

Agricultural Employment Patterns of Immigrant Workers in the United States

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Abstract

Despite of the important role international migration fills in the United States' labor-intensive agricultural sector, few studies have addressed the individual characteristics and circumstances surrounding entry and exit by farm laborers. With increasing public attention on international migrant labor, policymakers have a need to understand the labor market patterns of these workers if they are to formulate appropriate immigration reforms, including temporary worker programs geared towards agriculture. In this analysis, we model the likelihood of entering agricultural employment by migrants to the United States. Using data from the Mexican Migration Project we find that migrants with higher levels of education and a greater command of English are less likely to work as agricultural laborers. Those that do enter agricultural occupation stay in the United States for shorter periods of time per trip than those who enter non-agricultural occupation. In future analysis we will attempt to model the demand for agricultural farm work as a determinant of the decision by migrants to enter the U.S. market for hired farm labor.

Introduction

With the consideration of possible changes to U.S. immigration laws regarding unauthorized foreign-born workers in the United States, greater attention is being paid to U.S. agriculture's reliance on foreign-born workers, many of whom lack legal authorization to work in the United States. A long-standing policy debate has pitted agricultural growers who voice concerns about labor shortages against farm-labor advocates, anti-immigrant organizations, and others who dismiss those claims as pretexts for preventing wage hikes. Yet little is known about the employment trajectories of foreign-born farmworkers in the United States: which migrants engage in farm labor, how long do they stay, which migrants return to their country of origin, which migrants enter other, non-agricultural sectors of the U.S. economy, and what economic sectors do these enter.

An extensive literature has documented the economic and health conditions of hired farm workers, but few studies have quantitatively analyzed their employment trends. This empirical gap results from insufficient longitudinal data to trace immigrant workers as they progress through specific occupations and economic sectors, especially for difficult-to-survey U.S. agricultural workers, many of whom lack legal work authorization and a stable place of residence. Without such longitudinal analyses, understanding the patterns of hired agricultural workers remains based entirely on cross-sectional analyses that fail to account for the significant degree of labor mobility of unskilled migrants who confront the U.S. labor market, often as first time illegal migrants. Our analysis fills this conceptual and empirical gap. We employ individual, household, and community level data from the Mexican Migration Project (MMP) to profile, analyze, and compare flows of Mexican migrants into U.S. agriculture.

The Context of Farm Labor

Since the passage of the Immigration Control and Reform Act (IRCA) in 1986, policy makers, particularly from agriculturally intensive States, have taken a keen interest in one subset of the foreign-born labor force who have received disproportionate attention in the nation's attempts to grapple with its current dysfunctional immigration policy, namely hired farmworkers. The unauthorized population continued to grow after IRCA's implementation, and many observers have concluded that IRCA failed its stated objective to reduce unauthorized entry into the United States (Martin 2003 p54, Kandel 2008 p59, Martin 1994, Taylor et al. 1993). The substantial proportion of unauthorized workers in U.S. agriculture has prompted proposals for new legislation that would ensure growers with a sufficient supply of farm labor and address the thorny issue of unauthorized legal status. The most prominent of these proposals is AgJobs (Agricultural Job Opportunities, Benefits and Security Act). Representing a compromise between growers, farm labor advocates, and Federal legislators, AgJobs would provide farmworkers with temporary legal residency and the possibility of obtaining permanent legal residency in the United States. AgJobs been proposed repeatedly in the same form since 2003 and remains a critical element of comprehensive immigration reform.

Part of the reason for this policy interest has been the growing awareness among policy makers and agricultural producers of enhanced immigration law enforcement. This has taken a number of visible forms, including increased border enforcement at key crossing points along the Mexico-U.S. border, employer raids by law enforcement personnel at agricultural and food processing facilities, and more effective verification of the legal status of employees at the workplace. It is not clear that these efforts have actually reduced the size of the unauthorized

population, but they have increased the cost of entering the United States and thereby reduced the flows of unauthorized workers entering and leaving the United States (Massey et al. 1993, Durand and Massey 2004, Passel and Cohn 2009).

