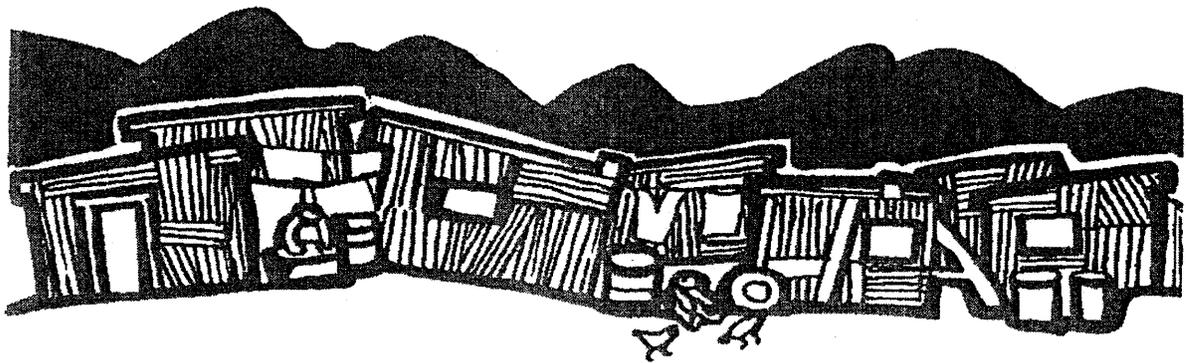


# FINDING INVISIBLE FARM WORKERS: THE PARLIER SURVEY

BY

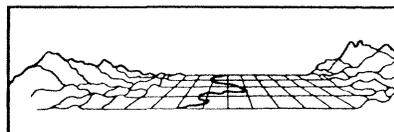
Jennifer Sherman, Don Villarejo, Anna Garcia, Stephen McCurdy, Ketty Mobed,  
David Runsten, Cathy Saiki, Steven Samuels, Marc Schenker



MADE POSSIBLE THROUGH THE GENEROSITY OF  
Agricultural Health and Safety Center of the University of California under a grant  
from the National Institute for Occupational Safety and Health, The Ford Foundation,  
The Rosenberg Foundation

PUBLISHED BY

**THE CALIFORNIA INSTITUTE FOR RURAL STUDIES**



April 1997

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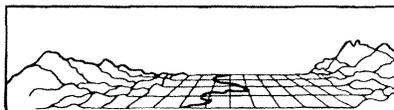
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Jennifer Sherman, Don Villarejo, Anna Garcia, Stephen McCurdy, Ketty Mobed,  
David Runsten, Cathy Saiki, Steven Samuels, Marc Schenker

*This research was made possible through grants from the Agricultural Health and Safety Center of the University of California under PHS Grant No. U07/CCU906162-02 from the National Institute for Occupational Safety and Health, The Ford Foundation, and The Rosenberg Foundation. The authors and the California Institute for Rural Studies are grateful for this support.*

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## ACKNOWLEDGMENTS

This publication is the product of the work of interviewers, field support staff, medical technicians, student assistants and in-house staff at the Kearney Agricultural Center of the University of California, the Agricultural Health and Safety Center of the University of California, and the California Institute for Rural Studies. Specifically, we wish to thank Janice Abrinko, Ed Adams, Delia Avalos, Gretchen Bradfield, Debbie Cantu, Xavier Figueroa, Ellen Gold, Noemi Guerrero, Anne Mabuchi, Maria Maddock, Adisack Nhouyvanisvong, Ricardo Ornelas, Ricardo Sanchez, Pablo Torres and Rebecca Viveros. Their enthusiastic efforts made this project possible.

## EXECUTIVE SUMMARY

This report summarizes the findings of a pilot study intended to assess the health status of a representative cross-section of agricultural employees in California. Of special interest were health outcomes linked to occupational exposures. The pilot study combined self-reported information obtained from a personal interview normally conducted at each subject's residence with the results of a rudimentary physical examination, and utilized an innovative sampling strategy. This method entailed a household survey modified to include mapping and listing all temporary or unconventional living quarters utilized by employees who may migrate to find seasonal jobs. The sampling strategy was specifically designed to take account of the well-established fact that a sizeable share of U.S. hired farm workers, estimated to be two out of every five, migrate throughout the year in search of employment.

In this paper we examine the results of the two parts of the Parlier Survey; a health survey and an enumeration survey conducted in mid-1992. The data obtained through the Parlier Survey is compared to other surveys of similar populations, in particular the 1990 U.S. Census of Population for Parlier and the National Agricultural Workers Survey (NAWS) for California. The Parlier Survey data is also analyzed and examined by type of housing. It is found that a significant proportion of Parlier's houses are substandard and lack recognized U.S. postal addresses, which make up the sampling frame of the U.S. Census of Population. Thus, the Parlier study finds a population invisible to the Census of Population and all other programs and studies which are based on it.

The Parlier Survey's findings support the conclusion that the sampling method achieved its goal of obtaining an accurately representative cross-section of the residents of the city of Parlier, including nomadic workers. Sub-groups which are usually not reliably represented in established household surveys, such as the U.S. Census of Population, appear to have been well represented in the Parlier Survey. This report discusses both the findings and their relationship to the sampling strategy. In particular, the successful inclusion of a more accurately drawn population of Parlier's nomadic workers profoundly influenced overall results.



## INTRODUCTION TO PARLIER

Parlier is a small town in Fresno County, situated in California's San Joaquin Valley, approximately twenty miles southeast of the city of Fresno. As is common in many Valley towns, agriculture is the main industry of Parlier, and the largest single source of employment - there are as many people employed in agriculture, forestry and fishing in Parlier as in all other industries combined.<sup>1</sup> Most occupations are farm-related and, consistent for a state where more than nine of ten farm workers are of Hispanic/Latino origin, the town's population is predominantly of this ethnicity. Because of the intermittent nature of nearly all agricultural work in the region, labor demand in the community varies greatly with the seasons. This instability in labor demand is associated with a population which also fluctuates in size and makeup with the seasons. Populations of this sort are difficult to enumerate, since households may change composition frequently, and the nomadic population in particular can easily be missed, depending on when and how the survey is done.

Historically the U.S. Census of Population has been the only nationally comprehensive source of data for the populations of small towns such as Parlier, and its enumeration is believed to undercount the actual population.<sup>2</sup> Thus little is really known about certain groups of people, among them migrant farm workers, unauthorized immigrants, the poor, and non-English speakers. In choosing Parlier as the focus of this study, it was the intention of the researchers to field test a more accurate way to study these groups as they are represented in Central Valley towns. Although undercounted by the Census, these populations are of great importance to Californians, especially those interested in immigration, agricultural policy issues and the growing income disparities in the state.<sup>3</sup>

It is widely believed that the decennial Census of Population systematically undercounts certain demographic groups because of its reliance on methods that tend to exclude persons who do not read, write or speak English, who are illiterate, who are undocumented immigrants, or who find that the Census Bureau's written forms limit their ability to list all members of a household with an "unconventional" composition. As further described in this report, all of these factors are represented in the Hispanic/Latino population that comprises nearly all of Parlier's residents.

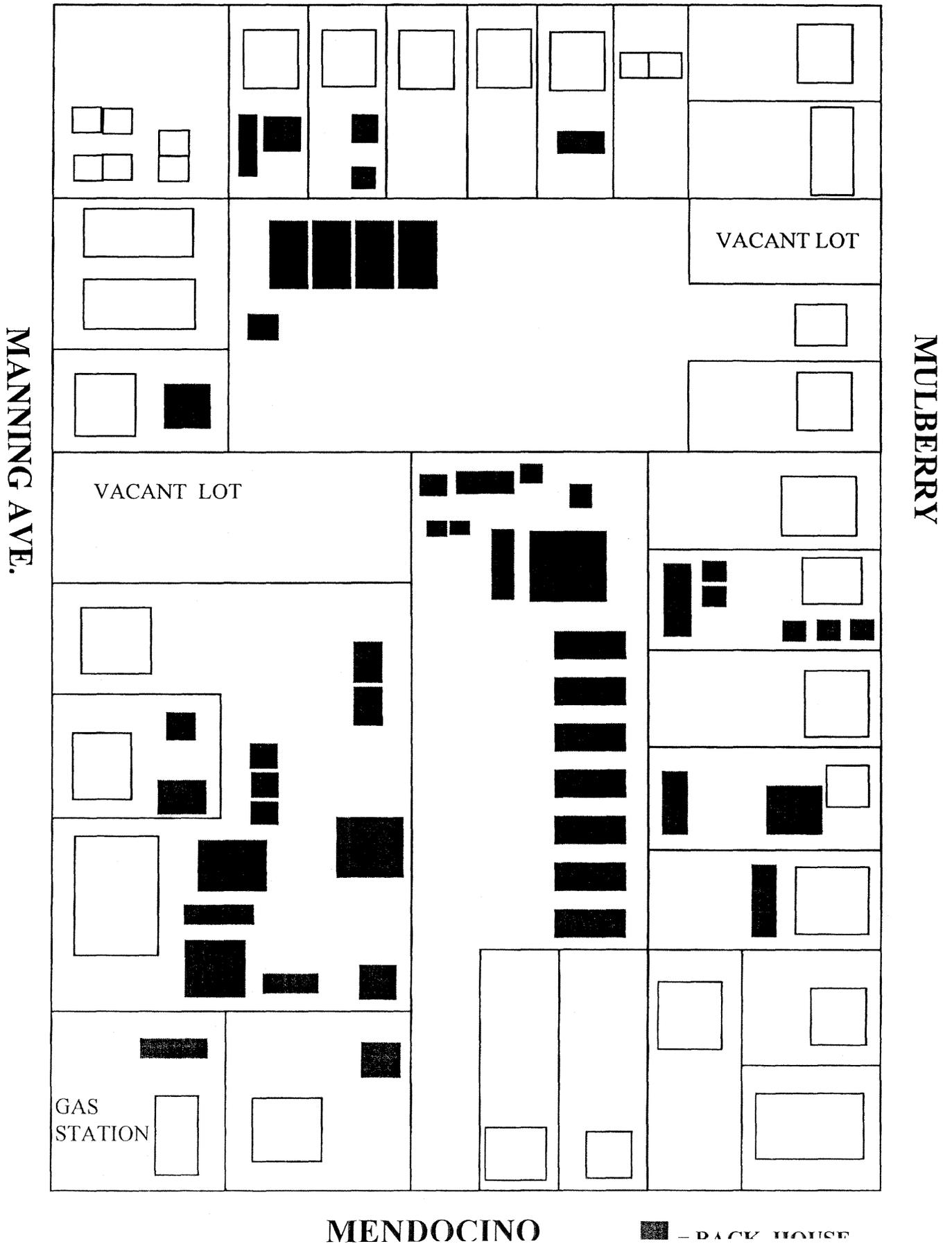
An additional and seldom recognized flaw in the Census Bureau's method of enumerating nomadic populations is its reliance on U.S. postal addresses as the sampling frame.<sup>4</sup> This sampling problem has been well publicized in its relation to studying homeless populations,<sup>5</sup> but the sampling frame is also problematic for populations residing in housing that lacks any postal address. Similar problems have been found in surveying immigrants in urban areas.<sup>6</sup> In the case of Parlier, a large number of people live in unofficial, substandard dwellings that do not have separate postal addresses. These "houses" can be permanent structures situated in the back yards of other houses, tents, trailers, garages, sheds, or temporary structures found behind officially recognized dwellings or in vacant lots.

Figure 1 illustrates this phenomenon as found in Parlier; the area shown has a large number of these types of unofficial structures (shown as shaded rectangles vs. officially recognized structure shown as open rectangles). In this paper we will refer to these informal living quarters as "back houses," because of their tendency to be situated behind the "front houses" that often have the single recognized postal address for all dwellings on the property.

The methodology for this study was based on a demographic technique for enumerating nomadic populations that had been used in a previous study conducted by the Colorado Migrant Council.<sup>7</sup> The basic concept of the method is that an enumeration of every place where people are found to be living, no matter how informal, is carried out, and then this full list of sleeping places (the sampling frame) is used to select sleeping quarters where interviews are conducted. Thus, the equivalence of persons, who may be nomadic, with sleeping places where they will be found for the duration of the survey, enables the interviewers to construct a comprehensive sampling frame.

The first task for studying the full population, including those who are nomadic, was to create a sampling frame that differed from that used in the Census in that it included all housing units or living quarters regardless of their postal addresses (or lack thereof). In the case of the Colorado Migrant Council, this meant talking to farm laborers and gathering information about where people resided, and then enumerating their sleeping quarters.<sup>8</sup> For the Parlier Survey, it was decided to individually map and enumerate every possible dwelling unit, implying a very time-consuming and expensive process of sending out mappers into the field.<sup>9</sup> To lessen the time and expense, the town was broken down into geographic blocks, which were assigned numbers, and 45 of these blocks were subsequently chosen at

**Figure 1, BLOCK 68.01-308A (PART), PARLIER  
MILTON**



random to be sampled. Mapping of living quarters was then done only in the chosen blocks. Mappers were instructed to look for any possible dwelling place, no matter how unconventional, and to assign a separate number (the dwelling unit number) to each possible housing unit. All of these units were included in the sampling frame, from which a random sample was taken for the Parlier Survey.

