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Use of public assistance and private aid by legal and unauthorized immigrants who work in agriculture

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USE OF PUBLIC ASSISTANCE AND PRIVATE AID BY LEGAL AND UNAUTHORIZED IMMIGRANTS WHO WORK IN AGRICULTURE

by

Enrico Moretti and Jeffrey M. Perloff

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Use of Public Assistance and Private Aid by Legal and Unauthorized Immigrants Who Work in Agriculture

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October 1996

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Use of Public Assistance and Private Aid by

Legal and Unauthorized Immigrants Who Work in Agriculture

We examine how use of public welfare and social insurance programs and private aid supplied by charities, churches, or communities organizations varies by legal status. We also investigate the extent to which the decision of unauthorized workers to have a child in the United States is influenced by welfare considerations.

We consider four legal-status groups. Three of these groups may legally work in the United States: U. S. citizens; immigrants granted amnesty under the Immigration Reform and Control Act of 1986 (IRCA); and immigrants who were permanent residents ("green card" holders) or who could work in the United States legally prior to IRCA.[1] The last group consists of people who are unauthorized to work in this country. The unauthorized category includes immigrants who are in the country without permission and those with visas that do not authorize them to work.

Our data are from the U. S. Department of Labor's National Agricultural Workers Survey (NAWS), which has tri-annually interviewed hired agricultural workers since 1988.[2]

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[1] Under the Immigration Reform and Control Act of 1986, seasonal agricultural workers who could establish they had worked for 90 days continuously in field work between May 1, 1985 and May 1, 1986 could obtain amnesty under the law if they applied by Nov. 30, 1988. They received temporary work authorization status, then legal temporary resident status, and then legal permanent resident (green card) status. This entire process took at least one year and normally 2 or more years. Aliens with temporary or permanent status could live and work anywhere and at any job within the United States. Some of these workers now have permanent residence status.

[2] IRCA required the Secretaries of Agriculture and Labor to assess annually the quantity and quality of agricultural workers in the United States. In response to IRCA's mandate, the

The NAWS data set is the only national, random sample that contains detailed information about legal status and use of both public welfare programs and private aid.[3] Thus, though it would be desirable to study welfare use by a full cross-section of the economy, we restrict our study to hired agricultural workers to obtain this extra information about legal status and private assistance.

Findings for this particular industry should be of general interest, however, because agriculture is one of the most important industry for immigrant labor.[4] Indeed, in border states that are particularly concerned about supporting unauthorized immigrants — Arizona, California, Florida, and Texas — agriculture is probably the most important industry for unauthorized immigrants. The Bureau of the Census (1995) estimates that there were 3.5 to 4 million undocumented immigrants in 1994, which are 13 to 15% of total immigrants in the United States. According to the NAWS, 24% of hired agricultural workers were unauthorized in 1994. The Census figures refer to all foreign-born people in the United States and samples by household, while the NAWS numbers cover only employed individuals and samples actual

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Department of Labor commissioned the NAWS starting in 1988. Currently, interviews are conducted every four months, in January, May, and September, so that workers in most crops and tasks are surveyed. The fraction of interviews conducted in each season is proportional to the seasonal agricultural services activity at that time of year. Detailed data on specific welfare programs are available only for 1992 on, so our analyses of welfare are restricted to 1992-95.

[3] NAWS respondents self-report their legal status. They are assured that any irregularity will be kept strictly confidential. A series of questions are used to cross-check the validity of their answer to legal-status questions.

[4] Moreover, many of these agricultural workers have been employed in other industries in the recent past. In the NAWS, 43.4% of current agricultural workers previously had nonfarm jobs for at least one year.

workers.[5] A higher percentage of unauthorized immigrants may work in agriculture because of the relatively low-levels of government regulation and unionization in that sector, and relatively low-skill and English requirements.

Participation in public assistance programs by immigrants is one of the most hotly debated issues in the debate on the costs and benefits of immigration to the United States. Depending on who wins the debate, the U. S. welfare system could be fundamentally changed to exclude certain groups of immigrants.

Borjas and Trejo (1993) argue that larger welfare payments attract immigrants who are less skilled, less likely to successfully adapt, and more likely to receive public assistance. Others counter that self-selection by the immigrants attracts highly motivated, skilled workers, whose levels of human capital are comparable to that of the natives (e. g., Dolado, Goria, Ichino, 1994). They argue that foreign-born workers adapt quickly to conditions in the host country's labor market and do not make extensive use of social assistance programs. Further, immigration proponents note that immigrants pay more in taxes than they receive in benefits for certain programs. In particular, the taxes to benefits ratio for Social Security is 2.12 for Hispanic workers, 2.90 for Asians, and 1.08 for white, non-Hispanic workers (Lee, 1996).

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[5] Using October 1994 Current Population Survey (CPS) data, the U. S. Department of Labor (1996) estimates that foreign-born workers (anyone born outside the territory of the United States to parents who are not U. S. citizens) were 24% of hired agricultural workers in 1994, but only 11% of hired nongovernment, nonagricultural workers. The CPS, which randomly samples housing units, may skip the unusual housing units of migrant workers leading to underestimates of the share of foreign-born workers in agriculture. According to the NAWS, which samples actual workers, currently almost three-quarters of hired agricultural workers are foreign born, and a quarter are unauthorized. A small part of the difference in numbers is due to the CPS using October data (when there are relatively few seasonal workers). In the NAWS, foreign-born workers are 67% of the sample in the fall, 70% in winter, and 74% in spring.