Yet in addition to a reduced overall flow of unauthorized immigration in recent years, we note a substantial decline in the proportion of migrants, regardless of legal status, who undertake agricultural work upon first entering the United States. Figure 1 presents an analysis of MMP data (fuller description to follow) of employed first-time migrants who entered the United States between 1960 and 2009.

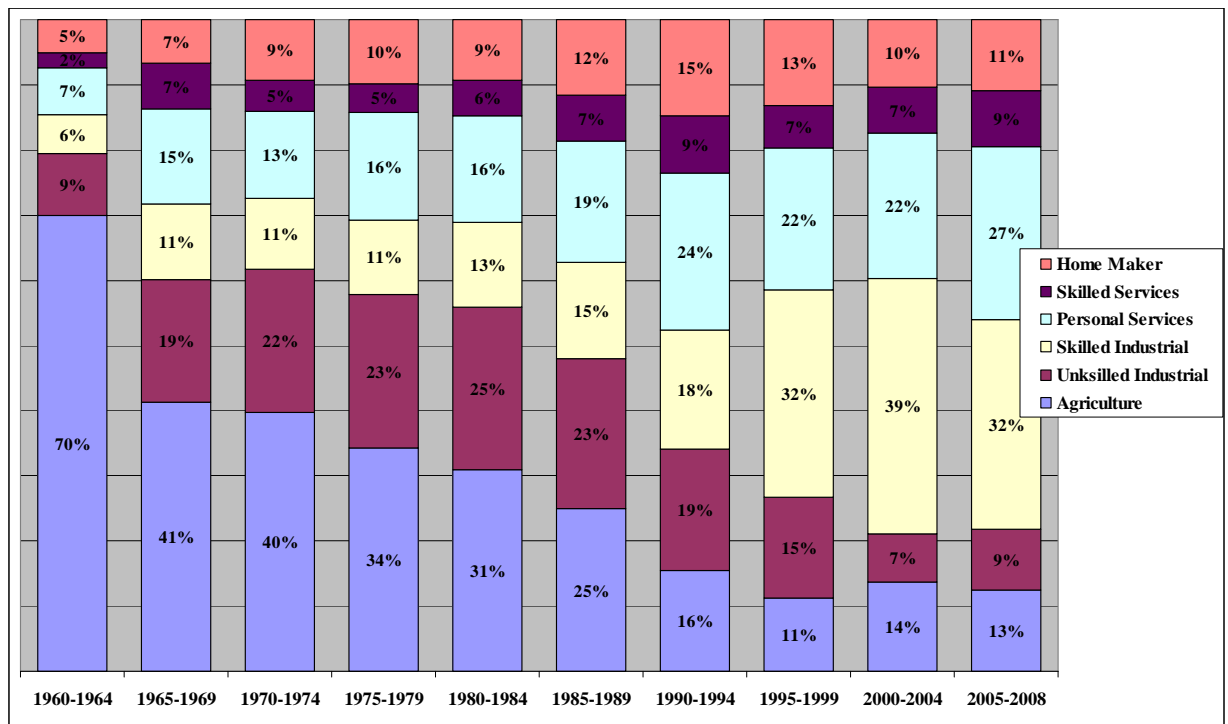


Figure 1: Employment sectors of first time Mexican migrants to the United States, 1960-2008, Source: Mexican Migration Project, PERS file, 15,700 observations

For figure 1, we categorize the U.S. occupations of Mexican migrants into six groups: home maker, skilled services, personal services, skilled industrial, unskilled industrial, and agriculture.

During the last half of the twentieth century, the percentage of migrants working in agriculture on their first trip to the United States declined substantially, from about 70 percent during the early 1960s to about 15 percent since the early 1990s. Today, more Mexican migrants work in skilled industrial or personal service occupations than in agriculture.