This methodology led the researchers to back houses about 20 percent of the time, indicating that in Parlier a significant number of households and individuals were overlooked by the U.S. Census. The present report examines this unique population, its similarities and differences with the front house population, and with the findings of the U.S. Census. It is a population of interest to many, including farm owners, policy makers, and those interested in the lives and conditions of the working poor. It is a group about whom much is assumed and very little is accurately known. This study informs us about this important population, as well as providing guidance to accurately study it in the future.

## DEMOGRAPHICS – THE FINDINGS OF THE HEALTH SURVEY INTERVIEWS

The Parlier Survey consisted of two components. The first part, the household enumeration, included approximately 530 members of the 105 sampled households. The Parlier Enumeration Survey asked only a few questions, covering the gender, age, and familial relationships of members of the household. Randomly selected adults from the enumerated households were then asked to participate in the Parlier Health Survey, which consisted of a lengthy interview as well as a visit to the town's health clinic, where a limited range of physical examinations were carried out. From the 105 dwellings sampled and the 528 persons enumerated, 150 adults were randomly selected and asked to participate in the Health Survey interviews. The interview selection was biased toward women, as a woman present in a given household was always interviewed, while often only one man was selected for interview out of many who lived in the chosen dwelling. Interviewee selection was done in this way because of the Health Survey's focus on women and their reproductive health. Only adults over the age of 18 were interviewed. Thus the Parlier Health Survey results are not representative of all the people of Parlier, but do supply a useful demographic description, and a particularly accurate description of the previously understudied populations of women and farm workers.

According to the Health Survey data, Parlier has a relatively old population, with low educational attainment among adults. The mean age was 36, while the mean number of school years completed was 7. This high age value is similar to the mean age of 34 found in the National Agricultural Workers Survey for California, and is the result of the same subject selection criterion.<sup>10</sup> Both surveys include only adults of working age. With the addition of the of the 38 percent of the population which is under the age of 18, the mean age value for the town of Parlier is quite a bit lower, 23.7 according to the Enumeration Survey data.

The majority of the population reported Mexican or Chicano descent (71 percent Mexican, 17 percent Chicano), with less than one tenth reporting "ethnicity" as Tejano, White, Mixtec, and Asian, and 5 percent as "other." Slightly under two-thirds of the population, 64 percent, was born in Mexico, and the other 36 percent in the U.S. There were slightly more females than males, probably due to the

sampling strategy, 52 percent versus 48 percent. Nearly three-quarters of the adults were married, 73 percent, and the most common family size was 4-6 persons.

Two modal family income categories were found (with 21 percent): \$6,001-\$9,000 and >\$20,000 per year, while more than 70 percent of families earned less than \$15,001 per year. Thus, despite the fact that one-fifth of the town's families earn over \$20,000 per year, nearly three-quarters of all families are making significantly less than this amount. Considering the modal family size mentioned above, it is likely that many of Parlier's families are living close to or under the poverty level. While the low family incomes may be partly due to the unemployment of one or more family members, low wages and earnings for those that do work are also major contributing factors. In order to understand the basis of their low incomes, it is necessary to look at the type of work that the adults of Parlier perform.

The great majority of adults in Parlier have at some time worked in agriculture - 95 percent. Two out of every three answered that they had done farm work within the last year. Forty percent of those sampled considered themselves to be migrant farm workers. The mean age at which residents began farm work was 17, and the mean number of years spent in agriculture was 13. The mean number of months spent as farm employees each year was 6.6. This number is quite significant, although not surprising. As discussed earlier, the seasonal nature of farming in the region surrounding Parlier leads to large variations in labor demand. This seasonality results in underemployment for the laborers of Parlier, and may be as important as low wages in explaining the low yearly earned income of Parlier's residents. Despite years of experience and migration to follow the work, Parlier's workers must still contend with lack of employment opportunities in the farm sector for nearly half of the year. Less than half of all workers (including those who have never worked on a farm) had ever held a full-time non-agricultural job for six months or more. Clearly, the dependence on seasonal agricultural work, as well as the low wages this work pays, predisposes Parlier's population to poverty.

For those who work in agriculture, health and safety is an important yet tentative concern. According to the survey, most farm jobs provide the workers with some of the necessary sanitary and other facilities. The majority of farm workers had access to sanitary facilities nearby their work sites (76 percent), although nearly three-quarters of all drinking water at the farm jobs was brought in by

workers from outside the farm or from their own homes. The fact that one-quarter of farm workers reported lacking sanitary facilities, and three-quarters brought in their drinking water from outside the work place is problematic, especially considering that access to such employer-provided facilities is required by federal law. However, the law appears to provide no guarantee of proper sanitary conditions in California agriculture.

Some basic protective gear was common, such as rubber gloves (worn by 43 percent) and hats (worn by 59 percent). Other types of gear were unusual, however, such as dust masks (worn by only 6 percent), leather gloves (worn by 14 percent), and goggles (worn by only 11 percent). Even less common than these were sunscreen, body suits, and scarves. Given the dangers of exposure to sun and pesticides, both of which pose serious health hazards, these types of protective measures should be more widespread.

Closely related to health issues are job safety issues, where the Parlier Health Survey found clear room for improvement. More than half of respondents (51 percent) said that their work caused them to become covered with dust. Pesticide exposure was somewhat lower, at 17 percent, a figure still too high considering the many known health dangers some pesticides pose. Safety instructions were received by nearly half of the workers, and were almost always given in the workers' native languages. However, half of the farm workers reported that they had no safety instructions, even though the dangers posed by pesticide exposure and machinery operations would warrant them.

Despite the aforementioned health hazards, health insurance was held by less than half of the people surveyed, 39 percent versus 61 percent without insurance. The type of insurance held varied over the population, with the most frequent being Medical/Medicaid. Yet only 14 percent of the population was covered by this type of insurance, although the low incomes of the majority of individuals and families should qualify them to obtain it. Many people had seen a health care professional in the last 5 months (41 percent), while an equally large percentage (40 percent) had not had a health care visit in over a year. Nearly one person in twenty had never been to a health care professional at all. Eighty-two percent of the population had not been hospitalized in the last year, and among those who had been hospitalized, the most common cause for the visit was the delivery of a baby. The lack of health care visits, coupled with the fact that nearly two-thirds of individuals

interviewed did not have health insurance, suggests that the people of Parlier may not be receiving adequate preventive care or treatment.

Among the people of Parlier, there did not appear to be a high frequency of health risk behaviors. The majority had never smoker cigarettes regularly (69 percent), and of those who had smoked, more than half did not smoke regularly any longer. There were almost no subjects who smoked cigars or pipes, or chewed tobacco or used snuff on a regular basis. The majority did not drink beer regularly (56 percent), and even higher percentages said that they did not drink wine (92 percent) or liquor (90 percent) regularly.

The low incidence of health risk behaviors perhaps helps to explain the relatively healthy state of the population. Most respondents said they had no health impairment (89 percent), and only small frequencies had any specific disease or ailment. The most common ailments (i.e., those experienced by at least 10 percent of the population) were hay fever and allergies; high blood pressure; stuffy, blocked or itchy noses; itchy, irritated, or watery eyes; blurred vision; tingling fingers or toes; pain between the eyes; dizziness or light-headedness; dermatitis; coughs; and wheezy chests. Incidences of diseases such as cancer, which are expected to be lower because of the low rate of smoking, could not be determined with such a small sample size. Musculoskeletal conditions, a hazard commonly associated with manual labor, were represented in substantial numbers, with over one person in five reporting pain in the back (every day for a week), finger, elbow, shoulders, knee, and other joints. At least one person in ten reported experiencing pain in the wrists, hip, and neck. However, in most cases, the pains reported did not cause the respondents to miss work, and only about half of the respondents had ever filed a Workers' Compensation report or claim for an injury.

When the population from the Parlier Health Survey is compared to the U.S. Census tabulation of Parlier's population,<sup>11</sup> some agreement is found, and a few major discrepancies, as shown in Table 1. The Parlier Health Survey sample size of 150 makes up less than 2 percent of the Census population of 8,032 people. Yet both surveys found a mean age (among those over 18 only) close to 36 years, the great majority of people to be of Hispanic origin, and three-quarters of the population to have an educational attainment of less than 12th grade. The results of the Parlier Health Survey differ most from Census findings for the categories of foreign versus U.S. birth, family income, and occupation

**Table 1**  
Comparison of U.S. Census and Parlier Health Survey Data

| <b>Category</b>                | <b>1990 U.S. Census</b> | <b>Parlier Health Survey</b> |
|--------------------------------|-------------------------|------------------------------|
| Population Enumerated          | 8032*                   | 150                          |
| Born in US                     | 59%                     | 36%                          |
| Foreign birth                  | 41%                     | 64%                          |
| Education less than 12th grade | 76%                     | 75%                          |
| Occupation Farming             | 43%                     | 68%                          |
| Family Income under \$15,000   | 43%                     | 70%                          |
| Median Family Income           | \$16,949                | \$9,001-\$12,000             |
| Sex                            | M=52% F=48%             | M=48% F=52%                  |
| Mean Age (over 18 only)        | 37                      | 36                           |
| Hispanic Origin                | 98%                     | 97%                          |

\* Variables from the Census Long Form may have a much smaller actual sample size.

farming. The Parlier Health Survey found a higher percentage of foreign births, a higher percentage of farm workers, and lower family incomes. These differences indicate that some of the people of Parlier may be undercounted by the U.S. Census of Population.

## THE SAMPLING PROCEDURE AND RESULTS

Using the sampling procedure described earlier, 20 back houses out of a total of 105 houses were sampled and enumerated. Thus just under 20 percent of the enumerated households were unofficial dwellings left out of the U.S. Census. Out of the 528 people included in the Parlier Enumeration Survey, 117 lived in back houses, 22 percent of the total. The number of back houses found in any particular Census Block (generally equivalent to a neighborhood) varied greatly by area, as shown in Table 2. In certain neighborhoods, there were no back houses mapped at all, and all the houses sampled were clearly officially recognized dwellings with their own distinct post office addresses. In other areas the back houses equal or outnumber the front, and almost every front house has one or more corresponding back houses. These are the areas where the Census undercount is most problematic, and missing the back houses means missing a large proportion of the people living in the Census Block.

In addition to the discrepancies in the number of dwellings per Block caused by the failure of the Census to recognize the back houses, there are several other instances in which the Parlier Enumeration Survey and the Census of Population counted significantly different numbers of houses per Census Block. In one area, Census Block 68.01-11B, the front houses found in the Parlier Enumeration Survey were found to greatly outnumber the houses counted by the Census, probably due to a housing development built in 1987, which may have been inadvertently left out of the 1990 Census. In two other cases, significantly fewer houses were counted as front houses in the Parlier Enumeration Survey as compared to the Census figures. Both of these are explainable: in the case of Block 68.02-406, a multiple apartment complex was incorrectly classified as a single dwelling unit by the Parlier Enumeration Survey, and in Census Block 68.02-409, a number of duplexes were incorrectly assigned single dwelling numbers. Despite these few discrepancies, in most Census Blocks where the entire area was included in both surveys, the front house data from the Parlier Survey matches well with that of the Census.

