower than those achieved by former undocumented workers. In less mechanized operations, large quantities of crops remained un-harvested and resulted in huge crop losses (Preston, 2007; McKissick and Kane, 2011).

Second, employing foreign labor (except those sourced under the H2A guest farm worker visa program) translates to substantial farm cost savings. Wages for documented workers in fruit, nut, and vegetable farms are 18% higher than wages for undocumented workers (Ruark and Moinuddin, 2011).

Third, retaining farm workers is a pressing concern in the farm sector, especially in the more labor-intensive fruit, vegetable, and horticulture industries. In their analysis of farm labor turnover trends by analyzing workers' employment time allocation between farm and non-farm work, Luo and Escalante (2017a) found that citizen and green card farm workers tend to have significantly lower workweek allocations to farm work than undocumented workers. During periods of economic downturn, citizens and green card holders further reduce their workweek allocation to agricultural employment as they explore more financially rewarding job opportunities in the non-agriculture sector. In contrast, undocumented farm workers are usually much less responsive to economic shocks as they tend to stick to their status quo labor allocation pattern (favoring farm employment) during such difficult times.

Finally, even during the Obama administration, legislative policies (such as the PRWORA96) were already being enforced to restrict immigrants' access to public benefits. These policies were intended to quell growing concern that the increasing presence of immigrants in the country could deprive many domestic residents, especially citizens, of necessary health care and public services (Borjas, 1999). Given the Trump administration's stronger

immigration stance, more restrictive policies could further diminish foreign workers' access to welfare resources, including health care services.

Such policies, if indeed implemented, could have serious negative repercussions on the agricultural sector, which relies heavily on immigrant workers, especially for seasonal farm work (Martin and Jackson-Smith, 2013). In addition, the reality is that a disconnect exists between the sector's actual provision of health insurance benefits to its workers and farm workers' more physically demanding, riskier, and more taxing workloads (Grzywacz, Quandt, and Arcury, 2008; Luo and Escalante, 2017b). Even if foreign workers in the farm sector were replaced entirely by domestic workers, the persistent reality is that these replacement workers and their dependents are not adequately covered with insurance through their EPHI benefits and thus would resort to making health care decisions based on their own financial resources. In the absence of more reliable health insurance, health care, and public service programs, the agricultural sector confronts the issue of maintaining a healthy workforce as its deterioration could have a negative impact on labor productivity, the sector's viability, and the nation's domestic food supply.

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Trump, Immigration, and Agriculture

Philip Martin

JEL Classifications: J43

Keywords: farm labor, immigration, mechanization, guest workers

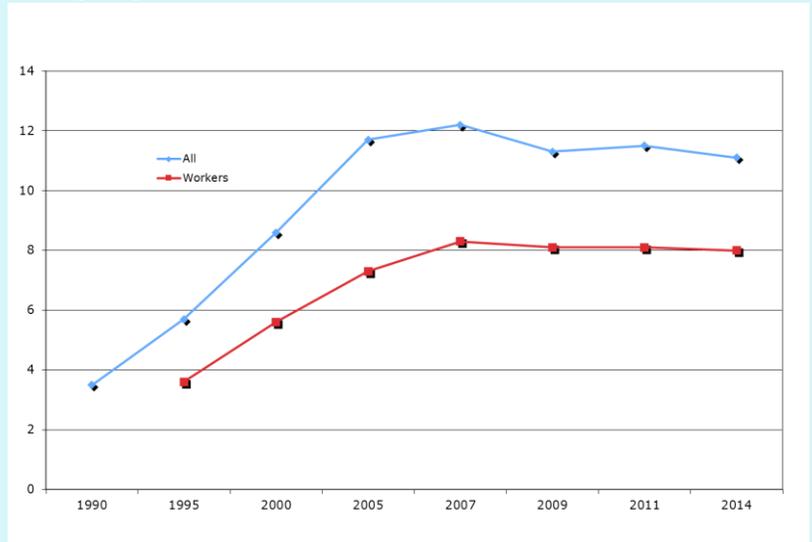
The United States is *the* country of immigrants, with 20% of the world’s international migrants. The 43 million foreign-born U.S. residents in 2014 represent almost one-seventh of the 320 million Americans. In agriculture, 70% of hired workers are immigrants. The United States has a stable and increasingly settled population of 11 million unauthorized foreigners, accounting for perhaps half of the unauthorized foreigners in industrial countries.