The recent tightening of the U.S. market for hired farm labor remains the subject of debate among labor economists. Many agricultural employers contend that they frequently lack the number of workers needed for their operations, creating large losses from product not harvested (Feinstein 2009). In addition, some growers claim that finding replacement workers is a far more complicated process than simply raising wages—a process involves the recruitment of suitable workers and job searches by prospective employees, many of whom reside far away from the employer. Farm labor advocates take an opposing view, arguing that incidents of labor shortages are exaggerated and that increased wages and better working conditions would encourage potential workers to enter the hired farm labor market (Barkley 1990).

The theory of labor market dualism supports the conclusion that migrant laborers are heavily relied upon by U.S. agricultural employers to fulfill the low-wage job market. A study by Hudson in 2007 shows that migrant status is a more powerful factor of selection for these positions than gender or race. Previous literature has documented that migrants tend to experience upward wage and occupational mobility upon entering the U.S. job market (Powers et al. 1998), although tempered somewhat by their place of origin and destination (Bohon 2006). Studies have demonstrated that there are large incentives for migrants to exit jobs in production agriculture once they are given access to better-paying jobs in other economic sectors, and more prominently so for migrants who have been granted legalization status (Akresh 2006, Kandel

2008, Taylor 1992, Cobb-Clark et al. 2000, Martin, 2003). Finally, whereas women have evidenced higher labor participation rates than in years past, their occupational mobility has tended to be limited to a smaller set of occupations and determined more by social and economic conditions of a job than accumulated human capital (Cobb-Clark et al. 2000).

The net result of these trends is that the U.S. market for hired farm labor is changing far more rapidly than the ability of immigration policy and hired farm labor legislation to deal with it. Furthermore, the importance of agricultural employment extends beyond the farm sector, because relatively limited employment barriers make such work a frequent entry point for Mexican migrants, who make up the largest flow of immigrants, to enter the broader U.S. labor market. Public policy makers in addition to private agricultural growers, therefore, have a clear interest in understanding what prompts migrant workers to enter agricultural employment and what keeps them from leaving for employment in other sectors.

Conceptualizing Agricultural Employment

We characterize the decision to migrate to the United States and enter agricultural employment by the individual's expected returns from migration. This decision involves many individual and collective factors that are difficult to observe and measure. For example, the expected costs to the individual include: 1) the direct expenses of migration, either authorized or not, and the expected costs associated with the uncertainty of being denied entry and other hazards of migration, 2) the benefits forgone of remaining in Mexico due to the decision to migrate, as well as 3) the foregone benefits of working outside of agriculture once in the United States. We exclude from the analysis all respondents who never migrated or held a job in the

United States and focus primarily on those respondents who have U.S. migration experience but have returned to Mexico. The resulting sample encompasses a total of 7,236 migrants. In addition, the sample includes an additional 972 respondents from the various communities of origin who were interviewed in the United States.

In order to provide a framework to model the complex decision process of the migrant, migration and the decision to enter an agricultural occupation can be understood as three independent decision stages (fig. 2). In stage 1, a potential migrant decides to enter the United States or remain in Mexico. Note that there may be factors that influence the decision of migrants to enter the United States which are also correlated with the decision to enter agricultural occupation, such as some pre-arranged guest worker programs.