It must be remembered when reviewing the data presented in Table 2, however, that not all of the back houses listed were actually inhabited. An area was mapped out if it contained any sort of inhabitable structure, but at the time of mapping the actual status of many of these structures was

**Table 2**  
Number of Houses Found in Parlier Census Blocks

| Census Tract | Census Block | Amount of Block Sampled in Parlier Survey | Total Houses, 1990 U.S. Census | Total Front Houses, Parlier Survey | Total Back Houses, Parlier Survey | Total Houses, Parlier Survey |
|--------------|--------------|---|--------------------------------|------------------------------------|-----------------------------------|------------------------------|
| 68.01        | 111B         | partial                                   | 1                              | 48                                 | 0                                 | 48                           |
| 68.01        | 130          | unknown                                   | 32                             | 0                                  | 22                                | 22                           |
| 68.01        | 202          | all                                       | 24                             | 25                                 | 0                                 | 25                           |
| 68.01        | 203          | all                                       | 22                             | 20                                 | 1                                 | 21                           |
| 68.01        | 205          | partial                                   | 96                             | 69                                 | 2                                 | 71                           |
| 68.01        | 207          | unknown                                   | 23                             | 11                                 | 6                                 | 17                           |
| 68.01        | 209          | all                                       | 53                             | 53                                 | 23                                | 76                           |
| 68.01        | 211          | all                                       | 21                             | 21                                 | 8                                 | 29                           |
| 68.01        | 301          | partial                                   | 98                             | 67                                 | 13                                | 80                           |
| 68.01        | 305          | all                                       | 51                             | 49                                 | 24                                | 73                           |
| 68.01        | 307          | all                                       | 21                             | 21                                 | 14                                | 35                           |
| 68.01        | 308A         | partial                                   | 416                            | 268                                | 52                                | 320                          |
| 68.01        | 309          | all                                       | 36                             | 36                                 | 4                                 | 40                           |
| 68.02        | 105          | partial                                   | 8                              | 2                                  | unknown                           | unknown                      |
| 68.02        | 107A         | partial                                   | 52                             | 45                                 | 19                                | 64                           |
| 68.02        | 108A         | partial                                   | 40                             | 25                                 | 22                                | 47                           |
| 68.02        | 127          | all                                       | 4                              | 4                                  | 1                                 | 5                            |
| 68.02        | 208B         | partial                                   | 9                              | 9                                  | unknown                           | unknown                      |
| 68.02        | 301          | all                                       | 27                             | 27                                 | 4                                 | 31                           |
| 68.02        | 305          | all                                       | 13                             | 14                                 | 11                                | 25                           |
| 68.02        | 307          | all                                       | 17                             | 18                                 | 7                                 | 25                           |
| 68.02        | 308          | all                                       | 13                             | 13                                 | 7                                 | 20                           |
| 68.02        | 310          | partial                                   | 108                            | 20                                 | 0                                 | 20                           |
| 68.02        | 311          | all                                       | 15                             | 15                                 | 14                                | 29                           |
| 68.02        | 401          | all                                       | 5                              | 5                                  | 26                                | 31                           |
| 68.02        | 403          | all                                       | 33                             | 31                                 | 11                                | 42                           |
| 68.02        | 406          | all                                       | 26                             | 16                                 | 10                                | 26                           |
| 68.02        | 409          | all                                       | 21                             | 15                                 | 12                                | 27                           |
| 68.02        | 410          | all                                       | 10                             | 9                                  | 3                                 | 12                           |

unknown. In a few cases, even vacant lots were assigned sampling numbers and treated as dwellings, as it was the aim of the researchers to over-sample back houses by investigating any possible dwelling site. Thus in the process of the Parlier Enumeration Survey, many of the back houses were found to be vacant at the time they were visited, 55 percent of all selected back houses. This problem was almost nonexistent for the front houses; only 3.5 percent of all selected front houses were found to be vacant, evidence of an extremely tight housing market in Parlier. Another problem found in sampling, which does not present a problem for interpreting Table 2, but does suggest a possible source of bias in the results, was the refusal rate. The refusal rate was quite low for the back houses, where only 5.9 percent declined to even be enumerated. Residents of the front houses tended to refuse at a much higher rate, 21.9 percent. Interviewers reported that residents who declined to participate offered a variety of reasons for their decision. These included an unwillingness to go to the clinic for a physical examination, fear concerning participation, assertion of rights of privacy and concerns about costs (a few residents misunderstood that the physical examination was without cost).

Despite the problems with vacancies and refusals a significant number of inhabited back houses, which were being entirely overlooked by the U.S. Census of Population, were found in many Census Blocks. Overall, out of 1,390 dwelling units contained in the areas sampled by the Parlier Enumeration Survey, 397 were classified as back houses. Even when the vacancy rate for the back houses is factored in, there are still 179 inhabited back houses. The vacancy rate for the front houses brings their number from 993 down to 922. Thus, out of 1,101 houses which were occupied, over 16 percent, nearly one in six, were back houses. As shown in Table 2, these houses tend to be found in clusters in certain neighborhoods, where they made up a significantly higher proportion of the households for specific Census Blocks. Especially within these Census Blocks, but within the entire city as well, the back houses represent too large a population to be simply left out of the Census of Population.

## COMPARISON AT THE BLOCK GROUP LEVEL

To get a clearer picture of the differences found between the Census population and the population of the Parlier Survey, it is helpful to examine certain findings at the Census Block Group level. Census Block Groups consist of aggregations of Census Blocks, or neighborhoods, within Census Tracts. Parlier is broken up by the Census into two tracts, 68.01 and 68.02. The Block Group 68.01-1 is thus composed of all blocks within tract 68.01 whose three-digit identification number begins with 1 (see Table 2).

Census Block Groups vary in size, as do the Census Blocks themselves. Likewise, the number of people sampled by the Parlier Survey varies from Block Group to Block Group. At the Census Block Group level the sampling size in the Parlier Enumeration, and especially the Parlier Health Survey, is often quite small - too small for statistical significance. Thus the values given cannot be taken as reliable representations of all of the people living in the areas, as the Census is assumed to be. What is significant, however, is the pattern of differences between the values found for the Parlier Survey and those found for the Census within the Census Block Groups. These differences, which appear consistently throughout the comparisons, point to significant variances in the characteristics of the undercounted population that the Parlier Survey specifically targeted.

The comparisons at the Census Block Group level are displayed in Appendix I, Tables A-1 through A-6, and show the consistencies of the difference in population characteristics found when comparing the U.S. Census and the Parlier Survey. The most constant of these are found among the following variables: household composition, people per house, household seven or more people, education, birth place, occupation, and marital status. Many of these variables have interesting implications for describing the population which is being left out of the U.S. Census of Population.

As is shown in the tables, the population found in the Parlier Enumeration Survey tends to live in single families less often and in extended families more often than the Census population. While anywhere from two-thirds to three-quarters of the Census population is living in single family households, consistently less than half of the population of the Parlier Enumeration Survey is found in such households. In several cases significantly less than one-half of individuals reside in such

households. Conversely, less than 20 percent of the Census population is ever found to be living in extended families, while in many Census Block Groups nearly half of the Parlier Enumeration Survey population lives in such households.

This difference in household structure is related not only to family structure issues, but also to issues of household size. Here also, the findings are consistent, with the average number of people per house being higher among the Parlier Enumeration Survey population. Similarly, a higher percentage of households contain seven or more people among the Enumeration Survey population, often 5 to 10 percent higher than in the Census population.

The large household size presents serious concerns regarding crowding. The large size of extended families is an equally important problem, when considered in light of the low family income discussed earlier. Many of these large households are living on very low incomes, predisposing them to living in houses which are too small to adequately accommodate all the residents.

The Parlier Health Survey population tends to have lower educational attainment across the Census Block Groups, with very few people being educated beyond the 12th grade level, and the majority having finished less than the 9th grade level. This population is also much less likely to have been born in the U.S. than the Census population. The amount of this education gap varies from less than 10 percent to as much as 30 percent in some Census Block Groups. There is also a higher percentage of agricultural employees among the Parlier Health Survey population for most Census Block Groups. Thus the Census appears to miss a particular sub-group of people whose education, citizenship, and poor English skills leave them few employment options besides farm labor. All these factors combine to put this undercounted population at a high risk of poverty.

Marriage is the last variable for which consistent differences are found between the two surveys. From two-thirds to three-quarters of the Parlier Health Survey population is found to be married in most Block Groups, compared to one-third to one-half of the Census population. As is expected from these findings, the Health Survey population is less frequently found to be never married, separated or divorced. The reasons for these differences are unclear, but may suggest stronger family cohesion and/or marrying at younger ages among this population.

These consistencies are further backed up by a comparison between the Parlier Survey results

for the entire population and the Census results for the city of Parlier. As shown in Table 3 and Figures 2 and 3, for certain variables there are significant differences found between the Census results and the Parlier Survey results.

The trends found within the previously discussed variables help us to round out our picture of the underrepresented group. It is likely to contain individuals who are married, and live in large households which often contain extended family and nonfamily members. It is a population that is likely to be less educated, foreign-born, and working in agriculture. It is the immigrant farm laborers, the working poor, about whom little is truly known. For a more in-depth discussion of the variables used and the accuracy of these comparisons, see Appendix II.

**Table 3**  
Comparison of Parlier Survey and U.S. Census Data

| <b>Variable</b>                        | <b>Parlier Survey</b> | <b>1990 U.S. Census</b> |
|--|-----------------------|-------------------------|
| Average number of people per house     | 5.0                   | 4.6                     |
| Percent of households 7 or more people | 20%                   | 14%                     |
| Average age                            | 24.3                  | 25.5                    |
| Percent male                           | 52%                   | 52%                     |
| Percent female                         | 48%                   | 48%                     |
| Single family household                | 48%                   | 78%                     |
| Extended family household              | 42%                   | 17%                     |
| Single male household                  | 6%                    | 1%                      |
| Female headed family                   | 4%                    | 3%                      |
| U.S. born                              | 36%                   | 59%                     |
| Foreign born                           | 64%                   | 41%                     |
| Occupation farming                     | 68%                   | 43%                     |
| Percent Hispanic origin                | 97%                   | 98%                     |
| Percent 8th grade or less completed    | 57%                   | 59%                     |
| Percent married                        | 73%                   | 44%                     |

Figure 2

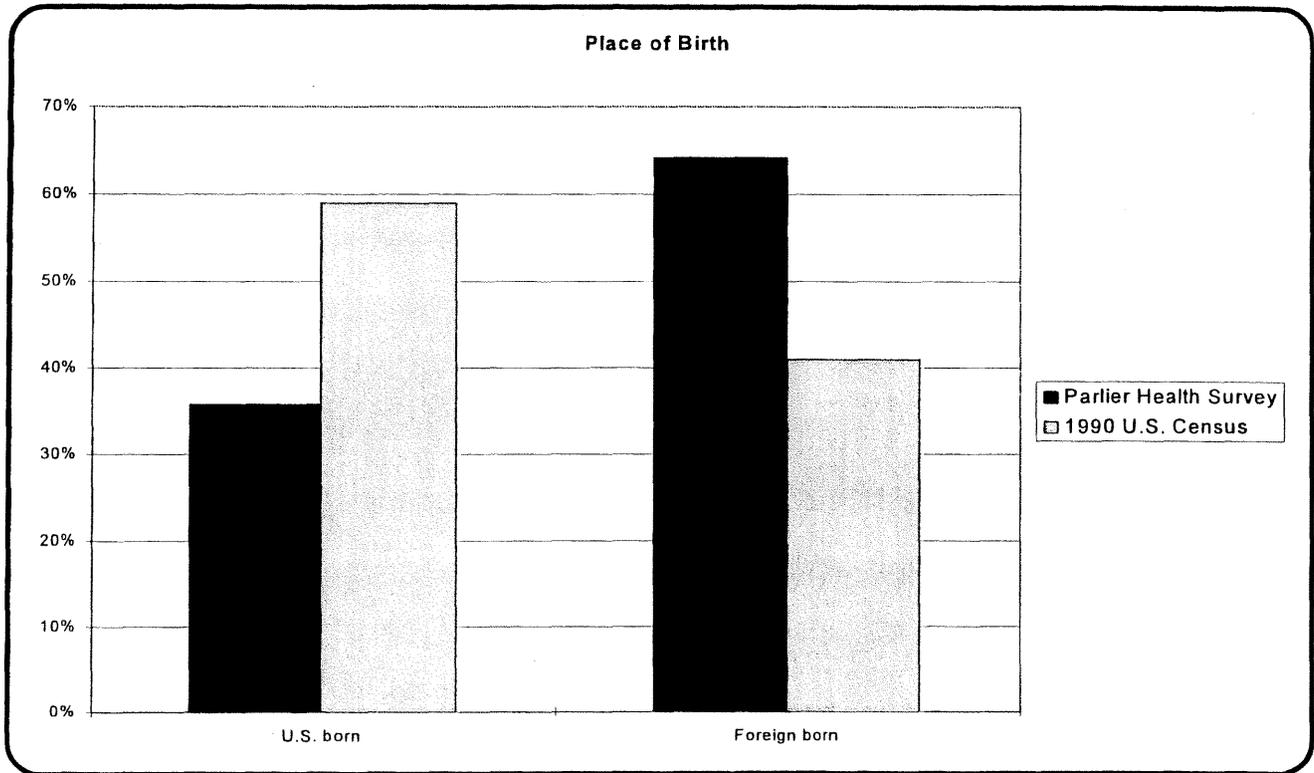
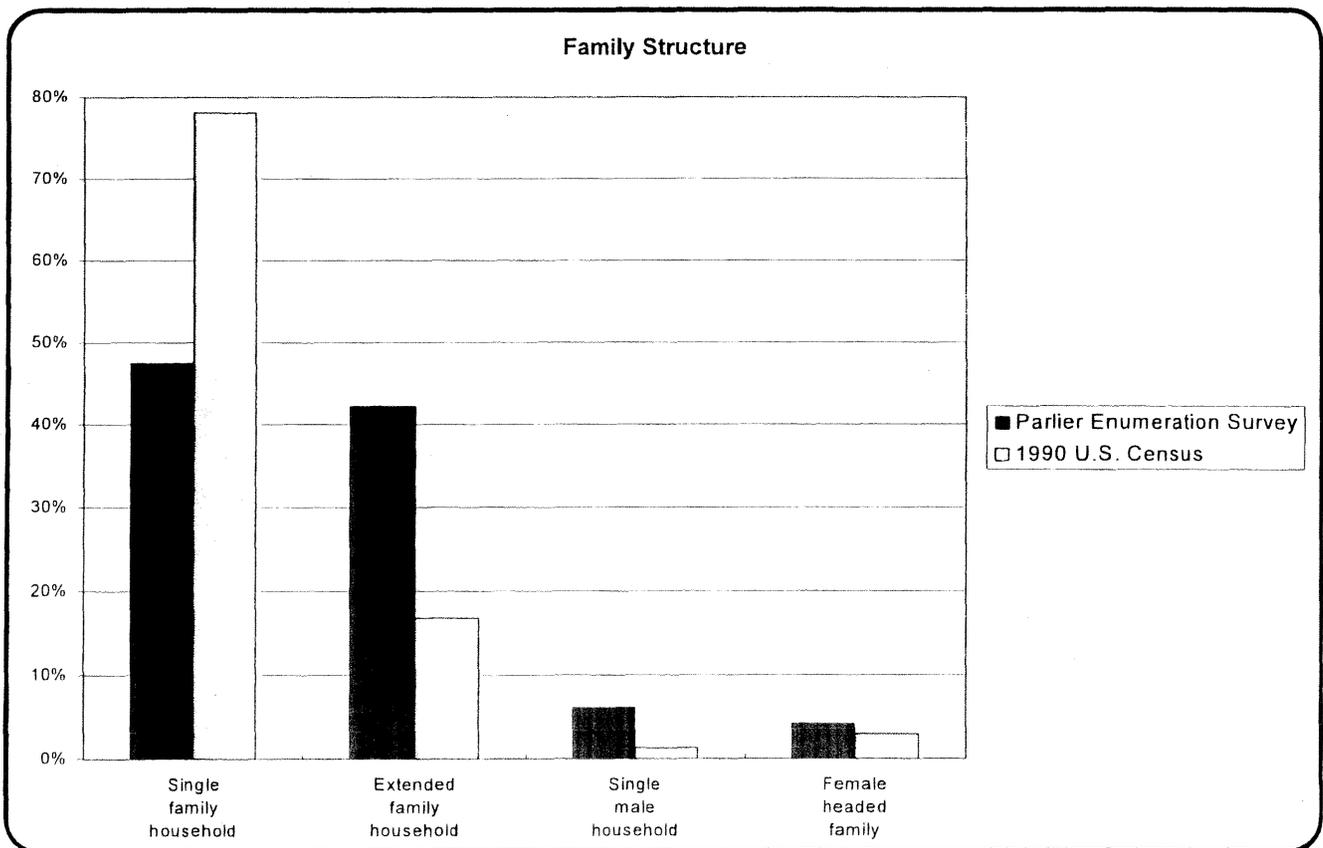


