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Ethnographic Social Network Tracing of Highly Mobile People

FINAL

This evaluation study reports the results of research and analysis undertaken by the U.S. Census Bureau. It is part of a broad program, the Census 2000 Testing, Experimentation, and Evaluation (TXE) Program, designed to assess Census 2000 and to inform 2010 Census planning. Findings from the Census 2000 TXE Program reports are integrated into topic reports that provide context and background for broader interpretation of results.

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EXECUTIVE SUMMARY

Residential mobility has long been identified as a behavior that challenges accurate enumeration and coverage. In order to learn more about how residential mobility impacts census coverage, the Ethnographic Social Network Tracing Project researched social networks which include highly mobile people. Highly mobile people were defined as people who make residential moves more often than most people in the United States or who habitually migrate among domiciles. Social networks were formally defined and modeled by observing people interact over a six-month period. Researchers traced participants interacting in the social networks to the addresses and locations of their domiciles and reported the identities and characteristics of participants, sets of co-residents, and the domiciles they occupied.

At the beginning of the research studies, no one -- not even the people interacting in the social networks-- knew where the more mobile participants might live over the course of six months, where they would end up, or whether records for them could be found in Census 2000.

Participants in the six social networks researched were involved in diverse patterns and degrees of mobility.

- Dee Southard traced a social network of campers who cooked communally. Survival campers, who lived out of their vehicles and tents and revolved among camp grounds and parking spots on public lands every few days or weeks, were central actors. Around camp ground cooking fires, the survival campers interacted with recreational campers who were temporarily vacationing away from their homes and college quarters.

- Nancy Murray traced seasonal workers who habitually circulated among an average of three term assignments at different distant work sites. These young adults created a peer group home in a work quarters lodge their employer provided at the seasonal assignment site they preferred.

- Alicia Chavira-Prado traced a folkloric dance group made up of Mexican former farm workers settling in the rural Midwest. The more recently arrived pursued highly itinerant work and changed housing locally. Those settled longer or born in the United States supported stable family households with local rural jobs. During the summer school vacation, teenagers moved across state and national boundaries to stay with relatives.

- Louis H. Marcelin and Louise Marcelin traced older Haitians who worked together in agricultural fields. From the late fall through early spring, these men and women picked crops near a city in the South where most had established homes. During the late spring and summer, they formed crews to migrate north to find harvest work. Migrant crew subsets traveled, worked, and lived together. Several participants fit other kinds of work or transnational visits into their personal cycles of seasonal work.

- Kathi Kitner traced commercial fishermen, their friends and family, and industry employees who socialized around a particular Atlantic coast fishing dock. The commercial fishermen worked and lived at sea to produce their incomes. On shore, some returned to established homes and long-term co-residents. Other fishermen moved itinerantly on shore, staying alone or sharing with companions a series of temporary domiciles.

- Brian Gilley traced participants in a local chapter of an American Indian men's society. The residentially mobile men traveled to events and took haven in each others' homes. The habitually mobile included ceremonial specialists welcome throughout the West and one man who perpetually needed a place to stay. Their ethic of reciprocal hospitality facilitated interstate stays and gave these men broad access to places to stay.

Census staff placed the addresses and locations of participants' census residences and subsequent domiciles in census geography and looked up addresses on the Master Address File. Census Unedited File person records matching the participants and their reported co-residents were searched in extracts of records collected at the unit addresses or in and around the blocks where the participants' various domiciles were located.

Various associations were found between the character of individuals' mobility (whether sedentary, residentially mobile, or habitually mobile), their positions in the interacting social networks and matrices of co-residence, and "census outcomes." In the intensively researched social networks traced, fewer of the residentially and habitually mobile individuals were found enumerated in Census 2000 than those who remained sedentary. Categories of census outcomes distinguish which correct enumerations, omissions, and erroneous enumerations resulted from unit issues (whether or how Census 2000 listed and enumerated census residences) and which resulted from within-unit issues of relationships and perceptions among co-residents. If Decennial operations did not list or enumerate the unit that was the census residence of one or more individuals, or did not place the unit in accurate census geography, then it was unlikely that any census records could be found for any one living in that unit. Similarly, if Decennial operations listed and correctly placed a census residence in geography, but then did not enumerate it or enumerated it as vacant or with entirely different people, it was less likely that records of any of its co-occupants could be found. If a unit had been listed and enumerated more than once, then all or most co-residents might be duplicated. Unit-based issues affect co-residents of a unit equally and largely result from Census Bureau operations.

The omission or erroneous inclusion of certain individuals in their correct census residence where at least one of their reported co-residents was enumerated and served as the census respondent arise from respondent behaviors. These "within-unit" results reflect dynamics among co-residents that influence who is reported.

Relationships were found in these small scale social network studies between individuals' mobility behaviors and both "unit-based" and "within-unit" errors. Habitually mobile people

often stayed in types of domiciles the Census 2000 did not list. In listed housing, how household respondents perceived and interpreted an individual's current and historic mobility influenced whether or not the person was reported. These relationships combined to produce the net effect that more individuals traced as habitually mobile or residentially mobile were omitted than were found enumerated.

A major leveling effect was whether or not the census residence or any subsequent domiciles of the individuals searched had been listed and enumerated in the correct geographical location, or were in blocks even classified as populated. If an individual's census residence was not listed, then that person had no "unit of enumeration" where he or she could be correctly enumerated in Census 2000. Census 2000 did not list or else listed but then did not enumerate several kinds of domiciles where habitually mobile people were traced staying. Unlisted types included unconventional domiciles -- camp grounds, docked fishing boats, cheap motels, farm workers' rental labor camps– but also as conventional housing units such as single family homes, trailer mobile homes, townhouses, condos, and apartments in rural areas, towns, and cities. If the address of a domicile were listed on the Census Bureau's Master Address File, it is likely that it was at some time considered as a census unit of enumeration, although census person records were not found for all the units listed.

Different dynamics affected individuals who were not found enumerated within households or group quarters where their co-residents were enumerated, and a few individuals appearing in census records for households identified as erroneously enumerated. The omission of residentially mobile individuals at their census residences involved the perceptions and expectations about those individuals' mobility by the census respondent. Some highly mobile individuals who did have a housing unit that could be considered their usual or default Census residence were not mentioned by the respondent for the unit for a variety of reasons. In some cases, the omitted individual was temporarily absent at the time of enumeration and the respondent either did not know enough about the absent individual or did not feel at liberty to provide information. In others, the omitted individual was present at the time of enumeration but the respondent did not expect them to stay.

Most of the habitually and residentially mobile social network participants who were found enumerated shared certain traits.

- **Most of the habitually and residentially mobile people found enumerated**
- **had census residences in conventional housing**
  and
- **maintained ties with**
  and
- **repeatedly and routinely returned to**
  - **<u>the same set of residentially sedentary co-residents</u>**
- **in one locality.**

As long as their census residence was listed and enumerated, records for habitually and residentially mobile people with all these traits were found, no matter how often or how far they went away. In this research study, far more habitually and residentially mobile people lacked at least one of the traits cited above and were omitted.