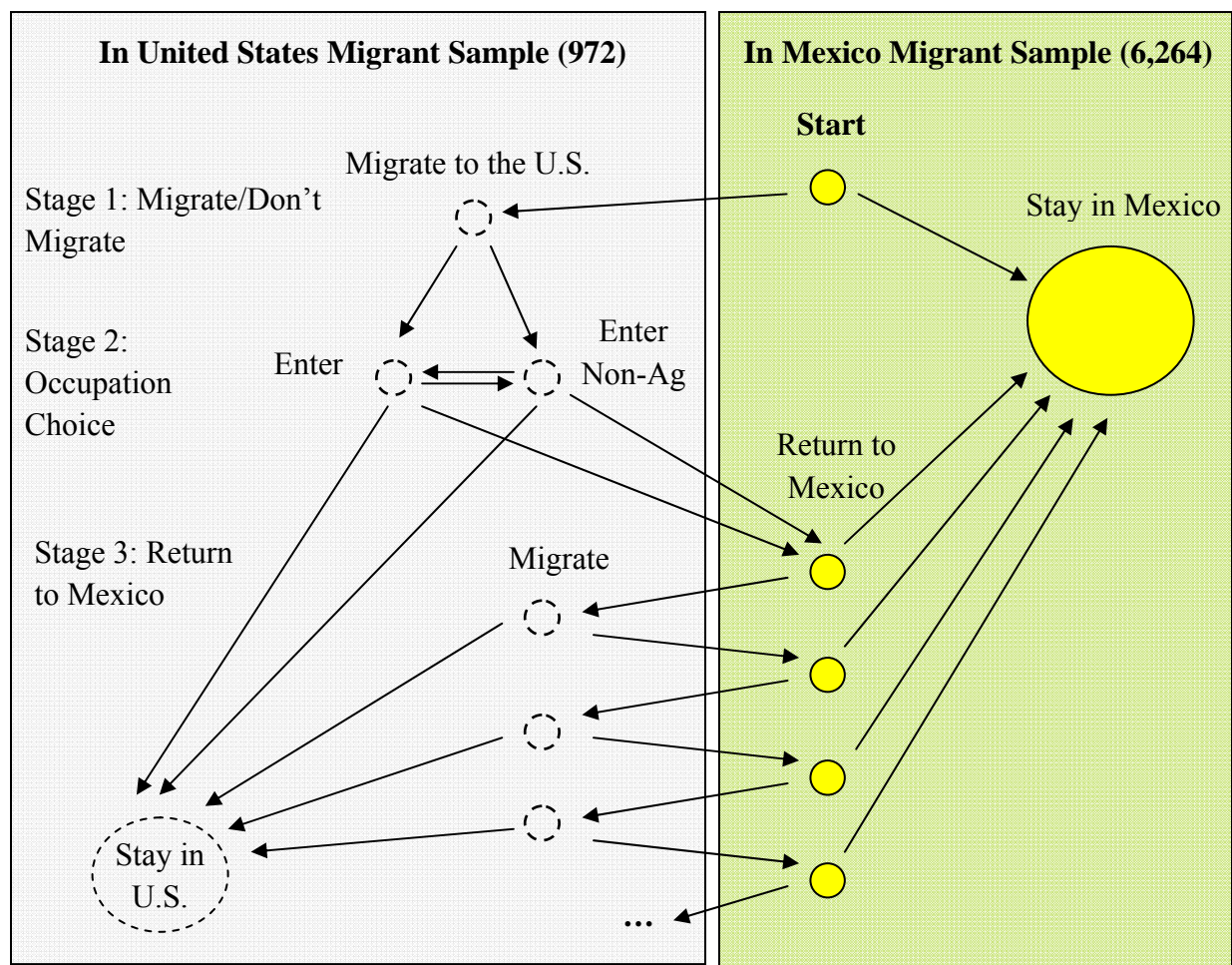


Fig. 2. In order to be considered in our primary data source, the Mexico data set, a migrant must successfully complete all three stages of the migration experience and be in Mexico at the time of the survey. Mexicans who stay permanently in the U.S. or do not return to Mexico at the time of the survey cannot be included in our primary data set.

The primary focus of this analysis occurs in stage 2, when migrants decide which occupation to enter. Within the data we use occupation for a migration trip as the primary dependent variable. If a migrant worked multiple occupations during a single trip, then the occupation that the migrant held for the longest time is considered to be their primary occupation on that trip. Rather than modeling trip duration or other aspects of agricultural migration trends, we focus here on examining the determinants of entering agricultural occupation on the most recent trip to the United States.