The fate of America’s 11 million unauthorized migrants—a quarter of all migrants—has been debated for the past decade. During the 1990s, the number of unauthorized foreigners rose rapidly, as it did again after recovery from the 2000–01 recession. The number peaked at over 12 million in 2007 before declining during and after the 2008–09 recession (Passel and Cohn, 2016a). The Pew Research Center estimates that half of unauthorized adults had been in the United States for at least 14 years by 2014, meaning that they arrived in 2000 or earlier (Passel and Cohn, 2016a).

The presence of so many unauthorized individuals was a theme of the 2016 presidential election debates. Frequent criticism was that these individuals had a harmful effect on U.S. workers, that they do not pay sufficient taxes, and that they are a source of increased crime. An assessment by Blau and Mackie (2016) found that the wage impact of the presence of migrants on the wages of U.S. born workers was small, that their fiscal impact on the federal government is positive, and that unauthorized foreigners are actually *less* likely to commit non-immigration-related crimes than are similarly situated U.S.-born individuals.

Eight million unauthorized foreigners are part of the U.S. labor force, and at least a million are employed primarily in agriculture. It cannot be a surprise, therefore, to learn that the Trump administration’s plans for a wall on the Mexico-U.S. border, increased deportations, and punishment of “sanctuary cities” that refuse to cooperate with the Department of Homeland Security (DHS) will be disruptive to American agriculture. New enforcement measures to slow the entry of unauthorized foreigners and plans to remove those already in the United States would have a profound impact on American agriculture. Relying on national household survey data, Passel and Cohn (2016b) estimated that 17% of those employed in agriculture in 2014 were unauthorized, followed by 13% unauthorized workers in the construction industry and 9% in the hospitality sector. Slightly different estimates are

Figure 1: Unauthorized Foreigners and Workers in the US, 1990–2014 (mils)



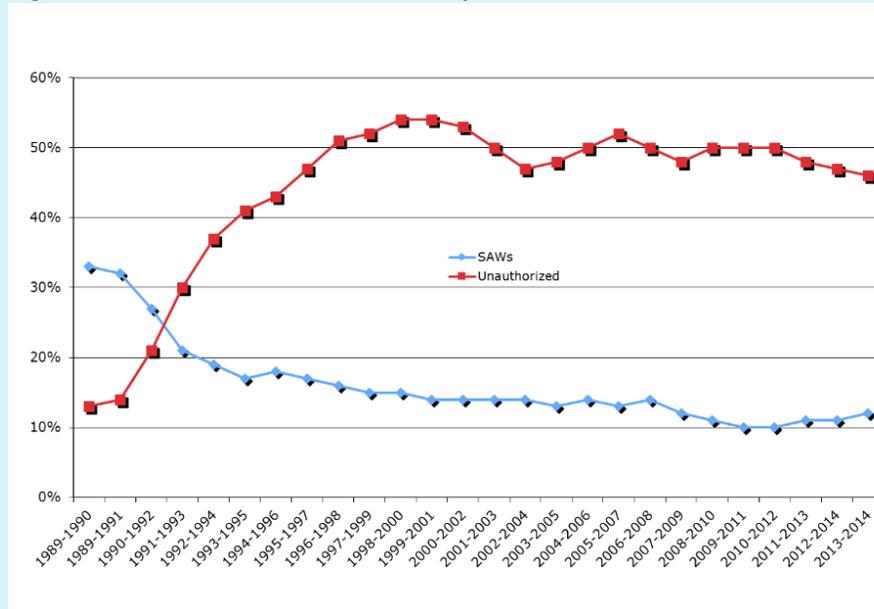
Source: Pew Research Center

found by occupation, with 26% of those with farming occupations were unauthorized, followed by 15% in construction, and 9% each in production and service occupations.