Based on the analysis of census outcomes in terms of individuals' mobility characteristics, types of domiciles, and relationships with co-residents, the following recommendations are discussed:

1. **Consider adapting census methods to more closely fit the cultural habits of distinct populations, including the traditionally, seasonally, and occupationally mobile.**

2. **Design and test the feasibility of Census operations appropriate for the contemporary patterns of mobility in the United States, including transnational migration.**

3. **For the existing categories of census units of enumeration, continue to improve the Master Address File, the listing of housing units, Group Quarters, and Service-Based Sites, as well as Census Bureau geographical programs and electronic maps.**

4. **To include the under covered Transient Quarters, work quarters, and types of residential accommodations that were unrecognized or excluded by definition as units of enumeration in Census 2000, it will be necessary to develop and test methods to expand the listings and develop more inclusive enumeration operations for types of domiciles that are often the default census residences of mobile people (among others).**

5. **Consider seasonal differences in the distribution of the population of the United States when estimating population, and consider the development of the capacity to measure seasonal differences in the distribution of the population.**

A promising indication of areas potentially "hard-to-enumerate" for planning are areas with percentages of population who moved in during the five years prior higher than the national average. Considering that seasonal relocations and mobility picks up in the spring and summer, changing "Census Day" to mid-winter might avoid the confounding effects of residential mobility. Different outreach strategies and messages are appropriate for those highly and especially habitually mobile people who have "localized base communities" stabilized by "domestic base households" and acquaintances remaining in place than for those highly mobile people who travel among spatially dispersed locations and intersect and gather episodically at multiple locations or events. Like individuals in two of the social networks examined, many foreign born engage in a "transnational" pattern of immigration. The transnational pattern

involves visits to and from and sustained communications with countries of origin. Immigration is increasing the size of communities of languages other than English; transnational visiting and communications are among the mechanisms promoting retention of those languages. Transnational visiting patterns explain some omissions and erroneous inclusions in the census and can lead to mixes of co-residents with different legal permissions to be in the United States. Increasing transnational immigration makes it pragmatic for the Census Bureau to deliver messages of explanation and encouragement to potential respondent in languages they understand.

For the existing categories of census units of enumeration, this research suggest it is important to continue to improve the Master Address File, methods of listing housing and Group Quarters, and the Census Bureau's geographical programs and electronic maps. For categories of domiciles apparently under covered, unrecognized, or excluded that were the default census residences of very mobile people, however, it will be necessary to develop and test expanding listings to make them more inclusive and to modify enumeration operations. Examples are sketched. Small scale tests could determine the feasibility of applying the existing maritime shipboard enumeration method to the U.S. fishing fleet and other U.S. flag commercial vessels. The feasibility of a "Check into the Census" campaign could be piloted in a test census. The check in campaign would be conducted in residential service facilities listed at the level of sites, including temporary and periodically occupied work quarters, all campgrounds, marinas, and other so-called "Transient Quarters" and also all commercial hotels, motels, non-profit lodgings (YMCAs, Youth hostels), and similar outdoor and indoor residential accommodations. Rather than assuming, screening, or collecting proxy stereotypes about clients' situation, it may be more optimal to enumerate every one staying in these diverse residential services. This would sweep in people for whom the residential service site is their default census residence and collect first person reports from travelers who are away from their usual homes. In the "Check into the Census" campaign as sketched, all occupants checking into or already registered at residential service sites would fill out Individual Census Questionnaires. As was the case for Census 2000 "Be Counted" forms and those collected in the largely non-residential service-based sites, respondents could state the address of their "usual home" some where else if they had one and their direct enumeration could be attributed to that address. The "Check into the Census campaign" suggested for testing would resemble a "Be Counted"campaign well attended by enumerators and cooperating facility staff and applying respondent assistance and facility record check techniques developed in the Census 2000 Service-Based Enumeration.

Mobility patterns during the six months participants were traced bore the seasonal stamp of accelerated movement during the Spring and Summer. Relevant survey data suggests house-to-house relocations and labor migrations peak in summer months. Considering that large differences in the distribution of the population in the United States accrue from seasonal moves will be important in order to derive accurate population estimates from American Community Survey. The American Community Survey is expected to replace the once-a-decade census long form and "roll" in its collection throughout the year.

Research results suggest that mobility is more a behavior of individuals than of co-residential groups like “households” or the co-occupants of Group Quarters. The ethnographers set out to identify social contexts where highly mobile interacted. In the social networks defined by interactions, highly mobile participants were measurably central actors. In the matrices of co-residence defined by who lived or stayed together over the six months, several mobile participants interconnected with serial sets of co-residents while others either stayed sedentary with or alternated residence with a set of mutually exclusive co-residents.

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1. BACKGROUND

1. 1 Overview

This research traced highly mobile people's moves among domiciles to learn more about how mobility affected coverage in Census 2000. The mobility of the American population challenges census and coverage measurement methods. Mobility confounds the effort to enumerate each person at one (and only one) "Census Day" residence.[1] For Census coverage measurement methods based on sample areas, reliable methods to determine whether people who moved into or out of the sample area were omitted or correctly enumerated have proven difficult to implement.

Six ethnographic research projects observed people interact in social networks including highly mobile individuals and traced participants' whereabouts over six months.

> P.A. "Dee" Southard (2001) traced a social network in which rural survival campers interacted with recreational campers vacationing away from their homes and colleges on public lands in the Northwest.
>
> Nancy Murray (2001) traced a social network of seasonal workers living together in a dormitory their employer provided.
>
> Alicia Chavira-Prado (2001) traced a social network of Mexican former migrant farm workers settling in the rural Midwest.
>
> Louis Marcelin and Louise Marcelin (2001) traced a social network of Haitian farm workers who worked fall and winter in the far South and migrated to harvests further north spring and summer.
>
> Kathi R. Kitner (2001) traced a social network of South Atlantic commercial fishermen interacting with their kin and associates.
>
> Brian Gilley (2001) traced a social network of American Indian men affiliated with a men's society.

The ethnographers conducted participant observation in settings where habitually and highly mobile people interact with each other and more sedentary acquaintances. The interactions formally defined each social network; everyone who participated was traced. The ethnographers found out who the participants were, what domiciles they occupied, and with whom else they

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[1] See Census 2000 "Residence Rules" available on line at:
http://www.census.gov/population/www/censusdata/resid_rules.html

lived or stayed through private side conversations and visits. The tracing periods began before Census Day 2000 and lasted six months. At the beginning of the research, no one knew where the people participating in the social networks might move. No one knew who their co-residents would be, where they would end up, or whether their enumeration records would be found in the census.