Evidence on whether immigrants raise or lower U. S. well being is ambiguous (see Borjas, 1994, for a comprehensive review). Most previous studies, such as Hu (1995) and Borjas and Trejo (1991, 1993), used U. S. Census data. The Census data set, however, does not contain information on the legal status of individual immigrants and ignores many important federal programs, such as Social Security; Unemployment Insurance (UI); Disability Insurance; Medicaid; Food Stamps; Special Supplemental Food Program for Women, Infants, and Children (WIC); and Low-Income Housing.

Borjas and Hilton (1996), the only previous study that analyzes individual programs separately, use the Survey of Income and Program Participation (SIPP) to investigate welfare participation in 3 cash programs and 6 noncash programs in 1984-91. Their study covers an earlier time period than ours and does not control for legal status. It does, however, cover most of the economy, unlike our study of agricultural workers.

We start by examining how the shares of each legal-status group of hired agricultural workers changed over time. In the second section, we calculate participation rates in various public assistance and private aid programs by legal-status group. These unconditional rates do not control for other individual or household characteristics and the availability of other programs that affect participation.

In Section 3, we estimate participation rates conditional on individual and household characteristics. To our knowledge, this is the first attempt in the literature to model simultaneously participation in public and private assistance programs. Legal status is important because unauthorized immigrants are less likely to be entitled to receive public assistance than others, but may be on a comparable footing to receive private aid. In Section 4, we estimate

the probability of receiving Food Stamps, WIC, UI, Medicaid or some form of public medical assistance conditional on legal status and other individual and household characteristics.[6]

Finally, in Section 5, we focus on welfare participation by unauthorized immigrants — the most contentious issue in the current political debate on immigration. Recent proposals advocate denying public assistance to offspring of unauthorized immigrants born in the United States as a measure to discourage unauthorized immigration. Using a subsample that contains only unauthorized immigrants, we estimate a system of two equations to see to what extent the choice of having a child in the United States is influenced by welfare considerations.

1. Legal Status

The composition of the hired agricultural workers labor force by legal status changed substantially from 1988 to 1995.[7] The share of citizens — and, to a lesser degree, green-card holders — fell over this time period. The share of workers who received amnesty under IRCA, peaked in 1989 at 35% of the sample.

The most striking change during this period is the growth of the share of unauthorized workers since the passage of IRCA. The shares of unauthorized workers were 3.1%, 6.5%,

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[6] Although the NAWS includes only individuals who were employed at the moment of the interview, 44% of them has been unemployed for at least 2 weeks during the previous year. As a result, many of these currently employed workers, were eligible for programs like Unemployment Insurance at some point during the year.

[7] The sample sizes are 811 in 1988; 2,391 in 1989; 2,248 in 1990; 1,978 in 1991; 2,383 in 1992; 2,434 in 1993; 2,624 in 1994; and 1,352 in 1995 (for which we only have data for winter and spring).

11%, 14.9%, 20.8%, 31.1%, 26.8%, and 35.3% from 1988 to 1995.[8] One reason why there were virtually no unauthorized workers in the beginning of the period is that many previously unauthorized workers obtained amnesty. Further, many potential unauthorized workers may have hesitated to enter the United States until they learned how the Immigration and Naturalization Service would enforce IRCA's stricter rules.

Individual characteristics vary greatly by legal status. The average unauthorized immigrant is 25 years old, male (88%), has spent only 3.4 years in the United States. Only 39% are married. Of those, over half their spouses live abroad. Only 16% received some education in the United States, and only 2% are fluent in English. Their mean gross weekly pay is $219.

The average permanent resident is more than a decade older, 36.4 years, less likely to be male (71%), has spent more than 15 years in the United States, is married in 74% of cases, and his spouse lives abroad only in 9% of cases. They are more likely to have been education in the United States (37%) and to be fluent in English (16%). Their mean gross weekly pay is higher, $244. Workers who were granted amnesty workers have characteristics similar to those of permanent residents.

2. Participation Rates Vary by Legal Status

Participation rates in public assistance programs by hired-agricultural workers' families varies by legal status. By our definition, a worker's household receives *welfare* if, within the

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[8] Other evidence on the share of unauthorized workers in the United States is fragmentary at best. For example, according to *Rural Migration News*, 2(3), July, 1996, an INS agent estimated in 1995 that almost 25 percent of the workers in 222 meatpacking plants in Nebraska and Iowa were unauthorized immigrants.

two years up to the interview, someone in the household received benefits from one or more of the following programs: AFDC, Medicaid, Food Stamps, WIC, General Assistance, and Public Housing.

The participation rates in the major welfare programs averaged over the period 1992-95 are shown in Table 1. The participation rates in the first two rows are the welfare recipients in a legal-status groups as a percentage of the entire sample. The other participation rates are the welfare recipients as a percentage of the relevant legal-status group. For example, citizens receiving welfare assistance are 8.48% of the entire sample (row 1), and 27.07% of the citizens in the sample are on welfare (row 3).

The participation rates in welfare programs are higher for families of citizens, 8.5%, than for families of green-card holders, 6.1%, or of workers with amnesty, 7.6%. All these participation rates for families of legal workers are much higher than those by families of unauthorized workers, 2.4%.

By our definition, a household receives *social insurance* if it receives UI, Disability Insurance, or Social Security. We present welfare and social insurance participation rates separately because workers who receive social insurance payments must have made previous contributions to the program (or their employers did so), while a welfare recipient need not have worked to qualify for welfare, which is financed out of general revenues. We call the union of welfare and social insurance *public assistance*.