Moving from all agricultural workers to those employed on crop farms, the U.S. Department of Labor *National Agricultural Worker Survey* (NAWS) reports that approximately half of workers on crop farms are unauthorized. This calculation is derived from the NAWS estimate that 70% of the 1.8 million workers employed at some time during a typical year on crop farms were born in Mexico, and that 70% of foreign-born crop workers are unauthorized. There are no statistical data on the characteristics

of the estimated 700,000 workers employed on livestock farms, but they too are believed to be mostly Mexican-born and unauthorized (Rural Migration News, 2010).

Figure 2: SAWs and Unauthorized Crop Worker Shares



Source: National Agriculture Worker Survey

Immigration and the Changing Agricultural Workforce

These snapshots of the current situation do not convey historic adjustments to varying labor situations in American agriculture. The history of American agriculture is also a history of immigrant labor. As early as the 1860s, Chinese laborers were imported to help construct the first transcontinental railroad connecting the growing cities in the east with expanding settlements in the western United States. After the railroad was completed in 1869, many of these workers ended up in California cities. As their numbers increased, anti-Chinese sentiment grew and a federal law restricting their immigration was enacted in 1882. Japanese immigrants, another significant group filling seasonal farm jobs, were excluded in 1908. Labor shortages during the First World War led to the first Bracero Program for Mexican guest workers between 1917 and 1921. Filipinos from what was then an American colony were the most important group of newcomers arriving to do farm work during 1920s.

In the late 1930s, when Dust Bowl refugees from Oklahoma and Arkansas, among other locations, began to dominate the farm workforce on the West Coast, there was a growing sense that the existing farm labor system was “un-American.” John Steinbeck’s *Grapes of Wrath* and Carey McWilliams’ *Factories in the Fields* chronicled the issues. McWilliams argued that agricultural workers—but especially those working on large farms—should have the same labor protections as non-farm factory workers. Farm workers had been excluded from the National Labor Relations Act of 1935 and, despite many union efforts to organize farm workers without NLRA protections, it was only in 1962 that Cesar Chavez and Dolores Huerta founded the National Farm Workers Association, the union that became the United Farm Workers (UFW) and won 40% wage increases in table grape contracts in 1966, largely because Bracero workers were not available (Martin, 2003).

Farm employers—encouraged by divided farm labor reformers and the labor shortages created by World War II—persuaded the U.S. government to maintain the Bracero program. During World War II, fewer than 75,000 Mexican workers entered the United States each year, but by the mid-1950s, this number had increased to 450,000 annually. A 1959 government study (US Department of Labor, 1959) concluded that the availability of braceros

held down farm wages, encouraging Mexican Americans to move to cities where they did not face competition from braceros. The Bracero Program was ended in 1964 as part of a “civil rights for Hispanics” initiative.

Unauthorized Mexico-U.S. migration began to increase in the late 1970s, as farm employers turned to labor contractors who recruited rural Mexicans to replace striking UFW workers. Unauthorized Mexico-U.S. migration rose again with the peso devaluations of the early 1980s. In response, the Immigration Reform and Control Act of 1986 (IRCA) imposed the first federal sanctions on employers who hired unauthorized workers and legalized over 1.1 million unauthorized farm workers. Now legal, these workers were more mobile and spread throughout the United States. Those leaving agriculture were replaced by unauthorized newcomers from Mexico.

Throughout this long, troubled period, whenever agricultural labor became scarce or more expensive, there was a surge of interest in technical change to reduce reliance on hand labor. In the late years of the eighteenth century, approximately 95% of Americans were engaged in agriculture. Technical change has allowed that proportion to drop to less than 2% today. The production of the “big-five crops”—corn, soybeans, wheat, cotton, and rice—has become highly mechanized.

In other sectors, machines now shake almonds and walnuts from trees and sweep them into rows for easy recovery. Dwarf fruit trees allow shorter ladders—or no ladders—for faster picking. Slow-moving conveyor belts travel ahead of workers as they harvest berries, broccoli, and other vegetables, removing the need for humans to carry heavy and often fragile harvested produce. New varieties of tomatoes for canning and processing have been bred to ripen uniformly, and machines can now pick those tomatoes quickly (Martin and Olmstead, 1985).