The field ethnographers identified the people participating in the social networks and the people with whom they lived. For each participant and non-participating co-resident, the researchers systematically reported the same characteristics that Census 2000 collected on the "short form" and selective "long form" information related to mobility. Tracing required researchers collect and verify, if possible, the address and location of domiciles social network participants occupied, find out who their co-residents were in each, and at what dates the participants entered and left each domicile.

Census Bureau staff identified the locations submitted in Census geography and looked up the addresses on the Census Bureau's Master Address File. All Census 2000 person records collected in and around the census blocks and at the specific addresses were extracted. These electronic files were then searched for census records that matched the reported individual social network participants and their co-residents.

Census block geocodes and unit identifications were used to specify reasonable searches in the universe of millions of census person records for a few hundred individuals. The research method took advantage of technological advances implemented in Census 2000: increased automation for geocoding addresses and data capture methods which recorded items marked and written on census forms, including names.

Researchers reviewed the matches. The ethnographic report for each social network describes the sociocultural contexts and which census answer categories resonate with how participants identified themselves. The ethnographers also discussed the situations of particular individuals which the researchers believe may explain why no matching census records were found for them. The social networks defined by interactive ties were formally analyzed. A data set was constructed to analyze comparatively the cases of the individual participants and their co-residents within each of the six social networks.

1.2 Ethnographic evaluations

Residential mobility headed the list of behavioral barriers posited to impact census coverage (Brownrigg and Martin 1989). A series of ethnographic exploratory reports described patterns of mobility in a number of defined sociocultural groups in the United States.[2] Mobility behaviors

[2] The ethnographic exploratory reports are posted by Statistical Research Division in Portable Document Files (pdf) format with the file prefix "EX" on the Census Bureau's web site ***(http://www.census.gov),*** listed by year and author and linked on the html web

helped explain some omissions and erroneous enumerations documented in the Ethnographic Coverage Evaluations of the 1990 Census.[3]

Ethnographic evaluations are grounded in experienced ethnographers' knowledge of the life styles of particular social and cultural groups. The general purpose of ethnographic evaluation is to appraise how social and cultural differences affect the outcome of programs, policies, projects or government operations (Brownrigg 2001). In ethnographic evaluations of census coverage, researchers independently enumerate people and residences using participant observation and other ethnographic methods. Their reports of addresses are linked to Census Bureau lists and reports of individual people are matched to the "official" records. Ethnographers interpret the match results and explain cultural and behavioral influences on the census outcome.

The technologies used to process the information collected in the 1990 Census limited ethnographic evaluations to predetermined areas. The census forms collected in those areas had to be flagged in advance then keyed to create records for matching. Residential mobility in the form of moves into and out of the preset areas were one reason why there could be no match between Census and Alternative Enumeration records. Mobility in and out of areas was especially high at sites near universities. (See de la Puente 1993: 19-22 for a summary and the individual 1990 evaluation reports.) The 1990 ethnographic evaluations documented inter-relationships between mobility and the other "behavioral barriers" investigated: irregular housing, complex households, low skills in the English language and literacy, and suspicion towards outsiders. The earlier ethnographic evaluations made multiple methodological suggestions to improve census enumeration and enumeration support which were implemented in Census 2000.

In order to hone in on mobility effects on census coverage, the Ethnographic Social Network Tracing evaluation researched groups of people who interacted with individuals who move frequently or as a matter of life style habit, rather than in preset blocks. At six sites ethnographers identified people they observed interacting in a social network; everyone observed interacting was traced and searched in the records of Census 2000. The six separate research studies followed common guidelines and definitions (Brownrigg 2000). The related Census 2000 Ethnographic Evaluation, "Comparative Ethnographic Research on Mobile Populations" researched and experimented with a variety of methods to document and explore mobility in the context of Census 2000. Susan Lobo (2001) and Mark Fleisher (2001) examined the itineraries of a purposeful sample of people they personally knew were highly mobile. Andereck (2001) inventoried the genealogically connected households in two residential communities of traditionally mobile people. Mings (2001) visited "snowbirds" in isolated areas and described

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page: ***http:/www.census.gov/srd/www/byyear.html***

[3]The 1990 Census ethnographic evaluation reports are posted by Statistical Research Division under the file name prefix "EV" on the Census Bureau's Internet site.

their lifestyle. Although mobility was not the main focus of the Ethnographic Experiment on complex households, mobility figured prominently as an explanation of why households can be characterized as "complex" (Schwede 2003: 27-31, 51, 56, 66-68, 74, 89-90).

1.3 Residential mobility

Residential mobility may explain some differences between a census list of who lives in an area and a list from any other source. People may move into or out of any area. Analyses of when in the year people move from housing unit to housing unit suggest more people move in the late spring, summer months, and early autumn than during winter months (Schachter 2001, Hansen 1998, - Schacter and Kuenzi 2002). The pace of residential mobility in the United States, the number of moves in the late spring and summer, a "Census Day" on April 1st, but enumeration and coverage measurement operations scheduled later combine to guarantee at least some people move into or out of areas during the census. The correct "Census Day" residence of "out-movers" and "in-movers" is often difficult to resolve, complicating research to measure census coverage (Liu, Byrne and Imel 2001). During follow-up enumeration, Census 2000 collected information from some whole households temporarily away from their "usual home elsewhere" (UHE), proxies from neighbors and landlords about people who moved out after April 1st ("out-movers") and also enumerated some people who moved in later ("in-movers"). The "non-identification" operation attempted to geocode the addresses respondents wrote were their UHE on several types of census questionnaires [Census 2000, ***(3)***, ***(8)***, ***(9)***]. The Census 2000 Accuracy and Coverage Evaluation (A.C.E.) avoided this geocoding operation describing it as "cumbersome" (Liu, Byrne, and Imel 2001). Instead, the A.C.E. estimated the count of out-movers from survey data collected from in-movers, an assumption described as "fundamentally flawed" (Mulry, 2002, 2003).

People move freely throughout the United States. The Census Bureau has been surveying residential moves from one housing unit to another in household samples every other March [4] (P-20 Series; Schachter 2001; Faber 2000; Hansen 1997, 1995; 1993; Long 1988). Results include estimates that more than 42.1 million people (aged 16 or older) moved from one housing unit to another each year in the decade of the 1990s. Results closest to the census year estimated about 16 percent of the people in the United States living in housing units moved annually. Estimates from this supplement to a household survey exclude people who move among residential institutions, Group Quarters, and Transient Quarters: types of domiciles that the Census Bureau does not define as housing units. Survey analysis does not interpret moves that are relocations of seasonal or circuit internal migration.

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[4] United States Bureau of the Census, Current Population Reports, P-20 series "Geographic Mobility" - See ***http://www.census.gov/prod/3/98pubs/p20-510.pdf*** for the March 1996-1997 update and PPL104 for related tables, P20-497 for 1995-1996, and P-20-485 for 1993-1994. Annual geographical mobility in the U.S. has been examined since 1945-1946.