The participation rates in social insurance programs are much higher for families of legal workers than for those of unauthorized workers, 0.7%. The rates are 6.7% for citizens, 9.6% for those with amnesty, and 6.0% for permanent residents.

Citizens are more likely to use AFDC and Social Security than are legal immigrants, though less likely to use UI, Medicaid and WIC.[9] Unauthorized immigrants are less likely than the other groups to use any of the public programs except public medical assistance. A family is said to use public medical assistance if an injured or ill member is treated by the Public Health Department, a community health center, an emergency room, or a migrant clinic. Thus, this "program" is more inclusive than Medicaid.[10]

We draw two main conclusions from Table 1. First, given the substantial differences in participation rates by legal-status category, analyses that do not control for legal status may be misleading. Second, workers with amnesty and permanent residents participate in public program at only slightly higher rates than citizens, whereas the unauthorized are much less likely to use public programs, except public medical assistance.

Citizens and green-card holders are roughly equally likely to participate in multiple programs. For example, 11.4% of citizens and 10.3% of green-card holders are in more than 2 programs. A larger percentage, 14.9%, of amnesty workers are in more than 2 programs. Only a negligible number of the unauthorized workers use multiple programs.

Although the unauthorized have been much less likely to use most public assistance programs than others, they are more likely to receive private assistance from churches,

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[9] The participation rates for agricultural workers in the NAWS and for all workers in SIPP are of similar magnitudes for Medicaid, AFDC, and General Assistance. The NAWS rates are higher for Food Stamps and WIC and lower for Housing Assistance.

[10] The figures for public medical assistance are not comparable with the figures for the other programs, because they represents potential participation rates. The public medical assistance rates are the probabilities of participating in the program conditional on being sick or injured, while the figures for all the other programs represent unconditional probabilities. Not all workers' families experienced illness or sickness in the previous year.

charitable organizations, and community organizations within the year prior to the interview. Participation rates in private assistance programs are 4% for citizens, 6% for legal immigrants, and more than 11% for the unauthorized. Presumably the unauthorized workers put greater reliance on private support because they are less likely to be able to use public programs than other workers.

Unconditional participation rates are useful for public policy makers because they show the impact on the welfare system of extra immigrants who are similar to those already here. If, however, policy makers want to know how to change immigration rules so as to select only those people who are least likely to use welfare, they need participation rates that are conditional on individual and household characteristics.

3. Public vs. Private Aid

We now estimate participation rates in public and private assistance programs conditional on individual and household characteristics. Except for UI, most public assistance programs' eligibility criteria depend on household characteristics rather than individual characteristics. These criteria include income and asset limits as well as program-specific criteria that vary with the goals of the programs. For example, eligible beneficiaries for WIC are low-income pregnant, postpartum, or breast-feeding women with infants or children up to five years old.

Because of these eligibility rules, we control for household income, household income squared, number of children, number of children up to five years old, whether married, whether the spouse is abroad, a dummy that is one if the household own any assets (car, business, house, or land), number of days of unemployment of the respondent in the year

prior to the interview, and whether the family of an unauthorized worker has any children born in the United States (this variable is 0 if the worker is a citizen or a documented immigrant). This last variable is included because children born in the United States are eligible for AFDC, Food Stamps or WIC even if their unauthorized parents are not eligible for welfare programs.

In addition to these variables that measure eligibility, the control vector includes age, sex, race, three legal-status dummies (the base group is the unauthorized), fluency in oral and written English, a dummy for education in the United States (to capture familiarity with American institutions and facility in communicating), the number of years that the worker has been in the United States (set to zero for citizens), years in the United States squared, and immigration cohort dummy variables. The cohort dummies show the period in which the interviewed worker entered the United States. The covariates also include a constant and five regional and two seasonal dummies, whose coefficients are not reported to save space.

Table 2 shows our full-information maximum likelihood estimates of the public and private aid equations using data for 5,702 workers' households. The two equations can be consistently estimated individually using probit. For greater efficiency, however, we use a bivariate probit procedure that takes into account the correlation between the error terms. The estimated correlation between the disturbances across equations is 0.25 (with an asymptotic standard error of 0.042).

Because the probit model is highly nonlinear, coefficients do not directly reveal how much a change in a covariate affects the probability of receiving public assistance. Consequently, the table shows the marginal effects of each variable on participation probabilities

rather than the coefficients. The marginal effect for a continuous variable x is the partial derivative of the probit function with respect to x.[11] The derivative is calculated holding all the other covariates constant at their mean value. For a discrete variable y, the marginal effect is the difference between the estimated probability at $y = 1$ and at $y = 0$, holding all other variances at their mean values.

The model correctly predicts use of public assistance programs for 97.6% of the sample and use of private assistance programs for 93.7%. A drawback of the private-aid equation is that it predicts that virtually no one uses private aid. Predicting almost all observations are in one category is typical of probit equations in which virtually all of the observations are in that category (93.7% of the households receive private aid).

In the public-assistance equation, the marginal effects for citizens and legal immigrants are positive and statistically significantly different than zero at the 0.05 level. Setting other variables at their sample means, a citizen's probability of using public assistance is 43 percentage points higher than a comparable unauthorized immigrant. The comparable figures for an amnesty holders is 22% and for a green-card holder is 36%.