Fresh Blood in Today’s Farm Workforce: Guest Workers

The NAWS found that the foreign-born share of crop workers was 55% in 1989–90, peaked at 83% in 1999–2000, and has been hovering most recently around 70%. Of that share of foreign-born crop workers, over 70% were Mexican-born men—both legal and unauthorized.

The IRCA allowed unauthorized workers to become probationary immigrants—Special Agricultural Workers (SAWs)—in 1987–88. Many SAW workers left agriculture and were replaced by unauthorized workers (U.S. Commission on Agricultural Workers, 1992). Approximately 10% of legal workers today were legalized under the SAWs program. In contrast, most of the other legal foreign-born workers received immigrant visas via family unification or another route.

The U.S. Commission on Agricultural Workers (1992) reported that before the IRCA (1986), unauthorized workers were concentrated on fruit-growing operations in California and Texas and in farm labor contractor crews that pruned, hoed, and performed other seasonal tasks on Western farms. The distribution of unauthorized workers before IRCA reflected the risk of producer losses if the U.S. Border Patrol removed them during inspections. As a result, there was a higher share of unauthorized workers in winter citrus than in more perishable summer vegetables. This difference can be explained by the fact that oranges can remain on trees for several weeks if necessary until new workers can be recruited, while a sudden loss of workers may result in a total loss of vegetable crops.

The practical effect of the IRCA was to divert immigration enforcement agents away from chasing people in fields and into checking paperwork completed by employers and newly hired workers. This switch reduced growers’ risk of suddenly losing unauthorized workers and encouraged them to hire Mexican-born workers as long as the paperwork had been properly completed.

According to NAWS, the share of unauthorized workers has been about 50% in all commodities and areas since around 2000. While there are no reliable data, dairy farmers report that approximately half of their workers are immigrants, and that many are unauthorized (Rural Migration News, 2010). On the other hand, farmers in some commodities and areas supplement their workforces through the *legal* H-2A guest worker program originally created in 1952 to bring in workers for the sugar cane and apple industries. The U.S. Department of Labor certified 165,000 farm jobs to be filled by H-2A workers in FY16, but some workers fill two or more jobs. The H-2A program

is expanding, doubling over the past decade. Florida and North Carolina lead H-2A use among the states, accounting for a quarter of all jobs certified. The states of Washington (apples) and California (vegetables) have the fastest growth in certifications, with the number of H-2A jobs doubling over the past five years.

It now seems that the period between 1980 and 2010 was one of abundance in Mexican farm labor, and that era is now largely over. Rising labor costs are likely to prompt a new wave of labor-saving mechanization. A variety of machines are being developed to harvest a number of crops, but their adoption and dispersion is always a function of relative cost scenarios. With labor costs continuing to rise, including recent California legislation raising the minimum wage from \$10 an hour in 2016 to \$15 by 2022, the trend toward labor-displacing technical change will continue.

Two scenarios are possible. First, the number of H-2A guest workers could continue to increase, returning some of US agriculture to labor conditions of the Bracero era, when foreign guest workers lived on the farms where they worked and dominated workforces in particular crops. Second, rising labor costs could prompt labor-saving mechanization and more imports, with the mix between mechanized production at home and imports from lower-wage countries determined by the speed with which management and technical changes proceed versus trade policies and more efficient production of fruits and vegetables for the US abroad. The exact mix of guest workers, mechanization, and imports thus depends on US migration and trade policies as well as technology improvements and production abroad.

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Anti-Immigration Reform and Reductions in Welfare: Evidence from the Meatpacking Industry

Thomas P. Krumel, Jr.

JEL Classifications: J15, J31, J61

Keywords: compensating wage differentials, immigration reform, labor insourcing, Meatpacking industry

How Can Immigration Reform be Welfare Reducing?

Immigration policy was at the forefront of the 2016 U.S. presidential election. There were rallying cries to “build that wall,” calls for a deportation force to remove all illegal immigrants currently residing within U.S. borders, and discussions of various other immigration reforms. One of the major assumptions underlying these discussions was that many blue-collar workers have been left behind, and immigrants are commonly believed to be the ones who have taken their jobs. This article tackles the validity of this assumption by examining the issue through a previously unexplored economic lens.