Large numbers of people enter the United States. Both legal and undocumented immigration reached a new historic high in the decade leading up to Census 2000.[5] Analysis of data from the Census 2000 long form estimates that 46 percent of the population age 5 or older "lived in a different home in 2000 than they did in 1995" and over seven million of these 120 million people moved from abroad (Berkner and Faber 2003).

Despite mobility and migration, the Census Bureau surveys noted above document that "most" people residing in the United States do not change their residences in any given year or very often.

[5] Annual Statistical Abstract of the United States Tables 7, 8, 9, and 10 -- annual immigration, out-migration and net migration for regions -- and Tables 32 and 33 : the mobility status of the population by selected characteristics; foreign born population, see ***http://www.census.gov/population/www/documentation/twps0001.html*** ***http://www.census.gov/population/www/socdemo/foreign.html***, ***http://www.census.gov/population/documentation/wps0029/wps0029.html*** . and Census Brief 28.

2. METHODS

2. 1 Research terms and criteria

We adopted certain terms and criteria as working definitions and constructs to guide the researchers' data collection and reports for this multi-site study.

2.1.1 "Highly mobile" people

The research study's operating definition of highly mobile people follows:

- **"Highly mobile" people move among domiciles and locations more often than most people change their residences in the United States, as measured by the Census Bureau's biennial household surveys.**

This definition sets the bar for "highly mobile" quite low. Since survey results indicate that "most" people in the United States do not move in a given year, a person who moves at least once during a six-month period is more residentially mobile than most people in the United States. Characterization of individual participants as habitually mobile or as highly mobile was based on peoples' actual moves during the study period and information from their personal histories.

2.1.2 Interacting social networks

Each of the six independent ethnographic research studies was centered in one interacting social network. A social network is a reasonably bounded set of affiliated entities. An interacting social network represents the connections among entities who (or which) interact, transact, or communicate with each other. An interacting social network is a type of "whole" or "sociocentric" social network. A whole social network has multiple actors and requires collection and analysis methods different than those applied to the personal or ego-centric network of a single individual. The bibliography prepared to support this research (Brownrigg 2002) indexes citations to the key literature on social network methods, theories, and earlier research (See :71ff for social network research based on data from interactions).

In this research, the actors whom the researchers observed and recorded interacting in one or more episodes in selected social settings were the "entities" (or nodes) of the social network. We called these actors "participants." The participants in each social network were connected to each other by face-to-face encounters they seemed to enjoy. Interactions were layered with communications, activities, meanings, and purpose. Within the objectively observed social networks, various links and affiliations among participants were researched. In private conversations and in-depth ethnographic interviews with participants, the researchers explored the participants' subjective views of their relationships and social identities, aspects of their personal economic activities, migration histories, and other conversation topics. (Additional ties

that linked participants included affiliation with shared concepts of their social identity and status, kinship, and co-participation in a variety of other domestic, economic, cultural, and ritual settings.)

Interaction frames were social settings (also known as fields or domains) in which the interactions that defined the social networks were situated. Frames had to be strategically selected places and times where and when at least some highly mobile people interacted and researchers could access. Frames were ongoing culturally normal social gatherings. Each researcher identified a key interaction of a specific cultural, occupational, or status group which they believed attracted at least some highly mobile people, based on their respective experience and prior research with the same or similar groups. Researchers then found a setting or settings where that interaction took place and they could negotiate entry. The social networks were observed within the domain where and when the nominating interaction took place.

Interaction episodes observed within the selected frames lasted a few hours or several days. Researchers logged the individual people present at each interaction episode by date and duration. Who interacted with whom defined the social network.

The methodological foci on human-to-human interactions and the concept of interaction frames derive from Goffman 1974 [1986], 1967, 1956, 1961, and 1983. Framing in domains where certain classes of interactions took place solved what is known as the boundary specification problem in social network research (Laumann, Marsden, and Prensky (1983, 1989).

Observation schedules were set by each researcher. Two ethnographers, Chavira-Prado and Gilley, observed all gatherings formally sponsored by the respective voluntary organizations these researchers chose to frame the six-month study. Interactions of the other four social networks were on-going. The days when researchers visited in effect sampled these interactions.

2.1.3 Tracing

People who participated in at least one observed interaction were traced. Tracing required that researchers obtain the addresses and locations of participants' domiciles, identify their co-residents in each domicile, record the duration of each participant's stay in each domicile and with each set of co-residents by date. One domicile ("D1") was identified as the correct census residence of each participant according to census rules.

Researchers were not expected to "follow" physically those participants who moved or who took trips away nor to undertake long distance travel to check incoming participants' prior domiciles and co-residents. Information about the address and location of the prior domiciles of participants who entered the social network interaction late and or who left for "off-scene" destinations were elicited from participants. In private conversations with participants or their co-residents, the researchers encouraged participants to talk about their travels, travel plans, domicile locations, and residential arrangements. The researchers explored histories of migration

and moves and dynamics of social identities in private ethnographic interviews with selected participants and in informal focus groups with subsets of participants.

Participants present in the initial interactions were traced forward over a six-month period from the domicile researchers determined was their correct census residence or default domicile as of April 1, 2000. Participants who entered the social networks late were asked to recollect where they were on "Census Day" and traced forward.

2.1.4 Co-residence

The ethnographers logged a six-month history of each participant's co-residents.[6] Beyond this limited probe to learn with whom each participant lived or stayed during the study period, no further ego-centered connections were systematically recorded.

The research adopted the perspective that co-residential groups could form and exist for any reason or ideology or duration. We adopted the neutral term "co-resident" to refer to other people who shared the same domicile with a social network participant for any length of time. Some participants who interacted in the social network lived or stayed together so were co-residents to each other. Non-participating co-residents were people who shared one or more domiciles with one or more participants but were never observed interacting in the social network themselves. In several social networks, individuals first identified as non-participating co-residents joined the interactive social network and became participants themselves. We made no prior assumptions about why, how, or for how long two or more co-residents might share a common domicile any more than we assumed that all the domiciles participants occupied would be in what Census 2000 considered housing units.

Sets of people engaged in co-residence could be two or more participants or one or more participants and non-interacting co-residents. Some sets stayed together in the same domicile. Others traveled or moved together among domiciles. Some sets of co-residents remained together throughout the study period. Other sets co-resided briefly, for a few days or weeks.

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[6] A participant's co-resident formed part of his or her personal network. Ego-centered networks are commonly collected in structured personal interviews with individuals. When ego-centered personal networks are collected from individuals within a bounded universe, like one organization, or who share some common trait or behavior and common location, personal networks may overlap and form a social network. Theories about egocentric personal networks consider how these serve as social assets: as sources of emotional support, information, material goods and services that flow to a person or "ego." For citations to relevant literature on personal networks see Brownrigg 2002: 74-74.