Finally, the analysis in stage 2 cannot be performed without also taking stage 3 into account. In order to enter our sample frame of those surveyed in Mexico, a migrant will have had to first return to Mexico. If the migrant's decision to return to Mexico was independent of occupational choice within the United States, then this would not concern us; however, it seems reasonable to assume that the decision of whether to return to Mexico or stay in the United States is correlated with occupational choice. If working in agriculture provides little value to workers above its opportunity cost, then workers may be more likely to return to Mexico over other occupations.

Likewise, it would be natural to understand agricultural occupations in particular as more commonly seasonal than other occupations. If this is the case, and migrants return to Mexico because of the seasonal nature of their occupation, then they are likely to be overrepresented relative to other occupations. Of those migrants surveyed in Mexico for trips since 1980 the average trip duration of for non-agricultural occupation was 34 months compared with only 14 months for agricultural workers. Assuming that migrants, regardless of occupation, stay in Mexico an equal duration after migrating again, a researcher would be more than twice as likely to miss surveying a non-agricultural migrant than that of an agricultural migrant.

The Human Capital Hypothesis

Workers who select an agricultural occupation are likely to have accumulated human capital that makes them better suited for agricultural work relative to non-agricultural occupations. To test this hypothesis, our models examine the impacts of several explanatory variables on the occupational decision of migrants. Education level attained is often seen as an

indicator of intellectual human capital and should indicate an increase in opportunity cost of entering agricultural occupation. We therefore would expect to see that more educated migrants would be less likely to enter agricultural occupations. Likewise, our data contains an indicator of the ability to speak English at the time of the survey, a variable that may also be an indicator of human capital. Agricultural occupations may also require less command of English compared with non-agricultural occupations. Therefore, the ability to speak English may indicate a higher opportunity cost of entering agricultural occupation. One concern with interpreting English ability as an indicator of human capital (and thus opportunity cost), though, is that a migrant may learn English as a *result* of entering non-agricultural occupation.

Data and Methodological Strategy

The Mexican Migration Project (MMP), a joint research effort by the University of Guadalajara and Princeton University collects data on the social and economic aspects of Mexico-U.S. migration. The entire database contains information from over 80,000 randomly selected individuals in roughly 18,000 households residing in 128 communities in 21 Mexican states. An analysis of the data by Zenteno and Massey (1999) provided evidence that it is representative of the entire Mexican population. Data collection began in 1982 and has occurred regularly to the present. Data are based on one-time interviews that collect retrospective data rather than panel data where the same group of individuals are interviewed at multiple points in time. To account for selection bias from migrants and their families not present in surveyed communities, additional interviews are conducted using snowball sampling of migrants from these communities who have settled permanently in enclaves in the United States.

Retrospective work history data of the MMP offer a unique opportunity to examine labor force patterns of first time and repeat migrants. MMP interviewers in Mexico and the U.S. collect a range of socio-demographic and economic data on each person residing in surveyed households as well as information on household characteristics. They also collect information on the first and last U.S. trips, if any, for each household member. More detailed information on migration histories, work histories, and details of the most recent U.S. trip are collected for household heads and their spouses. These retrospective data are structured in files that match some of migrants' socio-demographic characteristics onto migration and work history information to form more complete life history files. In addition, the MMP collects annual (since 1950) community-level data on all communities. The MMP website, mmp.opr.princeton.edu, provides greater details on survey methodology.

Migration Trends

It is clear from the MMP data that agricultural employment, as a percentage of migrants working in agriculture, has been declining from at least over the decades of the 60s, 70s, and 80s. This ratio has roughly leveled off to between 11-16% of migrants working in agriculture within our sample of migrants for the years since that time (see Fig. 1). However, as was discussed in the previous section, these relatively large percentages may over represent the percentage of migrants working in agriculture in recent years due to the differences in trip duration between agricultural workers and nonagricultural workers. When looking at the migrants surveyed in the United States, less than 10% of those surveyed were working in agriculture.