To accomplish this end, this article examines the meatpacking industry to argue that immigration reform, if sweeping and poorly planned, might be welfare decreasing for the economy as a whole. The meatpacking industry is the subject of this paper due to the considerable attention it has received in the literature over the last two decades for its changing industry structure and growing reliance on immigrant labor. This paper finds suggestive evidence that low-skilled immigrants have different compensating wage differentials compared to native workers. Over the same period, there has been a corresponding decrease in the retail price of meat and an increase in per capita meat consumption in the United States. Since consumers are spending a smaller percentage of their budget on meat and consuming more of it, it can be argued that the individual U.S. consumer has seen an increase in overall welfare because the meatpacking industry insourced immigrant labor. This conclusion is consistent with previous research on the meatpacking industry, which argued that technological advances—which are associated with cost savings—could lead to improved consumer welfare. This paper contributes to the broader policy discussion by cautioning policymakers against making rash decisions on immigration reform, as the impact could decrease overall economic welfare.

Are Immigrants and Native Workers Complements or Substitutes?

The assumption that immigrants take jobs away from native workers presupposes that native workers and immigrants compete in the same labor market. If native and immigrant labor are substitutes, or they would accept the same kind of work, then both types of labor should have similar compensating wage differentials. The standard textbook theoretical discussion on compensating wage differentials implies that firms must compensate workers with more dangerous jobs with higher salaries. Given two jobs with identical pay, the employee will be more likely to accept the job with safer working conditions, assuming that the worker is aware of the job characteristics and has a range of jobs to choose from (Ehrenberg & Smith, 2016). The equilibrium outcome of this model leads to a world in which the workers with the highest tolerance for hardship will take the most difficult jobs and will be compensated with higher wages for their efforts (Cahuc et al., 2014). If workers have the same compensating wage differentials, this will lead to the optimal outcome described above.

However, Orrenius and Zavodny (2009) found that immigrants tend to work in riskier occupations on average. The authors were concerned that the government might need to intervene if immigrants accept riskier work as a result of a lack of information. They suggested that future research should examine whether immigrants do in fact, earn the same compensating differential as native workers. If immigrant labor accepts riskier work than natives on average, then maybe the two should be viewed as complements rather than substitutes, which would undermine the “they took our jobs” narrative.

I am not the first researcher to make this suggestion; previous research indicates that undocumented immigrant labor is a complement, not a substitute, to native labor (Bean, Lowell, & Taylor, 1988; Orrenius & Zavodny, 2009; Enchautegui, 2015). To help justify this conclusion and as a first attempt to address the question with which Orrenius and Zavodny (2009) concluded their article, I show suggestive evidence that immigrants have different compensating wage differentials from natives in the meatpacking industry

Reliance on Hispanic Immigrant Labor

Kandel and Parrado (2005) identified four major changes that occurred in the meatpacking industry over the last few decades and led to a labor force largely different from that previous to the 1970s. These four changes were adjustments in the organization of production, increased industrial concentration, geographic relocation, and alterations to working conditions.

Adjustments in the organization of production were a result of changing patterns of food consumption among Americans, whose consumption of poultry and value-added meat products increased and consumption of beef decreased. At the same time, the industry became less concentrated, with large firms taking over market share and forcing firms that previously had labor unions to de-unionize to remain competitive. At a time when the term “outsourcing” was coined, the meatpacking industry moved production closer to its inputs to save on transportation costs, which makes sense given the perishable nature of the main input. The final change was a technological improvement that resulted in the de-skilling of the industry away from semi-skilled butchering, coupled with the de-unionization of plants. Previously, meatpacking had been an avenue for relatively high pay despite minimal education; however, this change in the industry shifted meatpacking from a quasi-trade to a low-skill, repetitive-motion, assembly-line form of production. Firms lost the ability to cost-effectively outsource their product, working conditions deteriorated, and firms became newly reliant on labor-intensive, lower-skilled work. This industry restructuring led the meatpacking industry to rely heavily on insourced labor, mainly Hispanic immigrants.