Each participant, of course, had acquaintances beyond the interacting social networks and their immediate co-residents. Some researchers found it necessary to map participants' kin relationships and longer past histories of moves and co-residents in order to explain certain census outcomes and stops in their migratory circuits. Everyone in the six social networks or cohesive sub-groups within them affiliated with more populous, encompassing communities, from which new arrivals came and to which participants left. Mapping wider kin-based connections, for example, helped explain the appearance of new co-residents and participants' destinations in the two social networks composed of transnational immigrants and their children.

2. 2 Data reports

The researchers reported interactions, participants, co-residents, and domicile address/locations. They first delivered "baseline" information from the first two-months. This initial period began in late March, covered "Census Day" and ran through May 2000. Researchers updated their reports to cover the middle two months and then the final two. Researchers continued to update and complete information until they submitted their final data reports in early October 2000.

2.2.1 Interaction reports

The interaction reports provided the data used to model and measure the participants' social network as a whole and to measure and characterize the position of each individual actor in his or her social network and in its cohesive subgroups.

Interaction reports record which participants were present at each interaction episode the researcher attended by assigned code numbers (e.g., "P02"). The data format of the interaction reports was immediately suitable for affiliation or correspondence social network analysis (Faust 1997; Skovoretz and Faust 1999; Wasserman and Faust 1994 [1997]:298-299; 334-342). The interaction data were used to construct algebraic matrices noting which pairs ("dyads") of participants were recorded as interacting at least once.[7] A binary matrix was prepared for each social network in the format required for well established standard mathematical analyses of social networks (Borgatti, Everett, and Freeman 1999 [2001]; Scott 2000; Wasserman and Faust 1994[1997], among others; see Brownrigg 2002: 92, 99-101).

The binary matrix interaction social network data sets were used to model and graph the connections among participants, to analyze cohesive subgroups (cliques, k-plexes and blocks), and to measure each participant's position. Graphs were generated to depict the six networks. These diagrams connect with a line each pair of participants observed to interact at least once. (See Appendix, graphs of Participant Social Networks.) Each participant in an interacting social network is connected to at least one other participant. Various measurements were applied to

[7] Binary matrices score the intersection of the column and row for each pair of actors who interacted at least once with the number one and score actor dyads who did not interact with a zero.

determine the number and types of connections among each pair (or dyad) and position of each participant.

2.2.2 Reports of persons: participant reports and co-resident reports

Reports of individual people – participants and their non-participating co-residents -- included their names, those personal characteristics which Census 2000 collected on a 100 percent basis from the United States population on the "short form," and selected characteristics collected on the long form. Among the personal characteristics the ethnographers selected were: marital status, language spoken at home, educational achievement, occupation, place of birth, and location five years before. Researchers considered the attributes they selected were important for understanding mobility and what brought the participants together in a social network. "Short form" items were used to match the reports of individual people to census records. [See Census 2000, 1999 ***(1)*** through ***(14)***.]

The ethnographers collected personal and address information on a Census confidential basis. Their data with identifying information like names, personal characteristics, and addresses are protected under U.S.C. Title 13. Researchers swore the same oath as Census Bureau staff. They were required to explain census confidentiality measures and that the Census Bureau contracted the research. These explanations encouraged the cooperation of some participants, but added to the burden of wariness researchers had to overcome.

Personal information and references to their domicile(s) and co-residents were reported for each participant. The participant report included cross-references to domicile reports, gave the dates when the participant entered and left each domicile, and cross-referenced reports of other participants or unique co-residents present in the particular domicile at the same time. The year or exact date when the participant had first entered each domicile and their tenure arrangement in each were collected systematically as part of the social network tracing.

The reports for each co-resident have the same items useful for matching as the participants' reports. Consistency checks were built into the format of the two kinds of person reports and the domicile report to permit accurate sequencing of participants' sets of co-residents at particular domiciles and times.

Data from participants' episodes of co-residence were used to prepare a matrix of co-residence. All participants in one social network and their non-participating co-residents were included in the matrix of co-residence for that social network. The matrix of co-residence was binary. Each dyad of actors recorded as staying together at least once scored a one. Each dyad of actors who did not live together scored a zero. Graphs generated from the binary matrices of co-residence label participants ("P") and non-participating co-residents ("CR"). A graph generated from a matrix of co-residence connects with a line those actors who co-resided at least once. See Appendix, graphs of the matrices of co-residents associated with each social network.

2.2.3. Domicile reports: addresses and locations

We used the term "domicile" for places where people spent the night and slept. Most but not all domiciles inventoried were types of built structures that Census 2000 classified as housing units and domiciliary facilities ("Group Quarters") or “Transient Quarters.”

For each domicile, the researchers submitted conventional postal style addresses of the physical dwelling, including house number, street name, town, state, and ZIPCODE, if any, along with ample information on the domicile’s location. Location information included county name, line features near to and enclosing the location of the domicile, and the closest crossroads. Researchers submitted maps printed from the Census Bureau's public web site (***www.census.gov***) and/or commercial maps marked with spots to indicate exactly where an inventoried domicile was located. Information was collected systematically about the physical type of the domicile and occupants’ tenure arrangements.

2.3 Geocoding and look up of addresses and locations

2.3.1 Preliminary identification of census block geocodes and addresses

Headquarters staff assigned preliminary geocodes to the domicile locations and addresses submitted using a geocoding utility developed by the Technologies Management Office (TMO), Topologically Integrated Geographic Encoding and Referencing (TIGER) system and American Fact Finder maps available to the public on line, and a public [8] Internet-based program that automatically assigns state, county and tract codes to addresses entered. Staff searched for domiciles that Census 2000 might have classified as Group Quarters or Transient Quarters on two editions of a component of the Census Bureau's overall frame for the Decennial Census that listed Group Quarters and Transient Quarters. This preliminary geocoding served to vet the address and location information the researchers submitted and permitted making timely requests for clarification or additional information while researchers were in the field.

The addresses, supplemental location information, supporting maps, and preliminary geocodes were forwarded to geographical clerks at Census Bureau’s National Processing Center to look up on electronic TIGER maps and on the Master Address File (MAF).

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[8] The Federal Financial Institutions Examination Council's (FFIEC) geocoding system is located at ***http://132.200.33.131:80/geocode/default.htm*** When this utility was used in 2000, the system automatically identified the 1990 Census geocode of tracts or Block Number Areas (BNA) for the addresses entered.

2.3.2 Final geocoding and look up on the Master Address File

A team of National Processing Center (NPC) Geographical Clerks assigned the geocode of the Census 2000 collection block(s) and any Master Address File Identification numbers (MAFID#s) corresponding to the address/locations submitted. Members of this team had gained experience conducting the Census 2000 "non-identification" operation [9] and were ingenious and diligent. They ascribed one or more Census 2000 collection blocks to the locations and addresses submitted with sufficient information for geocoding. They searched the Master Address File (MAF) to determine if addresses were listed. If an address reported for a domicile agreed with one or more listings on the MAF, clerks ascribed all the identification number(s) known as "MAFID#s" corresponding to the address. They consulted an edition of the Master Address File on line at the National Processing Center between late November 2000 and January 2001.[10]

The researchers and project staff provided these experienced Geographical Clerks with far more information than respondents and census workers provided for operational non-identification MAF look-ups. NPC assigned some addresses to blocks and counties different than the researchers provided or headquarters staff provided from the TMO or FFIEC geocoding utilities. The census blocks, MAFID#, and other geocodes confirmed or assigned by NPC staff were used to specify area extracts.