Of the total number of Mexican migrants from our sample, MMP data show that the large majority of these have entered illegally. Of those surveyed in the Mexico, 83% migrated

illegally on their first trip and 73% on their last trip. While of those surveyed in the United States, 77% claim to have migrated illegally on their first trip, only 56% of those surveyed claimed to have migrated illegally on their most current trip. It is likely that this could point to a case of response bias by migrants afraid to declare their true legal status.

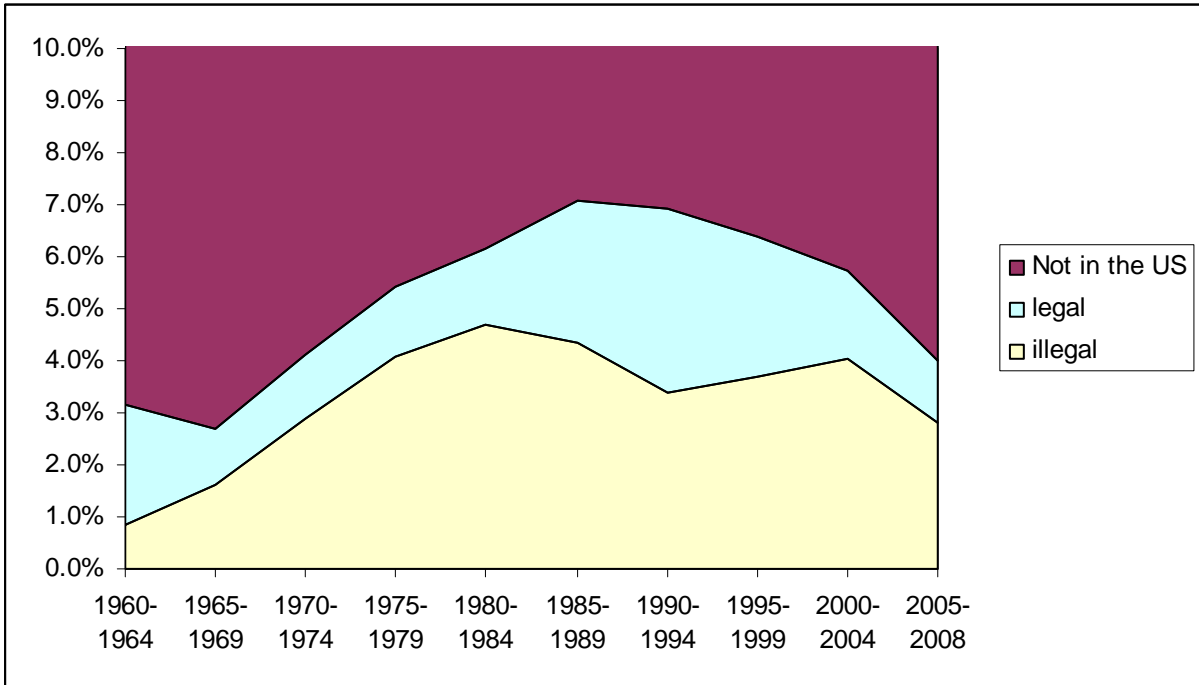


Fig 3. Though the total quantity of migrants has increased over time, the percentage of migrants working illegally has remained somewhat steady (between 70-85%). The figure shows the percentage of respondents who were in the United States for each year of life, Mexican respondents only.

The following analysis will be primarily concerned with the occupation choice made by unauthorized migrants. We believe this portion of our sample best captures the effects of occupational choice, given that the majority of legal U.S. migrants may simply be recruited through occupation-specific legalization means such as the *Bracero* program. Note that for migrants who know before migration what occupation they will hold upon coming to the United States, such a modeling of occupation choice as is presented in this paper would not be appropriate or representative.