Figure 3



## FRONT VERSUS BACK HOUSE COMPARISON

In order to better understand the undercounted population, it is useful to break down the Parlier Survey data for front and back houses. The differences found between the populations of the two types of housing reflect the differences found between the Parlier Survey population and the U.S. Census population, and are further evidence of the problems caused by the sampling techniques employed by the Census. As shown in Table 4 and Figures 4 through 7, significant differences do exist between the two populations for certain variables. Some of these characteristics are of little importance outside the academic realm, but others have serious implications for policy decisions that will affect this population.

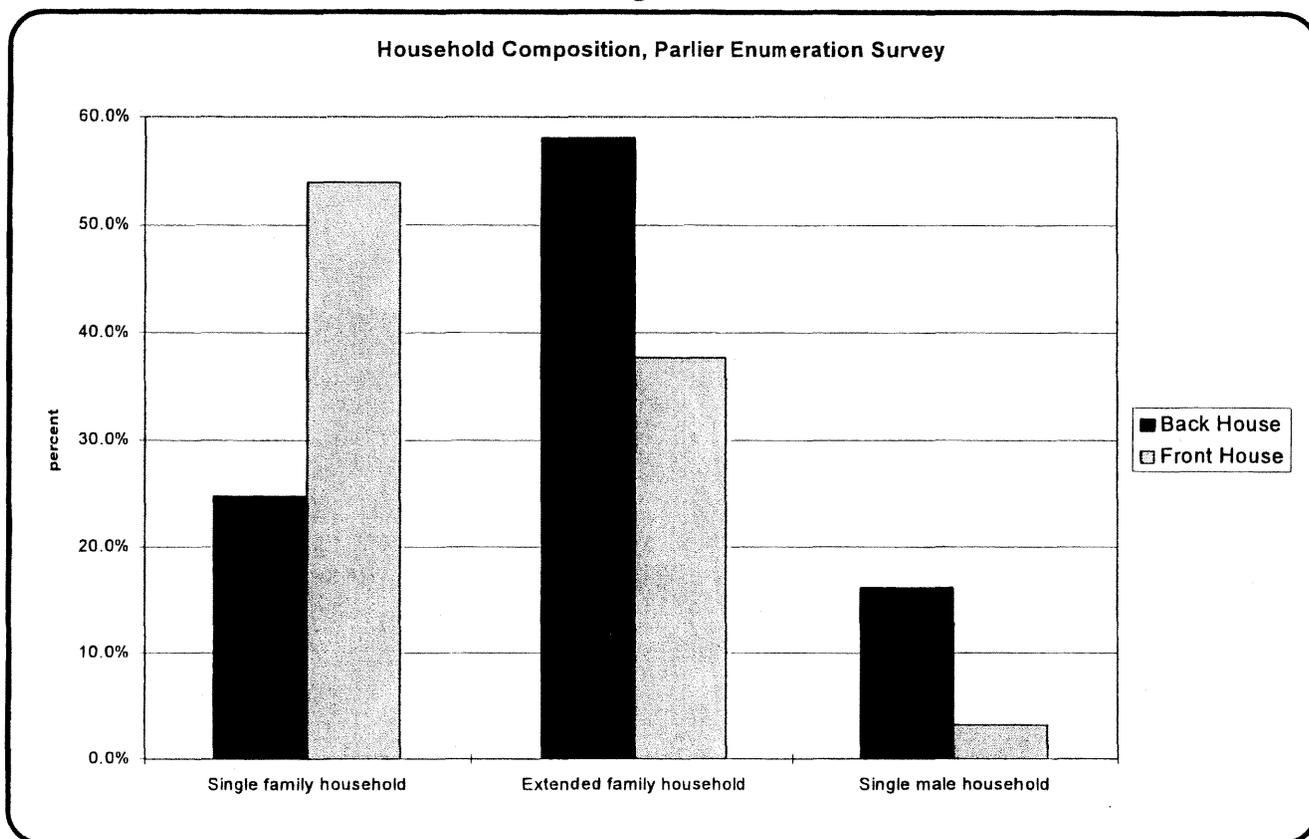
The back houses tend to have more people per dwelling unit living in them than the front houses. Not only is the average number of people per house higher for the back houses, but the back houses are nearly twice as likely to contain 7 or more people than are the front houses. This phenomenon can be partly explained by the family structure variables. The back houses are much more likely to be inhabited by extended families and groups of single men. A few of the sampled back houses contained ten or more single men. Further evidence of an abundance of single men is shown by the high percentage of males in the back house population, nearly two-thirds compared to one-half males living in the front houses. The front houses have a much lower incidence of single men living together, and are more likely to be inhabited by nuclear families. It is also interesting to note that it is the front houses that have the higher percentage of female headed families, and are more likely to be headed by single females than single males, unlike the back houses. Based on these results, we expect a high likelihood of overcrowding in the back houses, as these dwellings are seldom larger than the front houses. Inhabited by large groups, and substandard to begin with, the back houses may be fraught with serious health and sanitation problems.

The average age is close for the two groups, although the back houses have a slightly older population. The difference in age is more apparent when looked at by percentage of individuals under the age of 18; here it can be clearly seen that the front houses have more young people. Similarly, nearly 5 percent more children of school age are living in the front houses than in the back houses. These age

**Table 4**  
Comparison of Back and Front Houses, Parlier Survey

| Variable                                  | Back House | Front House |
|---|------------|-------------|
| Total people enumerated                   | 117        | 411         |
| Percent of total enumerated               | 22.2%      | 77.8%       |
| Average number of people per house        | 5.9        | 4.8         |
| Percent of households 7 or more people    | 30.0%      | 16.5%       |
| Average age                               | 25.9       | 23.8        |
| Percent under 18 years                    | 32.5%      | 40.6%       |
| Percent children of school age (under 16) | 26.5%      | 30.9%       |
| Percent male                              | 60.7%      | 49.6%       |
| Percent female                            | 39.3%      | 50.4%       |
| Single family household                   | 24.8%      | 54.0%       |
| Extended family household                 | 58.1%      | 37.7%       |
| Single male household                     | 16.2%      | 3.2%        |
| Female headed family                      | 0.9%       | 5.1%        |
| Percent married                           | 63.6%      | 75.2%       |
| Chicano                                   | 19.4%      | 16.8%       |
| Tejano                                    | 0.0%       | 4.2%        |
| Mexican                                   | 64.5%      | 72.3%       |
| White                                     | 6.5%       | 0.8%        |
| Asian                                     | 3.2%       | 0.0%        |
| Mixtec                                    | 3.2%       | 0.0%        |
| Other                                     | 3.2%       | 5.9%        |
| U.S. born                                 | 25.8%      | 38.7%       |
| Mexican born                              | 74.2%      | 61.3%       |
| Average highest grade completed           | 6.6        | 8           |
| Ever done farmwork                        | 96.8%      | 94.1%       |
| Average years spent farming               | 12.5       | 15.5        |
| Farmwork last year                        | 80.6%      | 64.7%       |
| Migrant farmworker                        | 45.2%      | 42.9%       |
| Month per year work in agriculture        | 6.8        | 6.6         |
| Work full time not in agriculture         | 38.7%      | 49.6%       |
| No health insurance                       | 64.5%      | 59.7%       |
| Private or HMO insurance                  | 19.4%      | 12.6%       |
| Medicare/Medicaid insurance               | 6.5%       | 16.0%       |
| Other insurance                           | 9.7%       | 10.9%       |
| Receive food stamps                       | 6.5%       | 32.8%       |
| Yearly income less than \$6,001           | 69.1%      | 49.6%       |

Figure 4

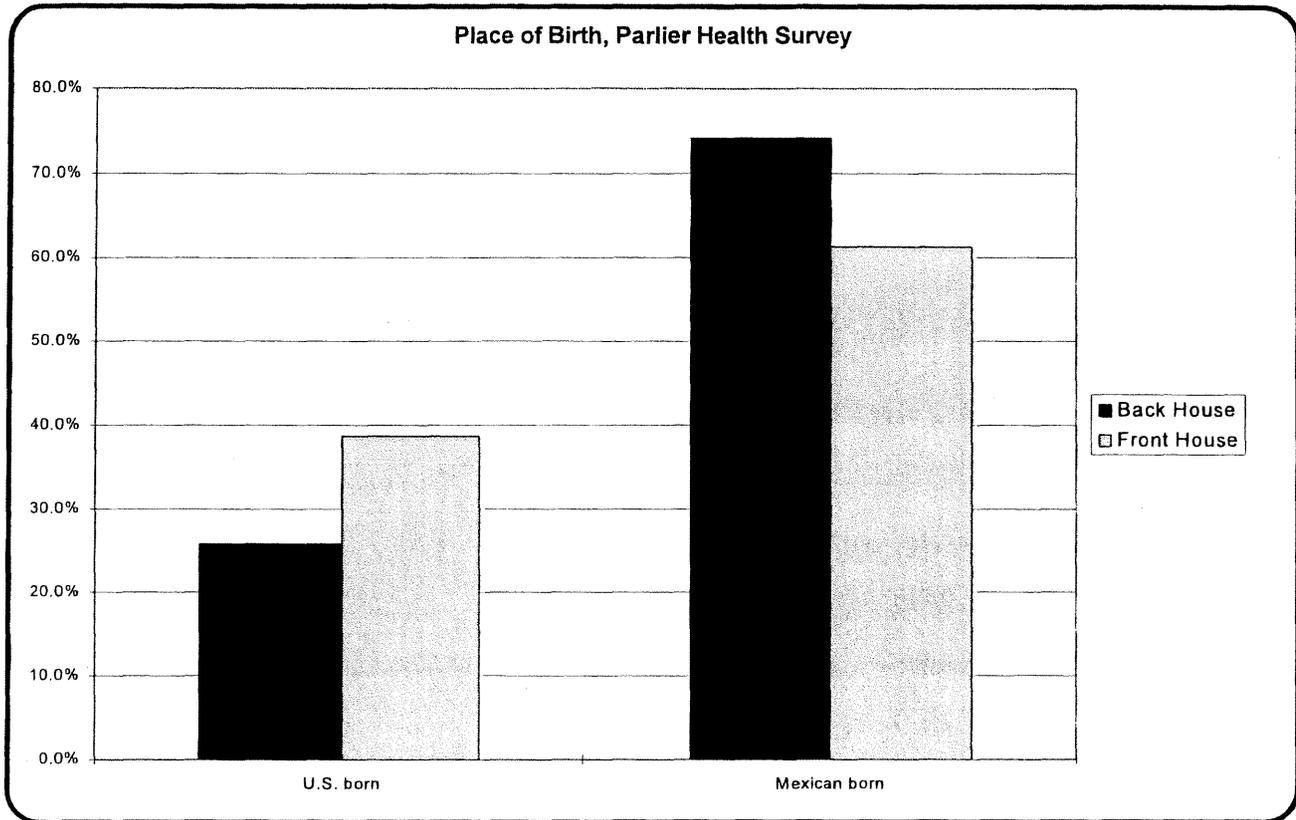


figures are consistent with the findings for gender and family composition, suggesting that the back houses are likely to contain young single workers, especially male, who may not have children of their own, or whose children do not live with them. This assumption is further evidenced by the higher percentage of married individuals among the front house population.