2.3.3 Preparation of a program and specifications to extract census records

Unduplicated lists of the census blocks and MAFID#s the geographical clerks associated with the location and addresses of reported domiciles were organized in state files. The list of blocks and identification numbers for individual listings in the blocks were used to specify from which person records to extract.

2.4 Extracting and search/matching census person records

2.4.1 Extracting census person records

Staff developed a SAS program to extract unedited person records labeled with the specified census collection blocks and unit identification numbers.

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[9] The "non-identification" operation geocoded and looked up addresses respondents reported as their "usual home elsewhere" on several types of Group Quarters individual questionnaires and on "Be Counted" forms, and "late add" addresses submitted from follow up enumerators.

[10] The Decennial Master Address File ("DMAF"), the official list of the units of enumeration included in Census 2000, was not available for directed searching or browsing for this evaluation or any other Census 2000 address look up operations.

- **Census person records were extracted from the Hundred percent Census Unedited File (HCUF).**

Census person records were extracted from electronic files created during the first pass to process data from forms. These files are known as the Hundred percent Census Unedited File or HCUF. HCUF records captured the names and the 100 percent information [11] from all types of forms and represented the universe of the whole population of the United States as enumerated and originally data captured.

The extracts of HCUF person records were organized within state by geographical order: county, census block, and sequential unit identification number. Census person records labeled with the same unit identification numbers (MAFID#) were kept together throughout the search/match process. The "area-based" extract for each social network included the census records of persons and vacant units collected in the units and census blocks which NPC had identified for the participants' various domiciles. The number of HCUF person records searched depended on how many person records were ascribed to the specified census blocks.

2.4.2 Search/matching extracts

The first census person records evaluated as matches were those labeled as having been collected at the one domicile address identified as a participant's correct census residence. The "household context" was established by the presence of a census record for at least one individual reported as having lived at the address as of Census Day 2000.
Participants and reported co-residents matched in this step were identified as correctly enumerated in Census 2000.

- **"Household context"--the presence of one or more records of people reported as co-residents collected in the same unit–was used to identify and to determine matches.**

Next, census records collected in those units corresponding to domiciles reported as participants' subsequent domiciles were searched for matches. Whether or not the report of an individual had been matched with a census record, the entire area-based extract for the particular social network was checked for additional matching census records.

Census records were selected with the same last name or the same first name as the individual searched then examined for other matching items. In extracts with thousands of records, the frequency of last names and first names in each extract was first calculated. If the last name of the individual searched had a lower frequency in the extract, then census records with that last name were examined for other matching items first. If the first name of the individual searched

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[11] An information copy of the Census 2000 short form is available as ***http://148.129.129.31:80/dmd/www/pdf/d6/a.pdf*** and is linked to several Census 2000 web pages.

were less common in the extract, then records with the same first name were examined first. Records were selected with the same date of birth, same year of birth, and write-ins for any distinctive national, ethnic, or tribal origin reported for the individual searched.

Participants in the social networks and their co-residents were matched primarily on last name and first name and household context. Items considered as confirming or validating the match included middle name or initial, relationship within household, sex, age in years, Hispanic origin, exact date of birth and its components (date, month, year), if races checked matched those reported, and write-in ethnic, national, and tribal affiliations.

A matching HCUF person record provides evidence that a reported individual was enumerated in Census 2000. If the unit identified as the individual's Census Day residence was not included in the extract for its block and area, this outcome was coded as a whole household omission in a missed unit (Childers 1993). It is possible, however, that enumeration records for the units or the individuals (or both) were placed somewhere else, in a census geographical area that was not specified for extraction. If there was a record for the unit but no HCUF person records, the census outcome was coded as a household omission in a unit erroneously enumerated as vacant. In both situations, the absence of person records suggests whole households were omitted.

Several individuals searched were not found enumerated in the unit which had been their Census Day residence but matching records were found for their reported co-residents. If such an individual were not matched to another record in the search extract, the absence suggests the individual was missed within a listed unit. The absence of a record for a searched individual at a listing corresponding to his or her census address where reported co-residents were enumerated provides stronger evidence the individual was missed within the household. The correct housing unit is present and other people living there on Census Day. If the individual missing in his or her correct census address and household context were not found in any other unit in extract search area for the social network then this outcome was coded as a miss "within household" or miss within Group Quarters.

Match results were shared with the ethnographers who had provided the data. They were asked to confirm whether the census records identified as matches did or did not match the individuals they had reported. The researchers interpreted the apparent census outcome using information they had collected during the study. They examined factors that may have affected census coverage, for example, the frequency that unmatched individuals had changed domiciles, the types and characteristics of the domiciles occupied, relationships with co-residents. In some units in which census records matched the individuals searched, there were census records for additional, unreported people. Several ethnographers were able to discuss the circumstances of these unexpected "census co-residents" with participants and to determine whether they were correctly or erroneously enumerated.

2.5 Compiling data sets

Each social network, matrix of co-residence, and many cohesive sub-groups were analyzed using the reported personal characteristics of actors "stripped" to protect confidentiality. Traits including gender, age, Hispanic origin, and occupation among others were used to analyze the composition of each social network, matrix of co-residence, and sub-groups (cliques and blocks) separately.

A data set compiled case records of the individual participants and co-residents from the six studies. Variables included the individual's match status and census outcome, for those matched which items matched, number of moves, number of unduplicated domiciles, tenure in the census resident and personal characteristics reported, among other characteristics. For participants, individual attributes included measures of their respective social networks and co-residential matrices as a whole and their individual positions in interaction and co-residence. Non-participating co-residents' attributes included measures based on the co-residential matrix. Variables were tested for significance in relation to mobility and census outcome in a series of iterative correlations, data explorations, factor analyses and loglinear techniques implemented in SPSS. New variables coded or collapsed categories.

3. **LIMITS**

3.1 Scale and scope

Each social network is one universe. Census outcomes were investigated for the limited number of participants observed interacting in social networks and their co-residents. The advantage gained was close acquaintance with individuals' correct Census Day residence, mobility characteristics, migration history, and relationships.

Results should not be extrapolated to any larger population. Neither the separate results from one social network nor the combined results represent the U.S. population as a whole or any demographic, occupational, or status sub-population.

Only domiciles located in the geographical areas covered by Census 2000 in the United States were in scope. Where people went during transnational visits to countries of origin, or while they were at sea, for example, could not be found in Census lists.