Compared to a comparable unauthorized immigrant, the probability that a citizen receives private aid is 4 percentage points lower and that a green-card holder receives private aid is 0.7 percentage point lower. The difference for workers with amnesty is not statistically significantly different that zero at the 0.05 level.

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[11] Care must be used in interpreting the marginal effects for years in the United States and income, for which both the level and the square are included. The appropriate marginal effect for each variable is the partial derivative for the level plus two times the average value times the partial derivative for the squared term.

The household variables that are included to reflect eligibility have the expected effects, which are statistically significantly different from zero. The probability of a worker's family receiving public assistance is increasing in the number of children, number of small children, and number of children born in the United States. The rate is higher if the worker is married. The probability that a married worker's family receives public assistance falls if the spouse is abroad.

We also use this model to examine cohort effects. Borjas and Trejo (1990 and 1993) find that recent immigrant cohorts tend to use the public assistance system more intensively than earlier cohorts and that participation in a given cohort increases as its members are assimilated.

Five dummies variables indicating year of arrival in the United States are included to capture the cohort effects (the base case is entry after 1990). We also include the number of year in the United States and number of years squared to capture assimilation effects. In order to separately identify cohort effects and assimilation effect, we need to make a strong assumption and not include dummy variables that capture the year-specific effects. This assumption is necessary for identification because the year of entry plus the number of year in the United States equals the interview year.

Members of the cohorts that entered from 1976 to 1990 have statistically significantly higher participation rates in public assistance than do more recent entrants. For otherwise comparable workers, the probability a recent immigrant uses public assistance is 7 percentage points lower than a comparable worker with average characteristics who entered the United States during the period 1976-80. The point estimates for earlier cohorts are also higher than

that of the most recent entrants, but the estimates are not statistically significantly different. The difference between the 1980-90 cohorts and earlier ones is not statistically significant. These results are virtually the reverse of the Borjas and Trejo findings that recent immigrant cohorts are more likely to be public assistance recipients than earlier cohorts. Use of private aid does not statistically significantly varies by cohort.

The assimilation effect (as measured by time in the United States) could be either positive or negative. If immigrants have greater difficulties finding work before assimilating, they might depend on public and private aid more in their early years in the United States. On the other hand, as immigrants become more familiar with English and the public assistance system, their cost of applying for public aid, both material and in term of self-esteem, may decrease over time, and they may be more likely to receive public assistance over time. In Table 2, the assimilation effects — the marginal effects on the years in the United States and on the years squared — are not statistically significantly different from zero, suggesting that these opposing effects offset each other.

Table 3 shows simulated participation rates for various representative workers where all variables except those shown are set at their mean values. The second row shows that the probability that the family of a typical married man with a spouse in the United States and one child used some form of public assistance is 71% if he is a citizen, 47% if he received amnesty, 69% if he is a permanent resident, and only 9% if he is not authorized to work here. The corresponding rates for a comparable female are higher: 81%, 60%, 71%, and 15%.

For the groups shown, having one child rather than none raises participation rates by four or five percentage points. Having a spouse in the United States rather than abroad raises

participation rates substantially, by 8 to 20 percentage points. Participation rates for both men and women with spouses abroad are lower than for those without spouses.

Private assistance participation rates do not vary by much with any of the demographic characteristics shown. For all groups the estimated participation rates range between zero and three percent.

4. Participation in Individual Public Assistance Programs

We also examine participation in individual public assistance programs. Table 4 shows estimates of participation equations for those programs in which the total participation rate is at least 5% in our sample: Food Stamps, UI, Medicaid, WIC, and public medical assistance. Each equation is estimated separately using a univariate probit procedure. Between 62% and 91% of the observations are correctly predicted by each of these equations.

With the exception of public medical assistance, the conditional probability these programs are used is higher for citizen and legal immigrants than for unauthorized immigrants (the marginal effects are positive, and we can reject the null hypothesis that the coefficient is different than zero at the 0.05 level). Thus, unauthorized immigrants have lower conditional and unconditional participation rates than legal immigrants or citizen.

Earlier, we showed in Table 1 that legal immigrants have slightly higher unconditional participation rates than citizens. In contrast, Table 4 shows that legal immigrants have lower conditional participation rates than citizens in all five programs studied. For most programs, these differences are very large. The conditional probability that citizens receive Medicaid or Food Stamps is roughly twice as large as the corresponding probability for amnesty workers.

Apparently, these differences in public assistance participation rates by legal status group cannot be explained by different transaction costs in applying for public assistance due to differences in ability to speak or read English. The effects of fluency in English are either statistically insignificant or negative in the equations in Table 4.

Due to eligibility rules, family composition plays a central role in determining public assistance participation in all programs except UI. The family-composition variables — number of children, number of children up to five years old, whether the worker is married, and whether the spouse is abroad — have the expected positive marginal effects and these effects are, in most cases, statistically significantly different from zero. The number of children born in the United States to unauthorized immigrants is crucial for determining the eligibility of the entire household. Having any children born in the United States increases the probability that the family receive Food Stamp or Medicaid by 10%.

These family-composition variables are not important determinants of UI participation because they do not affect eligibility and, presumably, do not affect the probability of being unemployed. The number of days of unemployment within the last year has the expected positive marginal effect on the probability of receiving UI.

Holding English fluency and other variables fixed, education in the United States increases the probability of receiving public assistance, possibly suggesting the importance of cultural factors in the assimilation process. As expected, household income has a negative but not always statistically significant effect on the probability of participating in all programs but UI.