There are not significant differences between the front and back house populations in race and ethnic makeup, as is to be expected from the earlier comparisons with Census data. However, birthplace does show significant contrast. The front house population is more likely than the back house population to be born in the U.S., while nearly 75 percent of the back house population is born in Mexico, compared to 61 percent of the front house population. Although immigration status was not asked in either the Health or Enumeration Surveys, it is predictable that a higher percent of unauthorized immigrants will be found among the back house population because of its higher incidence of immigration. In addition, both front and back house population had low average educational attainment, although the back house population was less educated than the front. As over two-thirds of the interviews took place in Spanish, it is likely that many among the back house

population also do not speak English well. The combination of these factors lead to clear-cut disadvantages in the job market, predisposing the back house population to poverty and

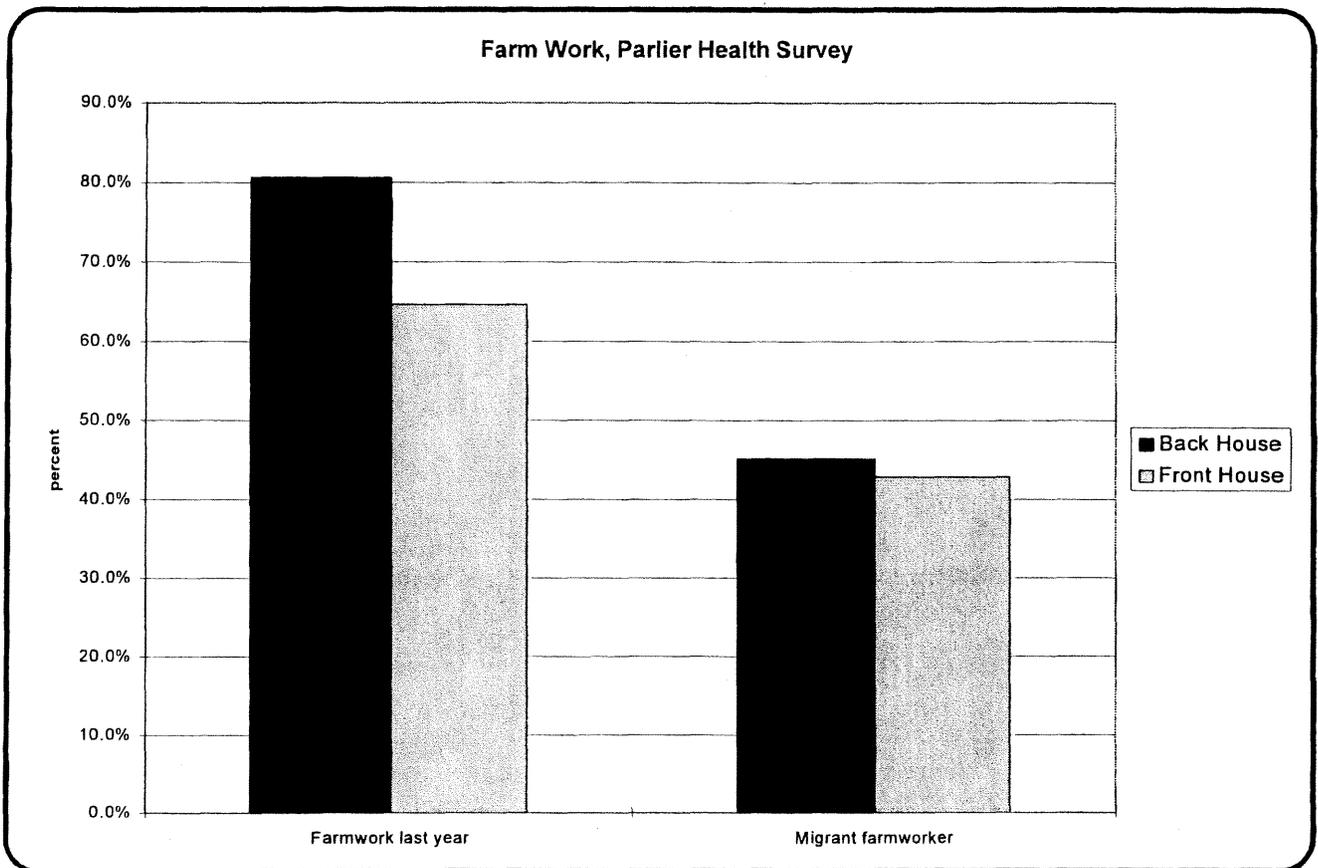
**Figure 5**



underemployment significantly more than the front house population.

In the case of Parlier, however, with its economy dominated by farming and farm-related industries, there is little choice of employment for either population. Both front and back house workers are mostly employed in agriculture, although the back house population is significantly more likely to have been doing farm work in the last year. Whereas the front house farm workers tend to have spent more time in agriculture (perhaps related to their lower frequency of recent immigration), they are less likely to have been doing farm work recently, and are more likely to find full time work that is not in agriculture. Among those who do farm work, however, the populations are quite similar for the number of months per year spent in agriculture and the likelihood of migrating to find jobs. Although both populations seem to be relatively dependent on agriculture as the major source of employment, there is evidence that the front house population is more able to find work outside of the agriculture

Figure 6



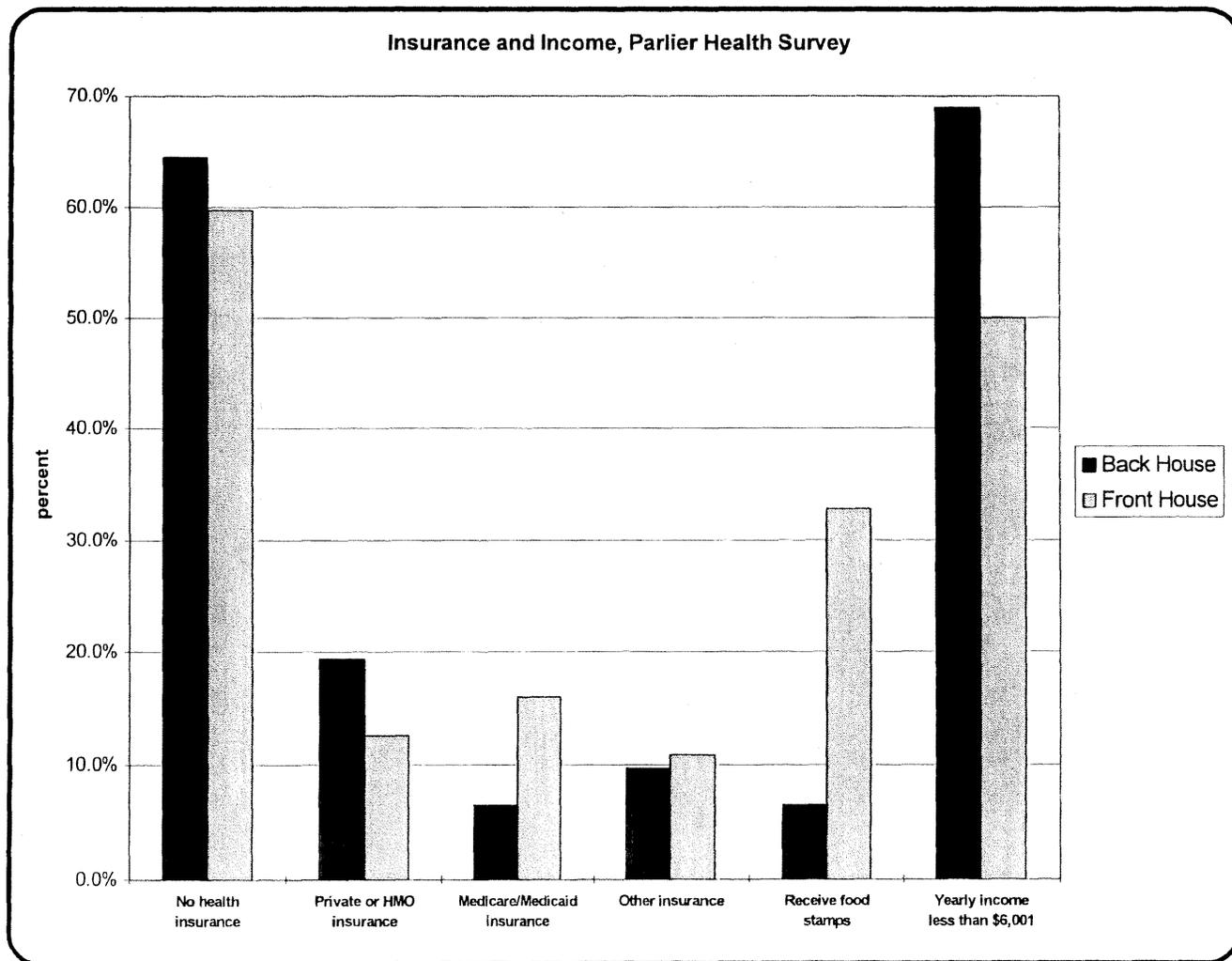
sector, and perhaps move on to higher paying, year-round jobs.

The back house population appears to utilize government programs with significantly lower frequency than the front house population. As was discussed earlier, the front house population has a higher percentage of children of school age, and thus is more likely to utilize the public school system. A high percentage of both populations have no health insurance at all, but among those who are insured, a much higher percentage of the front house population is insured through Medical and Medicaid. In addition, the front house population is more than five times as likely to be receiving food stamps. In both populations the majority of individuals are making less than \$6,001 yearly income, although the proportion earning less than this amount is higher among residents of the back houses. Clearly many people in both populations qualify for government sponsored social services, but the more needy of the two populations is the less likely to receive them. Being more educated, and more often documented immigrants, the front house residents have greater knowledge of how to access these services, and

greater ability to do so.

As expected, the back house demographic data differ more from the Census data than is the case for the front houses. For variables discussed in the previous section, such as household size and composition, birth place and occupation, it is the back houses that skew the Parlier Survey numbers away from those of the Census. This gives further proof of a Census undercount in the population of Parlier. As predicted this underrepresented population is found in the back houses, where the Census in its present form is unable to go.

Figure 7



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## COMPARISON WITH NAWS RESULTS

A final interesting comparison for this data can be done with the National Agricultural Workers Survey (NAWS) for the state of California.<sup>12</sup> This report, commissioned by the U.S. Department of Labor, summarizes data compiled by three different surveys conducted between October 1, 1989 and October 1, 1991, in order “to ensure that data collection is sensitive to seasonal fluctuations in the agricultural work force.”<sup>13</sup> NAWS is an on-going national survey conducted by the U.S. Department of Labor which selects counties within a large number of U.S. agricultural regions, and then selects employers of “seasonal agricultural services” workers from several different sources of employer names. Once permission is obtained, interviewers are sent out to these places of employment to randomly sample workers found there. This survey design differs from that of the Census in that its sampling frame is based on workplace rather than household. Thus the NAWS survey is able to sample agricultural workers regardless of the status of their housing.

Because of the ability of the NAWS survey to include the population of back houses left out of the Census, and because of the high percentage of agricultural workers found in the Parlier Survey, it is hypothesized that the results of the California NAWS will be similar to those of the present survey. Results for variables from the Parlier Survey as well as the 1990 U.S. Census are compared with the results of the 1990 NAWS in Table 5. As can be seen, the Census results for the city of Parlier differ most from the NAWS results, while the results for the back houses alone are in closest agreement with the NAWS for nearly every variable.

Several variables stand out in this comparison. Most obvious of these are the figures for U.S. versus Mexican births. The NAWS survey has twice as many Mexican births as the U.S. Census of Population has all foreign births, four out of five versus two out of five. Three-quarters of the back house population was born in Mexico, and two-thirds of the whole population of the Parlier Health Survey. Thus it is plainly the back house population which is most similar to the NAWS population for place of birth.