The census outcomes reported are based on matching to the preliminary first pass electronic records of people enumerated in Census 2000. The presence of a person record in the HCUF does not assure that record was included in the final edited and published tabulations. Conversely, the absence of a matching census record from the HCUF extract indicates the person was apparently not enumerated at his or her Census residence or nearby. Whether or not a census record matching a person were found in the extracts searched does not exclude the possibility that the person may have been enumerated somewhere else. A person may have been enumerated at still another location than any of the domiciles to which he or she was traced. The interaction frames were purposefully set in social arenas where highly mobile people mingle.

3.2 Issues encountered implementing the methodology

This is the first research to collect simultaneously whole social networks defined by interaction in diverse situations under common guidelines. As such, this project was unprecedented in the field of social network research.

Census 2000 is the first census to capture the personal names and other information written on Census forms as electronic data. This made it possible to conduct search/matching without first establishing preset areas.

Several issues noted below double as research findings.

- **Ongoing tracing was difficult and retrospective tracing even more so.**

The task of tracing all participants to all their domiciles and co-residents on an ongoing basis over six months was difficult, even for the experienced ethnographers. Despite frame criteria designed to keep the number of participants in each social network manageable, highly mobile participants entered and left. Some returned during the study period; others entered and left too rapidly to identify or trace.

- **Information on moves reflected seasonal activities and migrations.**

The research was originally designed for a January to June 2000 schedule: to begin tracing about three months before Census Day 2000 and end three months after Census Day. Delays in the release of funding for evaluations pushed start dates forward to March, a week or two before Census Day. The study design required tracing participants who entered the interaction late in the six-month period retroactively, back to their Census Day residence, and forward in the ongoing tracing until the end of the study period. The late start meant participants who entered the interactive social networks in July and August were asked to recall where and with whom they had been staying in early April 2000. In private, confidential discussions with the researchers, several late comers sincerely could not remember precisely where they had been. Shifting the study period forward meant moves had a different seasonal stamp. The moves reported were more characteristic (or made more often) in the spring and summer than at other times of the year.

- **Some participants expected to be highly mobile were not, while others changed domiciles, co-residents, and locations so often they could not be fully traced.**

Participants in one social network unexpectedly remained in the same domicile throughout the six-month period of observation. Certain participants in the five other social networks were so highly mobile that researchers had to negotiate and adopt limits on tracing. Certain destination domiciles, like vessels at sea and motels during work trips and co- co-residents in these domiciles could not be identified. What proved more important was whether and where the individuals traced returned.

- **People don't always have or state addresses like the Census collects.**

Researchers could visit nearby local domiciles to mark up maps, report location details useful for geocoding, and verify or correct addresses for lookup. For domiciles states away, the researchers could only pass on reports of address/locations that social network participants volunteered.

How participants described where they or others were staying, where they had been, and where they were headed were not always compatible with the sort of address and location information that the Census Bureau collects and files. Some participants referred to former or destination domiciles by naming a state, town, city, camp grounds, tribal area, hotel, event, employer, or relative – rather than postal addresses. Locally, domiciles identified only as "(Named) Hotel in X-ton" or "Third Street, Y-ville" or "Fourth mobile home on the right after you turn off Highway

north onto X Street east" were good enough for finding people's homes, even helpful advice. (There was only one hotel with that name in X-ton. There were only four mobile homes on Third Street Y-ville each posted with their occupants' names. People knew it was easier to count houses on X street from the cross-roads than try to make out house numbers.)

In the context of the social network interactions and in private conversations, participants tended to discuss their present, past, and future domiciles in social terms. They explained what kinship, friendship, or other social, cultural, occupational, or work affiliation connected them personally to a domestic space. To paraphrase, a statement like "my aunt's house in Texas" explained where a new co-resident came from. Probing clarified the aunt was the participant's mother's sister, but did not produce an address in Texas. One participant explained he had been "staying at my sister's condo in Denver" in April; another that his co-resident "went to Haiti to visit his children, my nephews and nieces" in May. A participant went "ahead to build a sweat lodge at (a named field) on (a named) tribe's trust land." Residences located in social space could be discussed, announced, and fully understood by actors in the respective social networks.

Well educated participants who appeared briefly in one social network cooperatively provided exceptionally exact addresses for their "usual homes" in housing states away. Other participants simply did not locate their domiciles in terms of house numbers and street names. Several occupied domiciles which did not have such addresses and could only be described by location.

Geocoding the location information and addresses submitted for participants' domiciles permitted specification of reasonable search areas for extracting census records. This project did not have the resources to search through millions or even tens of thousands of records for matches. If a reasonable search area could not be established for the one domicile where a participant resided on Census Day, then that participant's enumeration status could not be determined. Insufficient information about their Census residences mainly affected individuals who entered the interaction frames late. More than half these late-comers were from another state. (Cf. West 1991.)

- **Census Bureau address lists are not always definitive or complete.**

Some domicile locations and addresses were geocoded into blocks that are classified in Census geographical files as Zero Population Blocks. Zero Population Blocks are polygons identified by line features without any Census Bureau address listings of any type. The geographical identifications of these blocks were correct. Their classification as uninhabited was not. The human habitations in these blocks were not listed in Census 2000 by mistake or by design.

- **The contemporary Fall 2000 Master Address File and the Decennial Master Address File do not overlap perfectly.**

Geographical clerks used the Master Address File to look up addresses because the Decennial Master Address File (the "DMAF") was not available for browsing during Decennial operations. We could not attempt to identify directly which listings on the Master Address File editions of November and December 2000 were also present on the Census 2000 Decennial Master Address

File (DMAF). However, if the same identification numbers found on the MAF were ascribed to HCUF records for persons or vacant units, then the address listing had to be included in the DMAF. Various listing differences between the Fall 2000 MAF and the Census 2000 DMAF were identified.

- **In order to match, both the report and the census record had to have at least some data elements for names and "census short form" characteristics.**

On HCUF census records, some items were blank or were not captured accurately. Full date of birth ("birthday" month, day date, and year) were about as complete on the independent ethnographic reports and census person records. Many census records matching reports matched on this item. On some otherwise matched census records, certain numbers (3s & 8s, 9s & 4s) in birth dates and ages disagreed with ethnographic reports. Within such census records, the two fields for age disagreed. On census records, one field records the age in years data captured from what the respondent wrote on the form. Another field records the person's age calculated automatically from the optical recognition of characters in the date of birth handwritten on the form. Given some errors in the scanning or optical character recognition of numbers, age and birth date could not be used as primary matching items (Cf. Mulry 2002, 2003.) Sex, which is data captured as a one or a two, was not present on all HCUF records. Some reports of participants and co-residents, on the other hand, did not have complete names and characteristics although relationships of co-residents were well portrayed.