A bevy of demographic literature has examined new settlement patterns among Hispanic immigrants in rural America and postulated on the reasons for these new settlement patterns. The first national survey to examine these new settlement patterns was Kandel and Cromartie (2004), who found that almost all non-metro counties saw Hispanic population growth, but “high-growth Hispanic” counties accounted for a very large percentage of the Hispanic population growth in rural counties. They stated, “Hispanic population growth throughout the non-metro United States – especially the South and Midwest – reflects the growing presence in industries that require low-skilled workers. These include meat processing...” (p. 4). Using Worthington, Minnesota, as an example, Lichter, Parisi, and Taquino (2016) discussed how the town’s Hispanic population increased from 392 in 1990 to 4,521 in 2010, connecting this growth to the presence of a large meatpacking plant. The emerging pattern indicates that as meatpacking plants located closer to the inputs they brought with them a new immigrant labor force that previously had not resided in these rural communities because the original workforce was either too small or unwilling to accept these positions.

This branch of the literature finds that the main reason for these new settlement patterns goes back to the restructuring of the industry. Stull, Broadway, and Griffith (1995) devote multiple chapters to describing the emergence of a usually informal process by which firms have insourced their labor as a result of restructuring. They begin their discussion by describing the alterations to the relationship between capital and labor based on technological advances that have led plants to relocate to new geographic locations, despite the lack of labor to support large meatpacking plants. These technological advances have also caused worsened working conditions and higher injury rates among employees. To operate the plants, the meatpacking industry expanded the

workforce in the community, first by bringing in unemployed workers from other states and then, eventually, immigrants from outside the country. (It is important for this analysis to emphasize the fact that the meatpacking industry first recruited from within the United States. The argument for immigrants taking American jobs rests on the idea that the individuals who previously held semi-skilled meatpacking positions would be getting their jobs back. History shows that even if immigrant labor were not available, these relatively high-paying jobs are not returning.) First, utilizing the immigration reforms of 1986 and 1990, labor intermediaries and subcontractors were originally used to insource immigrant labor. Ethnic enclaves emerged in these communities to fill the needs of the immigrant workforce, and these enclaves have become vital tools to help plants recruit new employees to the area.

Much of the economic research on the meatpacking industry, like the demography research discussed above, has focused on community impacts. The key findings of interest from this body of research are a decrease in average community wage, an increase in the Hispanic population in the community, and an increase in the foreign-born population in the community (Artz, Orazem, & Otto, 2007; Artz, Jackson, & Orazem 2010; Artz, 2012). These findings suggest that the meatpacking industry employs a disproportionate number of Hispanic immigrants who are make lower wages than those who previously resided in these communities. These findings are further supported by a 2004 study by the Pew Hispanic Center that listed meatpacking as the industry with the thirteenth-highest concentration of foreign-born Hispanics (Kochhar, 2005). Another Pew Hispanic Center study, which came out the following year, estimated that 20–25% of all workers employed in the meatpacking industry were illegal immigrants (Passel, 2006).

Additionally, rural-to-urban migration is occurring in communities with high concentrations of meatpacking employment, which suggestions that natives are unwilling to remain in these communities, and thus, they are also unwilling to accept these jobs (Krumel, 2017). The research in demography and in economics agree that changes in the structure of the meatpacking industry have led to lower wages and a higher concentration of Hispanic immigrant labor.

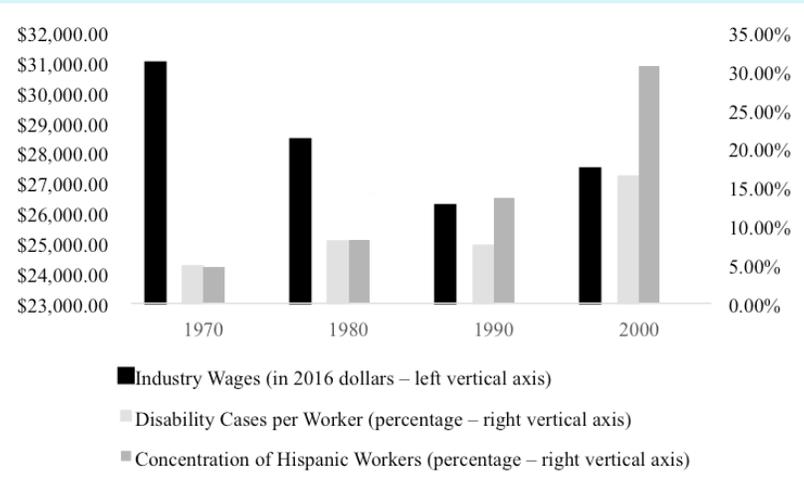
Evidence for Distinct Compensating Wage Differentials

It makes sense to examine the data on industry wages and injury rates over time and compare them to the change in the concentration of Hispanic workers employed in the industry. Figure 1 shows the historical relationship between these variables using Integrated Public Use Micro Data Series (IPUMS)-USA data.