Entering Agricultural Employment

Our first model incorporates an expected utility maximization framework to characterize migrants' decision to enter an agricultural occupation or a non-agricultural occupation. As previously alluded to, this decision captures several competing factors such as occupational availability, expected earnings, job security, as well as personal preferences. A migrant has an expected utility $U(a)$ of entering agriculture and an expected utility $U(n)$ of not entering agricultural occupation. The migrant will enter agricultural occupation if $U(a) > U(n)$. The utility derived from occupation choice is characterized by T additively separable factors.

$$U(a) = \alpha^a_0 + \alpha^a_1 \text{factor}_1 + \alpha^a_2 \text{factor}_2 + \dots + \alpha^a_T \text{factor}_T$$

$$U(n) = \alpha^n_0 + \alpha^n_1 \text{factor}_1 + \alpha^n_2 \text{factor}_2 + \dots + \alpha^n_T \text{factor}_T$$

A migrant will choose to work in agriculture therefore if $U(a) - U(n) > 0$ or in terms of factors $(\alpha^a_0 - \alpha^n_0) + (\alpha^a_1 - \alpha^n_1) \text{factor}_1 + (\alpha^a_2 - \alpha^n_2) \text{factor}_2 + \dots + (\alpha^a_T - \alpha^n_T) \text{factor}_T > 0$. In words, a migrant will enter agricultural occupation if the sum of expected utility derived by factors in agriculture is greater than that in non-agriculture. This framework can be simplified to $\beta_0 + \beta_1 \text{factor}_1 + \beta_2 \text{factor}_2 + \dots + \beta_T \text{factor}_T$.

$\beta_2 \text{factor}_2 + \dots + \beta_T \text{factor}_T > 0$. The decision to enter agricultural occupation (DecAg) for a migrant i is:

$$\text{DecAg}_i = \beta_{0i} + \beta_1 \text{factor}_{1i} + \beta_2 \text{factor}_{2i} + \dots + \beta_T \text{factor}_{Ti} + \varepsilon_i$$

By selecting dependent and explanatory variables we are able to characterize the decision to enter migratory agricultural occupation as well as the nature of agricultural occupation for migrants.

We use the probit estimation technique to model the likelihood of entering agricultural occupation by illegal migrants surveyed in Mexico as a function of education and English ability. For the dummy variables that indicate education and English ability, no indicated years of education and no ability to speak English are our reference categories where the value of the dummy variable equals zero. In Model 1, the likelihood of entering agricultural occupation on the migrant's most recent trip to the United States is modeled for years 1982 to 2009 with dummies inserted but not listed controlling for the decade that the trip occurred during. As predicted, all levels of education attained by the migrant and all levels of English are associated with a negative a negative expected change in the likelihood of entering agricultural occupation. Concerned that occupation choice on last trip to the United States may also be an explanatory variable for education attained at the year of the survey we looked at only migrants who migrated to the United States within 10 years of the year when they were surveyed (Model 2). Though this reduced our sample size substantially, it did not change substantively the majority of coefficients.

Table 1. The decision to enter agricultural occupation on the last trip to the U.S. for illegal migrants surveyed in Mexico.