The cohort effects are less clear for the specific public assistance programs than in the aggregate public-assistance equation. Only the Medicaid regression is consistent with the Borjas and Trejo findings that recent immigrant cohorts are more likely than earlier cohorts to be public assistance recipients, holding the years in the United States fixed. The difference in probability of receiving Medicaid between those who entered the US in the period 1991-1995 and those who entered in 1986-1990 is -0.007. This difference increases monotonically in size and is more likely to be statistically significantly different from zero the further we go back in time. The marginal effect is -0.097 for the cohort that entered the United States before 1970.

The pattern is reversed in the UI equation. The marginal effect of belonging to the 1986-90 cohort is 0.1307 and statistically significant. This probability increases for earlier cohorts. The marginal effect is 0.275 for those who entered the United States before 1970.

In the public medical assistance equation, immigrants who entered during the 1980s are more likely to be on public assistance than those who entered during the 1990s; but immigrants who entered during the 1970s are less likely to be on public assistance than those who entered during the 1990s. These difference, however, are not statistically significantly different from zero. The remaining equations do not exhibit any obvious patterns in cohort effects.

In Table 4, the assimilation effects are in most cases statistically insignificant, suggesting that the two opposite effects balance. The only exception is the Medicaid equation, where the participation rate is concave in years in the United States.

To see if cohort and assimilation effects are different among legal and unauthorized immigrants, we interacted legal status with the cohort dummies and the tenure in the United States variables. The likelihood-ratio test statistics that the interaction terms are collectively zero are 12.9 for Food Stamps, 13.6 for UI, 10.1 for Medicaid, 15.2 for WIC, and 34.9 for public medical assistance. Because $\chi^2_{.05}(7) = 14.07$, we reject the hypothesis that there are no legal-status interaction effects for WIC and public medical assistance. There are, however, no obvious systematic patterns in these coefficients (results are available from the authors on request).

We believe the sharp contrast between our findings about cohorts and those of Borjas and Trejo are due to four main methodological and data differences. First, Borjas and Trejo consider only a subset of programs we examine. Given the very large variability in participation rates across programs, this difference in the number of programs included may be an important factor in explaining differences in cohort effects for our aggregate measures. Some support for this view is provided by Borjas and Hilton (1996). They find statistically significant cohort effects for their aggregate public assistance participation variable (which includes AFDC, SSI, general assistance, Medicaid, Food Stamps, WIC, and energy assistance), but find statistically insignificant individual programs' cohort effects except for Medicaid. These latter results are generally consistent qualitatively and quantitatively with our findings in Table 4.

Second, we study different time periods. Borjas and Trejo use 1970 and 1980 Census data; whereas our data are for 1992-1995. It is possible that the rate of increase in participation they report slowed or reversed since 1980. Third, our sample is limited to agricultural

workers who are employed at the moment of the interview (though the information on public assistance refers to two years prior the interview and to anyone in the household).

Finally our control vectors differ. Most importantly, we control for legal status of immigrants, number of children born in the United States, and fluency, which are not reported in the Census data that Borjas and Trejo use.

5. Unauthorized Immigrants with Children Born in the United States

If the children of an unauthorized worker were born in the United States, they may be entitled to some forms of welfare even though the worker is not. Moreover, if the worker's spouse was born in the United States, the family may be entitled to some forms of welfare.

Table 5 shows the participation rates for unauthorized immigrants with and without children born in the United States. As expected, the participation rate in all programs for unauthorized immigrants with any children born in the United States is more than double that of unauthorized workers without such children. The participation rates for WIC and Medicaid of families of unauthorized workers with children born in the United states is more than four times that of those without such children.

Table 5 shows, however, that households of unauthorized workers with a spouse born in the United States are far less likely to receive welfare that those with a foreign-born spouse. One possible explanation is that these families are less likely to need such support.

We hypothesize that welfare participation by unauthorized immigrant's family depends on whether the children (or the spouse) were born in the United States and, possibly, whether the parents arranged for their children to be born in the United States depends on whether they want to use the welfare system. To examine these hypotheses, we estimate a system of

two simultaneous discrete-choice equations using a subsample of only the unauthorized workers. The left-hand side variables of both equations are dummies: use of public welfare in the last two years and whether the family has any children born in the United States within the last two years. Because welfare eligibility depends on whether the household has *any* children born in the United States, we use a discrete variable rather than the number of children.

A family that uses welfare may be more likely to have children in the United States for two reasons. First, past welfare support may increase the likelihood of having a children because it increases the wealth of the family. Second, past welfare use may serve as an imperfect proxy for a family's intention to use welfare in the future.

Two-stage consistent estimates of the system are presented in Table 6. The asymptotic covariance matrix was estimated using a method discussed in Maddala (1983, p. 247). The covariates are the same as above with some identifying restrictions added. We assume that the decision to have a child in the United States does not depend on a worker's knowledge of written and spoken English or the number of day of unemployment within the last year (which occurs after the conception took place). Fluency in English is one of the covariates in the welfare equation because it may reflect lower costs of applying for welfare. The number of days of unemployment is included in the public assistance equation because it may signal a need for welfare. Included in the children equation but not in the welfare equation is whether a worker migrated (traveled 75 miles or more in the United States in order to work on a farm) within the last year. Migratory workers may face logistic difficulties in raising babies that discourages them from having children.

Almost all the variables estimates have the expected sign. The dummy for children born in the United States is positive and statistically significant in the welfare equation: Having children born in the United States increases the probability of an unauthorized immigrant receiving welfare by 2.3 percentage points. The welfare participation dummy has a positive and statistically significant effect in the children equation: Families that have used the welfare system are 1 percentage point more likely to give birth to a child in the United States within the last two years.