It is important to note that “Industry Wages” corresponds with the left vertical axis and “Disability Cases per Worker” and “Concentration of Hispanic Workers” correspond to the right vertical axis. Figure 1 makes it apparent that between 1970 and 2000, industry wages decreased and the percentage of disability cases per worker and concentration of Hispanic workers in the industry increased. (The table does not

include data for 2010 because no measures for disability cases are available for that year; however, wages continued to decrease and the concentration of Hispanic workers continued to increase.) The average wage earned in the industry declined by 11% from 1970 to 2000. During this same period, disability cases per worker increased by nearly 400%; the meatpacking industry has earned its classification as the most dangerous factory job in America (Orrenius & Zavodny, 2009). These data points describe the story of de-unionization that occurred in

Figure 1: Meat Products Wages, Disability Cases, and Hispanic Concentration



Source: Integrated Public Use Micro Data Series (IPUMS)-USA.

the late 1970s and early 1980s. Because the meatpacking industry was largely able to eliminate the unions, wages decreased and working conditions deteriorated. If we are to take the complementary view of low-skilled immigrant labor discussed above (rather than assuming the two types of labor are substitutes), we can better understand the 550% increase in the concentration of Hispanic workers in the meatpacking industry from 1970 to 2000. The substantial uptick from 1990 to 2000 (and not previously) could be tied to the immigration reform acts enacted in 1986 and 1990.

Beyond the impact of de-unionization, the data also suggest that low-skilled Hispanic workers have a different compensating wage differential than low-skilled native workers. Low-skilled Hispanic workers appear willing to tolerate the lower wage and higher injury rate in the meat products industry more than low-skilled native workers are. This inference can be made because of the additional costs associated with having an immigrant workforce, namely recruiting labor from abroad and the inconvenience of having a workforce comprised of employees who speak English as a second language. If firms were able to employ native workers to avoid these additional costs, they would. Even though wage earnings in the meatpacking industry are above the current minimum wage and higher than many rural alternatives, they are not high enough to induce native workers to endure the difficult working conditions. Reasons for this apparent difference in the compensating wage differentials are that immigrants might not perceive these jobs as riskier, might have less information about the risks of these jobs, or might have few alternatives (Orrenius & Zavodny, 2009).

Are Firms Passing Along Cost Savings to Consumers?

The implications of an industry reducing wages and lower working conditions are not necessarily negative as far as overall economic welfare is concerned. If the immigrant workers who take these jobs do so because these jobs represent an improvement on their alternatives at home, it can be argued, that they are in a better position. Commodity prices may also be reduced for consumers as a result of the cost savings that the firms have made by restructuring the industry. Azzam and Schroeter (1997) concluded that the meatpacking industry was becoming more concentrated as a result of technological improvements and that this concentration would potentially reduce the retail price that consumers paid for meat, improving their overall welfare. Table 1 presents historical price patterns for beef, chicken, and pork on meat price spreads as well the amount of each type of meat consumed per capita during this period.

Table 1: Historical Retail Prices and Consumption Patterns for Beef, Chicken, and Pork

Year	Beef Prices	Pounds Consumed per Capita	Chicken Prices	Pounds Consumed per Capita	Pork Prices	Pounds Consumed per Capita	Total Meat Consumed per Capita	Total Price Paid
1970	\$6.14	84.6	N/A	40.3	\$5.07	55.8	N/A	N/A
1980	\$6.76	76.6	\$2.74	47.9	\$4.20	57.3	181.8	\$889.72
1990	\$5.08	67.7	\$2.59	66.2	\$3.82	49.7	183.6	\$705.23
2000	\$4.14	67.8	\$2.17	78.2	\$3.45	51.2	197.2	\$627.03

Source: Economic Research Service and the National Chicken Council, 2016.