A similar phenomenon is witnessed for the gender categories, with males being over-represented in the populations of both the NAWS and the back houses, while the Census and front houses found a

**Table 5**  
 Comparison of California NAWS Survey, Parlier Survey Back Houses, Parlier Survey All Houses, and U.S. Census Data for Parlier city

| Category                      | NAWS Survey | Back House, Parlier Survey | Parlier Survey | 1990 U.S. Census |
|-------------------------------|-------------|----------------------------|----------------|------------------|
| Born in U.S.                  | 8%          | 26%                        | 36%            | 59%              |
| Foreign Born                  | 82%         | 74%                        | 64%            | 41%              |
| Average Age (for working age) | 34          | 36                         | 36             | 37               |
| Median Age (for working age)  | 32          | 32                         | 33             |                  |
| Hispanic Origin               | 91%         | 90%                        | 97%            | 98%              |
| White                         | 1%          | 7%                         | 2%             | 53%              |
| Asian                         | 8%          | 3%                         | 1%             | 0.20%            |
| Male                          | 74%         | 61%                        | 52%            | 52%              |
| Female                        | 26%         | 39%                        | 48%            | 48%              |
| Married                       | 66%         | 64%                        | 73%            | 44%              |
| Never Married                 | 29%         | 24%                        | 20%            | 38%              |
| Separated, Divorced, Widowed  | 5%          | 12%                        | 7%             | 18%              |
| 8th Grade or Less Completed   | 71%         | 67%                        | 57%            | 59%              |
| Median Education Level        | 6           | 6                          | 7              |                  |

nearly equal breakdown of males and females. Since males are more likely than females to be doing farm work according to NAWS, it is not surprising to find that they make up a high percentage of the back housing, which is inhabited mostly by farm workers. Since this type of housing is also the least permanent found in Parlier, it is most likely absorbing much of the seasonal fluctuation in population associated with variations in the demand for agricultural labor.

For the race and ethnicity categories, once again the greatest similarities are found between the NAWS and the back houses, while the Parlier Health Survey data is similar to that of the Census. There are slightly smaller percentages of Hispanics in the NAWS and back house data, while a few more Whites and Asians are found in these two populations. In addition, the NAWS and back house populations have very similar figures for married and never married, while the Parlier Enumeration Survey found a slightly higher proportion of married adults, and the Census found a significantly lower

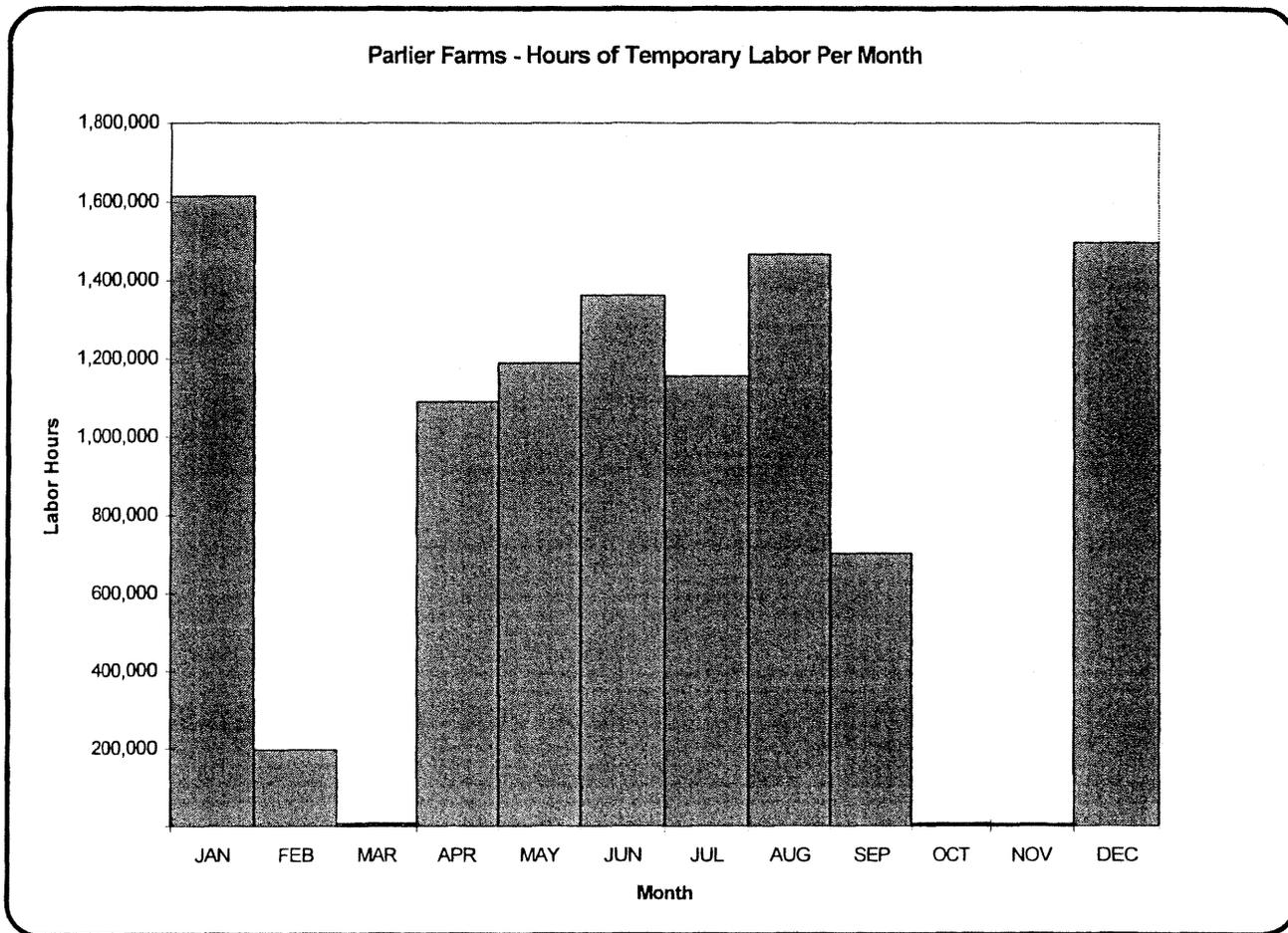
percentage. These similarities and differences are further evidence of a unique population being undercounted, which differs significantly from the Census-sampled group.

Finally, the figures for educational attainment help confirm that the undercount occurs in a farm worker population, as the NAWS and back house populations are once again quite similar. Both these groups have higher percentages of adults with educational attainment less than 9th grade, as well as lower median education levels than the Parlier Enumeration Survey and U.S. Census populations. As discussed earlier, low human capital in the form of education limits access to jobs, frequently leaving few options besides farm work in an area such as Parlier. Where farm work dominates and non-farm jobs are scarce, competition will exclude the less educated from the non-farm sector. As witnessed in the previous section, this is found to be the case in Parlier, as the less educated back house population is also less likely to be working at non-farm jobs. Thus we must conclude that the population of the back houses, because of their low education levels, recent immigration, and poor English, have few employment options and are thus more likely to be working in farming. The same is true of the opposite statement, that farm workers, because of the low wages, intermittent incomes, and greater tendency to migrate to find work, are also more likely to live in substandard housing.

What is clear from this comparison is that the NAWS is better able to capture the back house population because of its different sampling technique. In addition, as shown in Figure 8, being taken in early April and asking questions pertaining to the month of March, the Census catches the farm labor demand cycle at one of its lowest points during the year. Thus it is no surprise that its count is inaccurate for a town such as Parlier, whose residents rely heavily on farm work as their livelihood.

However, the Census undercount cannot be attributed solely to the time of year chosen. Even within the back house population, less than half of the residents are migrant farm workers, meaning that a majority of this population would have been living in Parlier no matter when the Census was taken. Although taking the Census at a different time of year might help improve enumeration of farm worker communities, the population of the back houses will still be missed unless steps are taken to revise the sampling frame and procedures.

Figure 8



Based on: John W. Mamer and Alexa Wilkie, Seasonal Labor in California Agriculture, Employment Development Department, December 1990.

## CRITIQUE OF METHODOLOGY AND TECHNIQUE

In doing a pilot survey of this magnitude, there are likely to be problems and mistakes made. These do not invalidate the survey or its results, but are still useful to explore in order to learn how to improve the technique for future use. Before the final conclusions are discussed, we describe some of the areas that could be improved on for future surveys of this type.

One important concern is that sampling for this survey was at times problematic. As noted earlier, the refusal rates were quite high among the front houses, although comparable to those found in other published academic surveys among immigrants.<sup>14</sup> Reasons for refusal were varied and sometimes not available, but often included a statement asserting the right not to cooperate, or of feeling that the survey was useless and would not change anything for the respondents. Other common reasons for refusal included lack of time to visit the clinic or an admission of ill health, often due to health risk behavior such as smoking, which made the respondent reluctant to visit the clinic. Since the sampling frame itself was small, it was important to exclude as few people as possible from the study.

Steps to lower the refusal rate might include a more detailed explanation of the study purposes and uses, in order to convince people of the value of their participation. In addition, in order to lower the refusal rates of those with either time or health related aversions to the clinic visit, perhaps the health survey interviews could have been done regardless of the respondent's plan to visit the clinic. Monetary incentives would hopefully still have convinced most people to take part in the health examination. Since there are identifiable trends to the refusals, decreasing the refusal rate would also help eliminate any possible biases, such as a bias against those with higher incidences of health risk behaviors.

In the case of the vacancy rate, found to be quite high for the back houses, there is little that can be done. It is necessary for this survey methodology to sample any possibly inhabited site in order to catch all of the unconventional dwelling places. However, vacancies were not always clearly determined, and on occasion a dwelling unit was considered vacant because no resident was found on the first visit. In most cases a second visit was made in order to determine the status of the house, although in several instances a letter regarding the study was left at the site with no follow-up visit. In

the case of questionable residences, it is important that there be clear guidelines about how to determine the vacancy status, including a pre-set number of return visits on different days and at different times of the day.

A last concern, for the purposes of this sort of analysis, is the wording of the questions and the categorizing of the answers. The Parlier Survey was designed without sufficient thought as to future use in comparison against other surveys. As discussed in Appendix II, comparing this data against that found by the Census was seriously complicated by the lack of precise fit between the two surveys in questions and content. It is understandable that this survey, which was originally designed as a health study, was not specifically designed for Census comparison. However, as the results are of use for a plethora of interests, it would be extremely helpful if the data were directly comparable with other major data sources, such as the Census and the other surveys which are based on it.

## CONCLUSIONS

First and foremost, the numerous comparisons and data analyses in this paper give significant evidence of an undercount in the U.S. Census of Population for the town of Parlier. Furthermore, the undercount exists in a specific population that is unique geographically, as well as in several other major characteristics. The population found in the back houses tends to be foreign born, working in agriculture, living in large households, and having low educational attainment. As would be hypothesized by its high participation in agricultural work, this population closely parallels that of the National Agricultural Workers Survey for California for several identifiers. This result validates not only the findings of the Parlier Survey, but also of NAWS itself. As far as this particular farm worker population is concerned, NAWS is better able to accurately depict its characteristics than is a survey which uses official Postal Addresses as the sampling frame.

The undercounted population is significant for the Census of Population, as well as the Census of Agriculture. It is a population which represents several policy interests, especially those related to farm issues, immigration and naturalization, and poverty. California has a long history of debate over farm workers, and agriculture's continued reliance on unauthorized and recent immigrants stands in contrast to the state's political trend in the direction of reducing immigration and cutting off government services to immigrants. Thus regarding immigration policy, farm owner interests continue to argue the case for immigrant labor, while there is little concrete information about this population group. It is of vital importance to be able to enumerate and monitor those immigrants who do work in farm labor in order to address questions of future labor shortages, as well as the perceived threat that immigration poses to U.S. citizens in employment competition and use of government services. The back houses represent a population which is of too much interest and importance to Californians to be left unstudied for so long.

Considering the major changes being considered for the next Census, it is time to redesign its sampling of nomadic populations. The methodology used for these surveys is especially applicable for the proposed switch from total enumeration to partial sampling. This type of sampling procedure can be used not only in rural areas for the type of population studied here, but also in cities to study homeless

populations. In the case of urban sampling, a more ethnographic approach may be used to construct a sampling frame, relying on interviews with homeless individuals in order to establish a network of territorial sleeping locations to sample. As proved in this survey, by mapping just the areas chosen for sampling, the time and resources involved can be kept relatively low.

Finally, a last implication of this study is the need to address the issue of substandard housing in California's Central Valley towns. Parlier is not unique as a town with a significant population living in substandard and unofficial housing. This type of housing situation is typical of areas with seasonal labor fluctuations that bring low-income individuals, especially farm workers, into the towns. The predominance of substandard housing for those working in the farm sector points to a serious shortage of available housing during the peak seasons. There is a vital need for increased low-income housing in towns like Parlier, to replace the cramped squalor of shacks, trailers, tents, and sheds. Commonly the back houses have no indoor plumbing, or a single bathroom serving several apartments and large numbers of residents. Telephones are also unlikely to be found in the back houses. Furthermore, considering that an average of 6 people live in each back house, there is most certainly a lack of adequate living space. The Census of Population for Parlier shows over 80 percent of its housing units have 5 or fewer rooms, and the back houses are considerably smaller, often with just one room per family. Health and hygiene are among the greatest concerns with this type of housing, as well as basic standard of living concerns for those who represent the very hard-working poor.