| Probit: DecAgL ~ Human Capital Indicators | | | | |
|---|-----------------------|-----------------------|---------------------|---------------------|
| | Model 1 | Model 2 | Model 3 | Model 4 |
| 1-5 Years of Education | -0.216*** (0.0666) | -0.384*** (0.101) | 0.518*** (0.129) | 0.619*** (0.185) |
| 6-8 Years of Education | -0.568*** (0.0725) | -0.758*** (0.105) | 0.925*** (0.137) | 0.816*** (0.207) |
| 9-11 Years of Education | -0.803*** (0.0904) | -1.037*** (0.123) | 1.130*** (0.172) | 1.011*** (0.264) |
| 12-30 Years of Education | -0.995*** (0.109) | -1.261*** (0.155) | 1.465*** (0.204) | 1.428*** (0.284) |
| English: Do not speak, but understand some. | -0.210*** (0.0528) | -0.208*** (0.0726) | -0.166* (0.0983) | -0.282* (0.154) |
| English: Do not speak, but understand much. | -0.518*** (0.0915) | -0.559*** (0.125) | 0.515*** (0.181) | -0.850** (0.415) |
| English: Speak and understand some. | -0.380*** (0.0726) | -0.257*** (0.0955) | -0.211 (0.136) | -0.0409 (0.219) |
| English: Speak and understand much. | -0.683*** (0.157) | -0.172 (0.196) | -0.0714 (0.274) | -0.106 (0.438) |
| Observations | 4,140 | 2,187 | 1,153 | 488 |
| Pseudo R-squared | 0.123 | 0.0797 | 0.0832 | 0.0750 |

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Still concerned that occupational choice might be a cause of English ability, asserting that migrants who stay in the United States longer are more likely to learn English as a result of working outside of agricultural occupation, we included only the subset of migrants who migrated for less than 12 months (Model 3) and less than 6 months (Model 4). In the last two models the restrictions imposed on the data result in the indicators of the ability to speak and understand English as not being statistically significant. It may also be the result of the scarce sampling only 60 of 586 migrants who had migrated within 10 years of the time of the survey

and had spent less than 6 months in the United States spoke and understood some English. However, years of education dummies remained statistically significant and with large coefficients in all model specifications. The results are consistent with the human capital hypothesis that more educated migrants are less likely to enter an agricultural occupation.

Use of Job Recommendations

The MMP data also include a variable indicating how the migrant obtained his or her most recent job in the United States. Specifically, the dummy variable JobRec identifies whether the job was obtained through a recommendation by a family member, friend, or fellow community member from Mexico. Including JobRec as an explanatory variable in Models 1 and 2, we obtain coefficients of -0.153 and -0.296, respectively, each of which is statistically significant at a 1% rejection level. So, assuming that the errors are uncorrelated with JobRec, migrants who obtain jobs through such recommendations are less likely to work in agriculture. This hints at the possibility that job searches by migrants for agricultural and non-agricultural employment are distinct processes, with many migrant farm workers relying on recruiters associated with farm labor contractors rather than their personal and familial contacts.

Conclusion

During the latter half of the 20th Century, hired farm work ceased being the defining labor market experience of Mexican migrants to the United States. Today, only about 15 percent of first-time Mexican migrants to the United States are employed as farm workers, compared with 70 percent during the first half of the 1960s, as skilled industrial work and personal service work surpassed farm work as the leading occupations of such migrants. Undocumented status rather

than farm work now is the most prominent characteristic of the typical Mexican migrant. In the vast majority of cases—roughly three quarters according to the data examined in this paper—Mexican migrants lack legal authorization to work in the United States. For farmers, growers, and ranchers in the United States, these features of the migratory experience reveal a degree of competition in the market for hired farm labor. Agriculture competes with other sectors of the economy for unauthorized workers, and many agricultural employers, along with employers in many other sectors of the U.S. economy, are either unable or unwilling to obtain all of their labor needs from authorized workers.

The empirical analysis presented in this paper, motivated by hypotheses that migrants with higher accumulations of human capital will be less likely to select an agricultural occupation while in the United States, indicates Mexican migrants to the United States with higher levels of education and greater command of English are less likely to work as farmworkers. Moreover, migrant agricultural workers are likely to stay in the United States for shorter periods of time each trip. These findings, albeit preliminary, reveal a fundamental challenge facing agricultural employers in both the United States and Mexico. As the pool of prospective workers accumulates higher levels of human capital, the opportunity cost of working as a hired farm worker rises. Further analysis will attempt to model the demand for agricultural farm work as a determinant of the decision by migrants to enter the U.S. market for hired farm labor.

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