From 1970 to 2000, the price of beef fell by 33% and the price of pork fell 32%. From 1980 to 2000, the price of chicken fell by 21% (all retail prices have been converted to 2016 dollars). From 1980 to 2000, per capita meat consumption increased by 8% and there was a corresponding 30% decrease in total per capita spending on meat. Americans eat more meat and spend less of their income on it, providing suggestive evidence for the conclusion drawn by Azzam and Schroeter (1997) that technological improvements in the meatpacking industry have increased welfare for the average American. While the explanation for the decrease in the prices that consumers have paid for meat over time can not be described solely as a result of firms cutting costs by insourcing immigrant labor, the two trends appear to be related. On average, labor costs account for one-half of all operating costs in the meatpacking industry (Carnes, 1984). If the meatpacking industry were suddenly unable to insource low-wage labor from abroad, their costs would increase. To maintain similar profit levels, firms would pass some, if not all, of the additional cost to the consumer, which would result in higher retail prices for meat. Firms might also be unable to fill all vacancies if native workers were unwilling to accept positions with the firm, even with increased wages

and improved working conditions. If this scenario were to play out, consumers of meat would suffer a reduction in welfare and the economy would be worse off, not better.

A Word of Caution on Immigration Reform

Consistent with Stull, Broadway, and Griffith (1995), the overall conclusion of this paper is that the meatpacking industry has become more dangerous since 1980, when the industry de-unionized. This is largely attributable to worsened working conditions, which many researchers have mentioned and are directly related to the new type of workers employed in the industry. At the same time, workers in the industry have received lower compensation. Since these two facts contradict the predictions of the simple theoretical model of compensating wage differentials, there must be more to the story, assuming that other industries have not become more dangerous during the same period and that the range of job options has not decreased.

Increasing the labor pool by insourcing labor from abroad appears to be a driving reason for this violation in the compensating wage differentials for the meatpacking industry, as the percentage of Hispanic workers has increased from 4.83% in 1970 to 30.63% in 2000. It makes intuitive sense that an individual with fewer employment options would be more likely to accept a position with lower pay and worse working conditions. For the immigrants employed in this industry, both pay and working conditions might be an improvement on their options at home. If this is not the case and the issue is that immigrants accept jobs with worse working conditions because of lack of information, then I agree with Orrenius and Zavodny (2009) that government intervention might be necessary; however, this conclusion is outside the scope of analysis for this paper. Firms will maximize profits by insourcing labor only when the costs of recruiting immigrant labor and the costs of having a bilingual workforce are less than the cost savings of cutting industry salaries and worsening working conditions. Evidence of ethnic peer networks forming in these communities—as well as the industry electing to utilize labor-intensive, repetitive and low-skilled techniques in the production process—suggests recruiting and employing a bilingual workforce are not overly costly to the industry. A major beneficiary of this change in the labor structure as a result of technological advances in the meatpacking industry is the American consumer. The average American spends less money on meat and consumes more of it, thus increasing welfare in the economy.

This paper fits into the broader narrative of the discussion that immigrants are taking jobs away from native workers. While this paper examined a single industry that relies heavily on immigrant labor, the same analysis of other occupations with higher concentration of foreign-born Hispanic workers (Kochhar, 2005) might paint a similar picture. These are employment opportunities that native workers are largely unwilling to accept because the compensation is too low and the working conditions too difficult (a view expressed by Enchautegui, 2015). Immigrants who work in these sectors are not to blame for reduced employment opportunities for native-born workers. This sentiment, specifically about the meatpacking industry, was mentioned in Kandel and Parrado (2005): “This has reduced the attractiveness of these jobs for native workers and created demand for labor that often cannot be met in rural areas, given prevailing wages” (p. 452). If one were to alter the labor force that these industries have come to rely upon, the result would most certainly be an increase in commodity prices, which could result in an overall decrease in economic welfare. Because altering current immigration policy could be welfare reducing for American consumers, the new administration should think carefully about making adjustments.

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