6. Conclusions

We draw five main conclusions from our study of hired agricultural workers. First, contrary to popular opinion, the families of unauthorized immigrants — at least those who work in agriculture — are substantially less likely to use public welfare and social insurance programs than legal immigrants and citizens. The only exception is that the families of unauthorized immigrants are more likely to make use of public medical assistance than those of other workers. More than 80% of the families of unauthorized immigrants say they do or would use public medical assistance if they need medical assistance.

Second, the families of legal immigrants are only slightly more likely to use public assistance than are citizens. Indeed, if we control for demographic and economic characteristics of their families, legal immigrants have lower participation rates.

Third, the pattern of assistance use does not vary substantially across cohorts or across time for a given cohort. We do not find a "secular trend" toward greater dependency on public assistance by immigrants due to the "increased size and changing origins of recent immigration flows," as was reported in earlier studies.

Fourth, conditional and unconditional participation rates vary substantially with public assistance programs and by legal status. Ignoring legal status may bias results. We believe this study is the first to consider these issues formally.

Fifth, there is two-way relationship between children born in the United States to unauthorized workers and welfare use. Unauthorized immigrants who have young children in the United States are more likely to use welfare, and welfare recipients are more likely to have young children in the United States. These effects, though statistically significant, are not large.

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Using the October 1994 Current Population Survey, May 1996 (prepared by Scott M. Came).

Table 1
Use of Public and Private Assistance Programs by Legal Status

	Citizen	*Amnesty*	*Green Card*	*Unauthorized*
Percentage of Entire Sample:				
Welfare[a]	8.48	7.59	6.10	2.41
Social Insurance[b]	6.72	9.60	5.96	0.65
Percentage of Legal-Status Category:				
Welfare[a]	27.07	30.25	41.96	8.28
Social Insurance[b]	21.45	38.25	40.99	2.24
AFDC	5.15	1.96	2.12	0.50
Food Stamps	20.66	19.40	26.11	3.81
Unemployment Insurance	15.48	37.15	37.44	1.62
Medicaid	14.01	17.52	22.96	4.47
WIC	6.80	10.31	15.05	4.95
Public Medical Assistance[c]	51.96	62.68	54.36	82.82
Disability Insurance	2.59	1.42	4.04	0.47
Social Security	5.19	0.91	3.27	0.28
General Assistance	2.60	1.77	2.39	0.40
Low Income Housing	1.12	0.78	1.59	0.09
Private Aid	4.52	6.10	6.22	11.14

[a] A household uses welfare if it participates in AFDC, Medicaid, Food Stamps, WIC, General Assistance, or Public Housing.

[b] A household uses social insurance if it participates in Unemployment Insurance, Disability Insurance, or Social Security.

[c] Percentage of workers who would go to the public health department, a community health center, an emergency room in a hospital, or a migrant clinic if injured or ill.

Sample is 5,702 observations from the National Agricultural Worker Survey 1992-95.

Table 2
Bivariate Probit: Public and Private Welfare Participation Rates
(Marginal Effects; Asymptotic Standard Errors in Parentheses)

	Public	*Private*
Age	0.00120*	0.0004
	(0.0021)	(0.0036)
White	-0.0213*	0.0184*
	(0.0463)	(0.0705)
Black	-0.0013	-0.0167
	(0.1326)	(0.2767)
Hispanic	0.0484*	0.0189
	(0.0737)	(0.1213)
Female	0.0465*	0.0187*
	(0.0532)	(0.0731)
Citizen	0.4310*	-0.0412*
	(0.1140)	(0.1606)
Amnesty	0.2298*	0.0002
	(0.0874)	(0.1044)
Green Card	0.3665*	-0.0066*
	(0.0907)	(0.1174)
Reads English	-0.0304*	-0.0194
	(0.0878)	(0.1729)
Speaks English	0.0057	0.0163
	(0.0720)	(0.1515)
Any U. S. Education	0.0431*	0.0423*
	(0.0512)	(0.0704)
Number of Children	0.0160*	0.0080*
	(0.0193)	(0.0260)
Number of Children in the U. S.	0.1360*	0.0215*
	(0.0927)	(0.1105)
Number of Children under Five	0.0329*	0.0060
	(0.0350)	(0.0448)
Married	0.0126*	-0.0040
	(0.0534)	(0.0855)
Spouse Abroad	-0.0470*	-0.0130
	(0.0749)	(0.1127)

Assets	0.0169*	0.0106
	(0.0503)	(0.0656)
Years in U. S.	-0.0007	-0.0029
	(0.0193)	(0.0320)
Years in U. S. Squared	0.00000	0.0000
	(0.0003)	(0.0006)
Income ($10,000)	-0.0466	-0.0303*
	(0.0637)	(0.1071)
Income Squared	-0.0475*	0.0007
	(0.0130)	(0.0270)
Days of Unemployment	0.0002*	0.0001*
	(0.0002)	(0.0003)
1986-90 Cohort	0.0539*	0.0245
	(0.1125)	(0.1442)
1981-85 Cohort	0.0644*	0.0127
	(0.1625)	(0.2280)
1976-80 Cohort	0.0744*	0.0250
	(0.2219)	(0.3194)
1971-75 Cohort	0.0594	0.0467
	(0.2760)	(0.4077)
1970 or Earlier Cohort	0.1124	0.0563
	(0.3392)	(0.4874)
correlation coefficient	0.2539	
	(0.0421)	

Actual (Predicted) Outcomes:

Public \ Private	0	1
0	2990 (3111)	140 (0)
1	2351 (2587)	221 (4)

* We reject the hypothesis that the marginal effect is zero at the 0.05 level using an asymptotic t-test.