For Parlier, much would be improved by the creation of increased housing to hold the overflow during the harvest seasons. Developments like the Parlier Migrant Camp present a giant leap forward for seasonal housing, but unfortunately cannot accommodate all the people who need affordable places to live. Moreover, these units are rented only to families, completely excluding groups of single men. Government-funded housing is generally designed to accommodate households modeled on the traditional American nuclear family. Extended family households, as are predominate in communities like Parlier, are not congruent with this model, and thus are not well served by this type of housing.

Rural and small town housing shortages are found all over the country, and are particularly endemic to California's Central Valley. This is an issue which needs serious attention as well as funding for constructing low income, culturally appropriate housing to replace the current substandard

and unofficial housing. In order to focus attention on this problem, it is necessary first that these housing situations be acknowledged, and their residents counted by the U.S. Census. By continuing to leave these people out of the count, we are not only losing the opportunity to learn about the people affected by our laws, but we are also guaranteeing that their situations will go unchanged in the future.

## APPENDIX I

### BLOCK GROUP COMPARISONS

The following tables contain comparisons between the Parlier Survey data and the 1990 Census of Population data for the town of Parlier at the Census Block Group level. As discussed in the Comparison at the Block Group Level section of the report, Census Block Groups are aggregations of neighborhood-sized blocks within Census Tracts (a larger Census spatial unit). These comparisons are meant to give an in-depth illustration of the differences between the population sampled by the Census and that sampled by the Parlier Survey. By examining the two surveys on a smaller level we are able to better understand the trends in similarities and differences between the two survey populations.

**Table A-1**  
Comparison Between U.S. Census and Parlier Survey Data for Census Block Group 68.01-1

| Category                   | Sub Category         | 1990 U.S.Census | Parlier Survey |
|----------------------------|----------------------|-----------------|----------------|
| TOTAL PEOPLE               |                      | 1638            | 42             |
| NUMBER OF HOUSES           |                      | 391             | 7              |
| NUMBER OF BACK HOUSES      |                      | 0               | 2              |
| GENDER                     | MALE                 | 57.4%           | 54.8%          |
|                            | FEMALE               | 42.6%           | 45.2%          |
| AVERAGE AGE                |                      | 26.5            | 23.1           |
| HOUSEHOLD COMP.            | SINGLE FAMILY        | 79.4%           | 45.2%          |
|                            | EXTENDED FAMILY      | 11.1%           | 54.8%          |
|                            | SINGLE MALES         | 2.9%            | 0.0%           |
|                            | FEMALE HEADED        | 0.3%            | 0.0%           |
|                            | OTHER                | 6.2%            | 0.0%           |
| PEOPLE PER HOUSE           | AVERAGE              | 3.8             | 6              |
| HOUSEHOLD 7 OR MORE PEOPLE |                      | 9.5%            | 14.3%          |
| EDUCATION                  | <9TH GRADE           | 31.0%           | 44.4%*         |
|                            | 9TH TO 12TH          | 44.8%           | 55.6%*         |
|                            | > HIGH SCHOOL (12TH) | 24.1%           | 0.0%*          |
| BIRTH PLACE                | U.S.                 | 71.7%           | 50.0%*         |
|                            | FOREIGN              | 28.3%           | 50.0%*         |
| OCCUPATION                 | FARMING              | 43.0%           | 50.0%*         |
| RACE                       | WHITE**              | 49.8%           | 0.0%*          |
|                            | BLACK                | 1.0%            | 0.0%*          |
|                            | AMERICAN INDIAN      | 0.0%            | 0.0%*          |
|                            | ASIAN                | 4.5%            | 0.0%*          |
|                            | OTHER                | 44.7%           | 100.0%*        |
| HISPANIC                   |                      | 75.0%           | 100.0%*        |
| HISPANIC ORIGIN            | MEXICAN              | 98.5%           | 100.0%*        |
|                            | OTHER                | 1.5%            | 0.0%*          |
| MARITAL STATUS             | NEVER MARRIED        | 34.2%           | 20.0%*         |
|                            | MARRIED              | 48.3%           | 70.0%*         |
|                            | SEPARATE/DIVORCED    | 16.2%           | 10.0%*         |
|                            | WIDOWED              | 1.3%            | 0.0%*          |

\*FROM HEALTH SURVEY, N=10

\*\*CENSUS "WHITE" CAN INCLUDE HISPANIC, HEALTH SURVEY "WHITE" CANNOT.

**Table A-2**

Comparison Between U.S. Census and Parlier Survey Data for Census Block Group 68.01-2

| Category                   | Sub Category         | 1990 U.S.Census | Parlier Survey |
|----------------------------|----------------------|-----------------|----------------|
| TOTAL PEOPLE               |                      | 1474            | 102            |
| NUMBER OF HOUSES           |                      | 337             | 19             |
| NUMBER OF BACK HOUSES      |                      | 0               | 3              |
| GENDER                     | MALE                 | 53.4%           | 56.9%          |
|                            | FEMALE               | 44.6%           | 43.1%          |
| AVERAGE AGE                |                      | 25.8            | 23.2           |
| HOUSEHOLD COMP.            | SINGLE FAMILY        | 84.5%           | 57.8%          |
|                            | EXTENDED FAMILY      | 12.3%           | 25.5%          |
|                            | SINGLE MALES         | 0.5%            | 8.8%           |
|                            | FEMALE HEADED        | 0.5%            | 7.8%           |
|                            | OTHER                | 2.2%            | 0.0%           |
| PEOPLE PER HOUSE           | AVERAGE              | 4.4             | 5.4            |
| HOUSEHOLD 7 OR MORE PEOPLE |                      | 10.4%           | 21.1%          |
| EDUCATION                  | <9TH GRADE           | 55.1%           | 73.9%*         |
|                            | 9TH TO 12TH          | 36.1%           | 26.0%*         |
|                            | > HIGH SCHOOL (12TH) | 8.8%            | 0.0%*          |
| BIRTH PLACE                | U.S.                 | 61.3%           | 27.6%*         |
|                            | FOREIGN              | 38.7%           | 72.4%*         |
| OCCUPATION                 | FARMING              | 35.2%           | 76.0%*         |
| RACE                       | WHITE**              | 63.8%           | 3.4%*          |
|                            | BLACK                | 0.0%            | 0.0%*          |
|                            | AMERICAN INDIAN      | 0.0%            | 0.0%*          |
|                            | ASIAN                | 0.0%            | 0.0%*          |
|                            | OTHER                | 36.2%           | 96.6%*         |
| HISPANIC                   |                      | 98.7%           | 96.6%*         |
| HISPANIC ORIGIN            | MEXICAN              | 97.9%           | 86.2%*         |
|                            | OTHER                | 0.8%            | 10.3%*         |
| MARITAL STATUS             | NEVER MARRIED        | 39.6%           | 13.8%*         |
|                            | MARRIED              | 45.5%           | 75.9%*         |
|                            | SEPARATE/DIVORCED    | 11.0%           | 3.4%*          |
|                            | WIDOWED              | 3.9%            | 6.9%*          |

\*FROM HEALTH SURVEY, N=29

\*\*CENSUS "WHITE" CAN INCLUDE HISPANIC, HEALTH SURVEY "WHITE" CANNOT.

**Table A-3**  
Comparison Between U.S. Census and Parlier Survey Data for Census Block Group 68.01-3

| Category                   | Sub Category         | 1990 U.S.Census | Parlier Survey |
|----------------------------|----------------------|-----------------|----------------|
| TOTAL PEOPLE               |                      | 3535            | 232            |
| NUMBER OF HOUSES           |                      | 713             | 44             |
| NUMBER OF BACK HOUSES      |                      | 0               | 6              |
| GENDER                     | MALE                 | 52.1%           | 48.3%          |
|                            | FEMALE               | 47.9%           | 51.7%          |
| AVERAGE AGE                |                      | 24.7            | 22.9           |
| HOUSEHOLD COMP.            | SINGLE FAMILY        | 76.8%           | 47.0%          |
|                            | EXTENDED FAMILY      | 19.8%           | 48.7%          |
|                            | SINGLE MALES         | 0.9%            | 0.9%           |
|                            | FEMALE HEADED        | 2.5%            | 3.4%           |
|                            | OTHER                | 0.0%            | 0.0%           |
| PEOPLE PER HOUSE           | AVERAGE              | 4.8             | 5.3            |
| HOUSEHOLD 7 OR MORE PEOPLE |                      | 19.2%           | 23.3%          |
| EDUCATION                  | <9TH GRADE           | 68.7%           | 71.2%*         |
|                            | 9TH TO 12TH          | 25.3%           | 28.9%*         |
|                            | > HIGH SCHOOL (12TH) | 6.1%            | 0.0%*          |
| BIRTH PLACE                | U.S.                 | 53.0%           | 24.2%*         |
|                            | FOREIGN              | 47.0%           | 75.8%*         |
| OCCUPATION                 | FARMING              | 51.1%           | 75.8%*         |
| RACE                       | WHITE**              | 48.5%           | 0.0%*          |
|                            | BLACK                | 0.0%            | 0.0%*          |
|                            | AMERICAN INDIAN      | 0.0%            | 0.0%*          |
|                            | ASIAN                | 0.2%            | 0.0%*          |
|                            | OTHER                | 51.3%           | 100.0%*        |
| HISPANIC                   |                      | 99.5%           | 100.0%*        |
| HISPANIC ORIGIN            | MEXICAN              | 97.2%           | 97.0%*         |
|                            | OTHER                | 2.1%            | 3.0%*          |
| MARITAL STATUS             | NEVER MARRIED        | 38.9%           | 15.2%*         |
|                            | MARRIED              | 43.7%           | 80.3%*         |
|                            | SEPARATE/DIVORCED    | 12.3%           | 4.5%*          |
|                            | WIDOWED              | 5.1%            | 0.0%*          |

\*FROM HEALTH SURVEY, N=66

\*\*CENSUS "WHITE" CAN INCLUDE HISPANIC, HEALTH SURVEY "WHITE" CANNOT.

**Table A-4**

Comparison Between U.S. Census and Parlier Survey Data for Census Block Group 68.02-1

| Category                   | Sub Category         | 1990 U.S.Census | Parlier Survey |
|----------------------------|----------------------|-----------------|----------------|
| TOTAL PEOPLE               |                      | 1018            | 41             |
| NUMBER OF HOUSES           |                      | 292             | 10             |
| NUMBER OF BACK HOUSES      |                      | 0               | 3              |
| GENDER                     | MALE                 | 44.4%           | 56.1%          |
|                            | FEMALE               | 55.6%           | 43.9%          |
| AVERAGE AGE                |                      | 32.7            | 34.6           |
| HOUSEHOLD COMP.            | SINGLE FAMILY        | 77.8%           | 26.8%          |
|                            | EXTENDED FAMILY      | 17.4%           | 53.7%          |
|                            | SINGLE MALES         | 0.7%            | 17.1%          |
|                            | FEMALE HEADED        | 3.1%            | 2.4%           |
|                            | OTHER                | 0.0%            | 0.0%           |
| PEOPLE PER HOUSE           | AVERAGE              | 3.4             | 4.1            |
| HOUSEHOLD 7 OR MORE PEOPLE |                      | 5.5%            | 20.0%          |
| EDUCATION                  | <9TH GRADE           | 34.9%           | 55.6%*         |
|                            | 9TH TO 12TH          | 32.4%           | 22.2%*         |
|                            | > HIGH SCHOOL (12TH) | 32.7%           | 22.2%*         |
| BIRTH PLACE                | U.S.                 | 80.9%           | 61.5%*         |
|                            | FOREIGN              | 19.1%           | 38.5%*         |
| OCCUPATION                 | FARMING              | 31.0%           | 38.5%*         |
| RACE                       | WHITE**              | 34.6%           | 7.7%*          |
|                            | BLACK                | 0.0%            | 0.0%*          |
|                            | AMERICAN INDIAN      | 2.4%            | 0.0%*          |
|                            | ASIAN                | 8.5%            | 7.7%*          |
|                            | OTHER                | 54.5%           | 84.6%*         |
| HISPANIC                   |                      | 68.6%           | 84.6%*         |
| HISPANIC ORIGIN            | MEXICAN              | 68.2%           | 69.2%*         |
|                            | OTHER                | 0.4%            | 15.4%*         |
| MARITAL STATUS             | NEVER MARRIED        | 27.0%           | 53.8%*         |
|                            | MARRIED              | 51.9%           | 38.5%*         |
|                            | SEPARATE/DIVORCED    | 10.1%           | 0.0%*          |
|                            | WIDOWED              | 11.0%           | 7.7%*          |

\*FROM HEALTH SURVEY, N=13

\*\*CENSUS "WHITE" CAN INCLUDE HISPANIC, HEALTH SURVEY "WHITE" CANNOT.