Sample is 5,702 observations from the National Agricultural Worker Survey 1992-95. A constant and regional and seasonal dummies were included but their coefficients are not reported here.

Table 3
Simulated Participation Rates (%)

			Public Assistance			
Interviewee	*Spouse*	*Children*	*Citizens*	*Amnesty*	*Green Card*	*Unauthorized*
Male	in the U. S.	0	66	41	53	7
Male	in the U. S.	1	71	47	59	9
Male	Abroad	0	46	24	33	2
Male	Abroad	1	52	28	39	3
Male	None	0	62	37	49	5
Female	in the U. S.	0	77	56	36	12
Female	in the U. S.	1	81	60	71	15
Female	Abroad	0	59	35	46	5
Female	Abroad	1	65	40	52	6
Female	None	0	73	50	62	10

			Private Assistance			
Interviewee	*Spouse*	*Children*	*Citizens*	*Amnesty*	*Green Card*	*Unauthorized*
Male	in the U. S.	0	0.4	1.5	1.3	1.5
Male	in the U. S.	1	0.5	2.0	1.6	2.0
Male	Abroad	0	0.2	1.0	0.8	1.0
Male	Abroad	1	0.3	1.4	1.1	1.3
Male	None	0	0.4	1.2	1.0	0.6
Female	in the U. S.	0	0.6	2.4	2.0	2.4
Female	in the U. S.	1	0.8	3.0	2.5	3.0
Female	Abroad	0	0.4	1.6	1.4	1.6
Female	Abroad	1	0.5	2.1	1.8	2.1
Female	None	0	0.3	1.8	1.5	0.3

Table 4

Probits: Participation Rates in Welfare Programs

(Marginal Effects)

	Food Stamps	*U. I.*	*Medicaid*	*WIC*	*Public Medical Assistance*
Citizen	0.4151*	0.6542*	0.2740*	.0263*	-.0107
Amnesty	.2135*	0.4488*	.1087*	.0168*	-.0612*
Green Card	0.2881*	0.5469*	.1513*	.0269*	-.0992*
White	-.0105	-.0505*	.0468*	-.0048*	-.0411*
Black	.0544	-.0463	.0871*	-.0094	.0670
Hispanic	.0883*	.0671*	.0821*	.0067*	.1628*
Female	.0391*	.0204	.0405*	.0065*	-.0092
Reads English	-.0226	-.0534*	-.0354*	-.0021	-.0375
Speaks English	.0233	-.0450*	.0211	-.0017	.0276
Any United States Education	.0555*	.0113	.0337*	.0095*	.0401*
Married	.0461*	-.0146	.0568*	.0188*	-.0206
Spouse Abroad	-.0963*	-.0128	-0.1125*	-0.0251*	-.0425
Number of Children	.0407*	-.0084	.0295*	.0026*	.0287*
Number of Children in U. S.	.1009*	.0019	.1074*	.0253	.0427
Number of Children Under 5	.0327*	.0148	.0351*	.0196*	.0081
Assets	-.0171	.0420*	.0034	.0040	-.0059

Income ($10,000)	-0.0796*	0.0731*	-0.0198	-.0103	-0.0526*
Income Squared	-.0006	-0.0163*	-0.0052	-0.0007	.0027
Days of Unemployment	.0003*	.0004*	.0001	.0000	.0004*
Years in U. S.	.0028	-.0033	.0120*	.0006	.0061
Years in U. S. Squared	-.0001	-.0000	-.0001*	-.0000	-.0000
Age	-.0001	.0023*	-.0007	-.0005*	-.0030*
1986-90 Cohort	.0601*	.1307*	-.0070	.0027	.0545
1981-85 Cohort	.0682	.1850*	-.0443	-.0005	.0031
1976-80 Cohort	.0962	.2084	-.0654*	.0012	-.0310
1971-75 Cohort	.0511	.2642*	-.0820*	-.0064	-.0608
1970 or Earlier Cohort	.1288	.2751*	-0.0971*	-.0072	-.0652
Percent Correct	85	79	85	91	62

* We reject the hypothesis that the marginal effect is zero at the 0.05 level criterion using an asymptotic t-test.

Sample is 5,697 observations from the National Agricultural Worker Survey 1992-95.
A constant and regional and seasonal dummies were included but their coefficients are not reported here.

Table 5
Participation Rates of Unauthorized Immigrants (%)

	Children Born in the U. S.		*Spouse Born*	
	0	> 0	Abroad	U. S.
Public Assistance	8.72	19.75	15.38	5.64
Food Stamps	3.86	3.07	5.17	3.15
WIC	4.62	16.58	10.52	1.92
Medicaid	4.18	17.06	9.36	1.91
AFDC	0.50	0	0.88	0.27

Table 6
Unauthorized Immigrants' Welfare Participation and Number of Children Born in the United States
(Marginal Effects; Asymptotic Standard Errors in Parentheses)

	Welfare Participation	*Children Born in U. S.*
Children Born in United States	0.0232*	
	(0.0518)	
Welfare Participant		0.0087*
		(0.1549)
White	0.0020	0.0020
	(0.1923)	(0.3293)
Hispanic	-0.9023	0.0029
	(25.19)	(48.29)
Female	0.0203	-0.0020*
	(0.1845)	(0.3243)
Any U. S. Education	0.0212*	-0.0023*
	(0.1602)	(0.2706)
Married	0.0238*	-0.0029
	(0.1791)	(0.3237)
Spouse Abroad	-0.0309*	0.0479*
	(0.4114)	(0.7240)
Assets	0.0101	-0.0021
	(0.1545)	(0.2499)
Income ($10,000)	0.0174	-0.0038
	(0.300)	(0.600)
Income Squared	-0.0090	0.0020
	(0.1)	(0.2)
Years in U. S.	0.0000	0.0001
	(0.0706)	(0.1222)
Years in U. S. Squared	0.0002	-0.0000
	(0.0033)	(0.0063)

Age	-0.0004	0.0001
	(0.0115)	(0.0175)
1986-90 Cohort	0.0021	-0.0002
	(0.2310)	(0.3850)
1981-85 Cohort	-0.0188	0.0800
	(0.5381)	(0.8796)
1976-80 Cohort	-0.0172	0.0570
	(0.7959)	(1.3079)
1971-75 Cohort	-0.0199*	0.9970*
	(1.3271)	(2.1570)
1970 or Earlier Cohort	-0.0207*	0.9987*
	(1.9602)	(3.2220)
Reads English	-0.0127	
	(0.5217)	
Speaks English	0.0425	
	(0.5568)	
Days of Unemployment	0.0020*	
	(0.0000)	
Migrant		0.00002
		(0.2990)

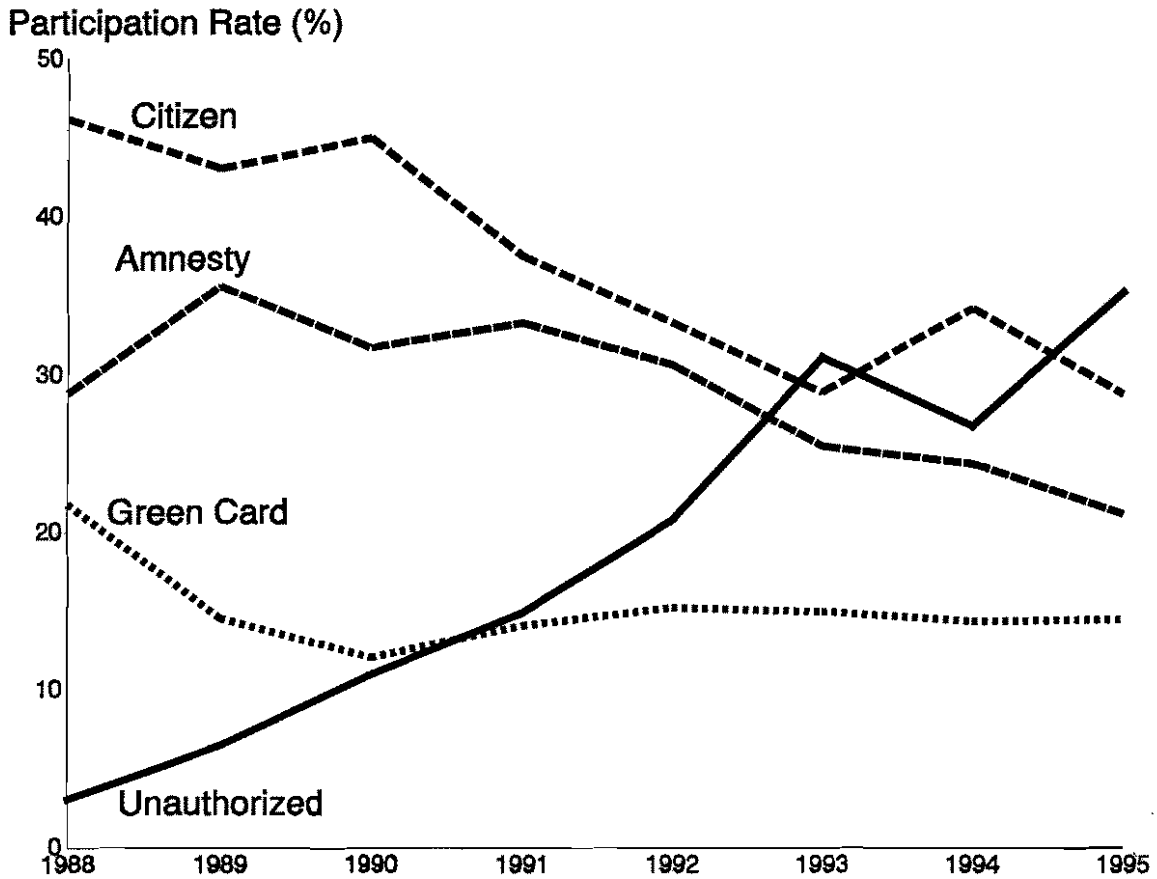
		Predicted			
		0	1	0	1
Actual	0	1210	22	1248	17
	1	65	67	39	60

* We reject the hypothesis that the coefficient is zero at the 0.05 level based on an asymptotic t-test.

Sample is 1,364 observations of unauthorized immigrants from the National Agricultural Worker Survey 1992-95.

A constant and regional and seasonal dummies were included but their coefficients are not reported here.

Figure 1
Share of Hired Agricultural Workers By Legal Status Category



Data Source: National Agricultural Worker Survey 1988-95.