**Table A-5**  
Comparison Between U.S. Census and Parlier Survey Data for Census Block Group 68.02-3

| Category                   | Sub Category         | 1990 U.S.Census | Parlier Survey |
|----------------------------|----------------------|-----------------|----------------|
| TOTAL PEOPLE               |                      | 1065            | 37             |
| NUMBER OF HOUSES           |                      | 266             | 9              |
| NUMBER OF BACK HOUSES      |                      | 0               | 1              |
| GENDER                     | MALE                 | 52.4%           | 45.9%          |
|                            | FEMALE               | 47.6%           | 54.1%          |
| AVERAGE AGE                |                      | 29.3            | 30.6           |
| HOUSEHOLD COMP.            | SINGLE FAMILY        | 71.3%           | 73.0%          |
|                            | EXTENDED FAMILY      | 18.2%           | 13.5%          |
|                            | SINGLE MALES         | 2.3%            | 0.0%           |
|                            | FEMALE HEADED        | 8.2%            | 13.5%          |
|                            | OTHER                | 0.0%            | 0.0%           |
| PEOPLE PER HOUSE           | AVERAGE              | 4               | 4.1            |
| HOUSEHOLD 7 OR MORE PEOPLE |                      | 11.7%           | 0.0%           |
| EDUCATION                  | <9TH GRADE           | 60.7%           | 69.2%*         |
|                            | 9TH TO 12TH          | 25.3%           | 23.1%*         |
|                            | > HIGH SCHOOL (12TH) | 14.0%           | 7.7%*          |
| BIRTH PLACE                | U.S.                 | 68.3%           | 57.1%*         |
|                            | FOREIGN              | 31.7%           | 42.9%*         |
| OCCUPATION                 | FARMING              | 28.4%           | 42.9%*         |
| RACE                       | WHITE**              | 57.7%           | 0.0%*          |
|                            | BLACK                | 0.0%            | 0.0%*          |
|                            | AMERICAN INDIAN      | 0.0%            | 0.0%*          |
|                            | ASIAN                | 0.7%            | 0.0%*          |
|                            | OTHER                | 41.6%           | 100.0%*        |
| HISPANIC                   |                      | 96.8%           | 100.0%*        |
| HISPANIC ORIGIN            | MEXICAN              | 96.2%           | 64.3%*         |
|                            | OTHER                | 0.6%            | 35.7%*         |
| MARITAL STATUS             | NEVER MARRIED        | 42.9%           | 21.4%*         |
|                            | MARRIED              | 38.2%           | 71.4%*         |
|                            | SEPARATE/DIVORCED    | 10.5%           | 0.0%*          |
|                            | WIDOWED              | 8.4%            | 7.1%*          |

\*FROM HEALTH SURVEY, N=14

\*\*CENSUS "WHITE" CAN INCLUDE HISPANIC, HEALTH SURVEY "WHITE" CANNOT.

**Table A-6**

Comparison Between U.S. Census and Parlier Survey Data for Census Block Group 68.02-4

| Category                   | Sub Category         | 1990 U.S.Census | Parlier Survey |
|----------------------------|----------------------|-----------------|----------------|
| TOTAL PEOPLE               |                      | 730             | 70             |
| NUMBER OF HOUSES           |                      | 146             | 13             |
| NUMBER OF BACK HOUSES      |                      | 0               | 3              |
| GENDER                     | MALE                 | 59.0%           | 55.7%          |
|                            | FEMALE               | 41.0%           | 44.3%          |
| AVERAGE AGE                |                      | 25.9            | 20.9           |
| HOUSEHOLD COMP.            | SINGLE FAMILY        | 66.8%           | 34.3%          |
|                            | EXTENDED FAMILY      | 15.6%           | 48.6%          |
|                            | SINGLE MALES         | 4.5%            | 17.1%          |
|                            | FEMALE HEADED        | 6.4%            | 0.0%           |
|                            | OTHER                | 6.6%            | 0.0%           |
| PEOPLE PER HOUSE           | AVERAGE              | 4.3             | 5.4            |
| HOUSEHOLD 7 OR MORE PEOPLE |                      | 18.5%           | 23.1%          |
| EDUCATION                  | <9TH GRADE           | 62.6%           | 53.8%*         |
|                            | 9TH TO 12TH          | 32.9%           | 46.2%*         |
|                            | > HIGH SCHOOL (12TH) | 4.5%            | 0.0%*          |
| BIRTH PLACE                | U.S.                 | 37.8%           | 43.8%*         |
|                            | FOREIGN              | 62.2%           | 56.3%*         |
| OCCUPATION                 | FARMING              | 73.6%           | 50.0%*         |
| RACE                       | WHITE**              | 78.6%           | 0.0%*          |
|                            | BLACK                | 0.0%            | 0.0%*          |
|                            | AMERICAN INDIAN      | 4.7%            | 0.0%*          |
|                            | ASIAN                | 0.8%            | 0.0%*          |
|                            | OTHER                | 15.9%           | 100.0%*        |
| HISPANIC                   |                      | 98.2%           | 100.0%*        |
| HISPANIC ORIGIN            | MEXICAN              | 92.3%           | 100.0%*        |
|                            | OTHER                | 4.7%            | 0.0%*          |
| MARITAL STATUS             | NEVER MARRIED        | 40.1%           | 25.0%*         |
|                            | MARRIED              | 31.1%           | 62.5%*         |
|                            | SEPARATE/DIVORCED    | 24.7%           | 12.5%*         |
|                            | WIDOWED              | 4.1%            | 0.0%*          |

\*FROM HEALTH SURVEY, N=16

\*\*CENSUS "WHITE" CAN INCLUDE HISPANIC, HEALTH SURVEY "WHITE" CANNOT.

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## APPENDIX II

This section provides further discussion for a few of the variables being compared between the U.S. Census of Population and the Parlier Survey. For many of the variables, such as gender, average age, people per house, household size, education, birth place, and Hispanic origin, the data collected for the Parlier Survey matches well with the data collected by the U.S. Census. For several other variables, however, the specific questions asked and the ways in which the final results were reported differed between the Parlier Survey and the Census. Among these problematic variables are household composition, occupation, race and ethnicity, and marital status.

In the case of the household composition question, the categories were selected to fit those used in the Parlier Enumeration Survey, since family versus nonfamily status was difficult to determine from the data that was collected. A single family was considered to be a nuclear family, containing a male-female adult couple, with or without children. An extended family was one in which several adults of both sexes, and often different generations, were present, usually along with children. Single male and female headed households consisted of adults of one sex or the other, either singly or in groups, with or without children. These categories were then superimposed for comparison purposes on Census data which did not fit them neatly. The Census makes a distinction between “family” and “nonfamily” households which the Enumeration Survey did not make. In this comparison, an individual from the Census data was considered to be living in a single family if he/she was the householder, spouse, or child in a family household. Grandchildren, other relatives, and unrelated persons living in family households were considered to be extended family. Single male and female headed households were considered to be made up of those people living in nonfamily households headed by male and female householders.

The major flaw with this comparison is that it does not allow for family households headed by single parents to be considered separately from family households. Likewise, the Parlier Enumeration Survey data does not allow for distinction between family and nonfamily households headed by single adults. Thus there is likely to be a bias toward single male and single female households in the Enumeration Survey data which cannot be matched by the Census data. As can be seen in Appendix

I, Tables A-1 through A-6, however, there is little consistency in the differences between the Census and the Enumeration Survey for these two variables, and thus they are not of particular interest in this analysis.

Another, simpler problem exists in the occupation category. In this case the two questions were asked differently. The Census, done in April, asks respondents their occupation for the previous month, and then considers “farming, fishing and forestry” as a single occupational category. The Parlier Health Survey, on the other hand, asked whether or not a respondent had worked in farming in the past year, thus significantly biasing the answer in favor of farming. The Health Survey did not include either forestry or fishing in its question, but this discrepancy is not of major significance since so little forestry or fishing is likely to occur in the town of Parlier, where the necessary resources are simply not present.

The race question also poses a problem, which is inherent in the Census’s conception of the racial categories. The Census considers race to be separate from ethnicity, and asks two separate questions. This makes it possible for a respondent to answer the race question as “white” and the ethnicity question as “Hispanic.” Thus the 1990 Census of Population for Parlier finds 4,086 people of White race and 7,707 of Hispanic ethnicity out of a total population of 7,938 residents.<sup>15</sup> This double identifying was not possible with the Parlier Health Survey, which asked only a single race/ethnicity question. Thus a Hispanic respondent could not self-identify as both White and Hispanic, but had to choose one or the other. In Parlier, where the population is largely Hispanic, this resulted in a strong bias against “White” as a race identifier in the Health Survey.

The Census race question is quite problematic for this population, among whom race identification as used in the U.S. is poorly understood and probably not regarded as meaningful. There seems to be confusion as to whether Hispanic origin is considered race or ethnicity, as witnessed by the high incidence of individuals reporting their race as “other” in the Census data. In most block groups, between one third and one half of the Census population gave their race as “other,” while almost all reported their ethnicity as Hispanic. It can be concluded from this data that many Hispanics did not consider their race to be White, Black or Asian, and felt themselves to be a separate racial group. As race is a socially constructed concept, it is important that the Census become aware of this confusion and try to address it in future surveys.

The last of the problematic variables is marital status. Here again the problem is that the questions were asked differently in the Parlier Health Survey and the U.S. Census, and then responses were assigned to four categories in our analysis that neither data set precisely fits. The Health Survey allowed the four basic category choices, as well as a fifth, “unmarried but living as married with partner.” Since there was no comparable data from the Census, this response was added into the category “never married,” although this may not always be the correct place for such responses. In addition, discrepancies in the Census data suggest that the respondents did not completely understand the questions asked. Among the six Census Blocks being compared, in no case does the Census report of the number of males “married, spouse present” equal the number of females “married, spouse present.” It is hard to account for the missing spouses, but the most likely place for them is the category of “married, spouse absent.” Considering the high proportion of self-identified migrants among this farm worker population, there is a good chance that what is meant by an absent spouse was interpreted differently by different people. This problem may also have been exacerbated by the low level of English literacy among many of Parlier’s residents. Thus it is likely that not only are the Census’s figures for “married, spouse present” inaccurate, but also that “married, spouse absent” may not be exactly equal to the “separated/divorced” category in the Health Survey, where such responses are assigned for the purposes of this comparison.

## REFERENCES

<sup>1</sup> “1990 Census of Population and Housing,” Summary Tape File 3B, Bureau of the Census, U.S. Department of Commerce: Washington, D.C.

<sup>2</sup> Susan Gabbard, Edward Kissam, and Phillip L. Martin, “The Impact of Migrant Travel Patterns on the Undercount of Hispanic Farm Workers,” pp. 207-245, from The 1993 Proceedings of the Research Conference on Undercounted Populations, Department of Census: Washington, D.C., October 1993.

<sup>3</sup> Deborah Reed, Melissa Glenn Haber, Laura Mameesh, The Distribution of Income in California, Public Policy Institute of California: San Francisco, 1996.

<sup>4</sup> “Census ‘90 Basics,” Publication No. 1990CPH-1-8, Bureau of the Census, U.S. Department of Commerce: Washington, D.C., January 1990, p. 1.

<sup>5</sup> James D. Wright and Joel A. Devine, “Counting the Homeless - The Census Bureau’s S-Night in Five U.S. Cities,” in Evaluation Review, August 1992, V16, N4, pp. 355-364.

<sup>6</sup> See Julie DaVanzo, Jennifer Huwes-Dawson, R. Burciaga Valdez and George Vernez, Surveying Immigrant Communities, Publication No. MR-247-FF, Rand, 1994, pp. xvi, pp. 23-24.

<sup>7</sup> Carla Littlefield and Charles L. Stout, “Colorado Migrant Farmworker Health Survey Preliminary Report,” Colorado Migrant Health Program, 1987.

<sup>8</sup> Ibid.

<sup>9</sup> See DaVanzo et. al., op. cit.

<sup>10</sup> “California Findings from the National Agricultural Workers Survey,” Research Report No. 3, Office of Program Economics, Office of the Assistant Secretary for Policy, U.S. Department of Labor, 1993, p. 12.

<sup>11</sup> “1990 Census of Population and Housing,” Summary Tape File 3B, Bureau of the Census, U.S. Department of Commerce: Washington, D.C.

<sup>12</sup> “California Findings From the National Agricultural Workers Survey,” op. cit.

<sup>13</sup> Ibid., pp. 1-2.

<sup>14</sup> See DaVanzo, et. al., op. cit., p. 26.

<sup>15</sup> “1990 Census of Population and Housing,” Summary Tape File 3A, Bureau of the Census, U.S. Department of Commerce: Washington, D.C.