HCUF records collected from individuals who spoke only Spanish, or preferred to speak Spanish, had good data quality, evidenced by the fidelity of matched items. Records were less complete for individuals who spoke Haitian Creole. Haitian first and last names were spelled incorrectly and first and last names were sometimes reversed. This was observed in the census records matched and for other Haitians in the search area. While errors in transcription and in optical character recognition of scanned names are both known to introduce orthographic variations, the creative spellings of Haitian names suggest follow-up enumerators did not know how to transcribe the oral answers they heard. [See United States Bureau of the Census, Census 2000, 1999, ***(10)***, ***(11)***, ***(12)*** and ***(13)*** for the forms and language guides in Spanish and Haitian Creole.]

Names may vary by social context, so the names individuals used as personal identifications in social network interactions and at home with co-residents and names recorded on matched census records sometimes had differences. Variations more often affected last rather than first names. In Spanish, use of both the paternal and maternal last names, or only the patronymic, and for married women, the optional use of their husbands' surnames, routinely varies according to individual, cultural, and circumstantial social factors. Census records lacking last names or with names captured in unknown orthographic variations were used to match individuals enumerated together with their reported co-residents at a reported address. Such records could not be used for matching beyond these household and address contexts.

- **Virtually all names and characteristics of co-residents had to be elicited in private conversations with individual participants, primarily during visits to their homes, in order to protect the subjects' confidentiality, and to abide by social network norms.**

Protecting confidentiality in the field was an utmost concern for the researchers, especially after they became sensitive to the norms of the social network. The use and revelation of formal names varied in the face-to-face interactions of the different social networks. Some participants known by fanciful names within their social network declined to provide their formal name or their last name even in private conversations. Within the interacting social networks, discussions of exactly where absent participants had gone off was not a usual topic of conversation. Inquiring about absent participants in an open forum was awkward. Even if participants knew where and with whom other participants lived or stayed, or were aware of others' moves among domiciles and co-residents, such information could be considered "too personal" to share beyond the subgroup in which it was communicated. People who report information about others in their own social network risked offending the participant reported on. This, in turn, could undermine their own personal links and position in the social network. Researchers could not jeopardize the confidence and rapport they negotiated. In their reports, the ethnographers discussed how they managed their entrée and how they overcame obstacles of suspicion and secrecy.

- **"Personal information" about others is more likely to be revealed by less connected parties than people who interact in the same social network, or in one of its subgroups. Less connected people, however, are in less of a position to learn accurate information.** [12]

- **Although redundantly connected people are in a better position to access accurate information about each other, in some highly connected "dense" social networks, participants circumscribe the amount and kind of social information they make available about themselves within the group and to outsiders.**

During intensive or very frequent (hourly, daily on-going) interactions, some participants defended their "personal space" by revealing few details about their lives or their identity outside their shared social context. For example, while participants in two social networks and subgroups in another social network worked and lived together, they suspended references to other less immediate co-residents.

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[12] For theory and similar results from other social networks studies, see Jorian 2000, Grannis 1998a, 1998b, among others, and the Communication, Diffusion, and Internet topics indexed in Brownrigg 2002.

- **In more cohesive interacting social networks and co-residential groups in which all participants interacted, albeit with varying frequency or duration, information considered "personal" was respected or defended by others in the group.**

Out of courtesy and respect for having been privileged and trusted with personal confidence, participants in the most dense social networks and more intensively connected subgroups in larger interacting social networks did not consider themselves licensed to reveal the information without the expressed consent of the adult individuals involved. They deferred to these individuals.

For the co-residential groups in the two social networks involving foreign-born participants, senior adults seemed at greater liberty to reveal freely --or to suppress completely-- information about their co-residents. Judging from census records collected in some family households, junior members confined themselves to reporting on themselves and their own younger children or siblings.

4. RESULTS

This section summarizes the frames of interaction, mobility characteristics, social networks, and census outcomes of the six research studies. This section refers to the descriptive ethnographic reports Southard 2001, Murray 2001, Chavira-Prado 2001, Marcelin and Marcelin 2001, Kitner 2001, and Gilley 2001 and notes results from the geocoding or matching steps.

4.1 Survival and recreational campers in the Northwest

Dee Southard observed survival and recreational campers interact around communal cooking fires at a camp ground on public lands in the Northwest. Several participants were survival campers who occupied vehicles and tents and had no home other than their campsite of the moment. Other participants were recreational campers on vacation away from their homes or colleges located elsewhere in the region and in other states.

Survival or "non-recreational" camping is one strategy rural homeless adopt to obtain shelter (Aaron and Kitchen 1996; Southard 1998). The survival campers in the social network were habitually mobile. Anti-squatting regulations forced them to relocate their campsites frequently. They kept a vehicle running to move among campsites, pick up food at surplus food distribution points and food pantries, and hunt, fish, and forage for food. Survival campers with cooking stoves who qualified for food stamps and those with part-time work purchased food. Containers marked "USDA Commodity, not for sale," gallons of stored water, and tarp lean-to styles distinguished the survival campers' sites. Places and circuits where the survival campers traveled and camped in partner, couple, or family groups were integral to their survival strategies.

In previous research (1998), Southard noticed when survival campers occupy sites in the same camp ground, they often cook communally. This activity builds a comradery and shares food and fuel. The survival campers who create communal cooking fire social space occasionally "entice" vacationing recreational campers to join them and share resources (Southard 2001:9).

Thirty-eight participants interacted around one or more of the 212 camp fire cooking episodes between late March and September 2000. Southard (2001:7) reported the campers' demographic characteristics as follows: 36 participants were non Hispanic whites and two were American Indians; 26 were males and 12, females. The males ranged in age from 14 to 64 years old and the females, between 19 and 65 (Southard 2001:7).

The range of ages among survival campers differs from the recreational campers and the general population. Consistent with Southard survey of non-recreational campers in the Northwest, none of the homeless survival campers in the social network were over sixty. Their lifestyle is harsh and requires a margin of physical health and strength. Recreational campers, by contrast, ranged into retirement ages above 60. Although Southard had previously surveyed survival camper families that included young children, the younger survival campers in the particular social network were teenagers. Survival campers travel independently in couples, small groups of partners, and nuclear families (Southard 1998; 2001:2, 8-9).

The social network observed around the camp ground communal cooking fires was divided into core cliques and a periphery of people so unconnected they scored zero in several network measures (Templin and Wasserman 2001s). The more central individuals in the social network as a whole and in its larger cliques were the survival campers. Several of the same traveling groups and individuals re-occupied the camp ground research site, working the location into their seasonally regional migratory circuits. Survival campers initiated and dominated the communal cooking fires interactions that defined this social network. Recreational campers, who appeared once for a few days, were peripheral. More single young adult recreational campers participated in the larger cliques which centered on survival campers than did grandparent/grand child and other family groups of recreational campers.

Southard (2001: 8-9) gave four explanations for the high residential mobility of the homeless campers in this social network:

> First, almost all the non-recreational homeless campers are living in extreme poverty. The majority of the homeless campers reported that they were either currently unemployed or employed part-time. Most of them reported that they were barely managing to secure their basic survival needs of food and water.... They lacked the economic resources to obtain and maintain long-term occupancy in rental or leased accommodations.
>
> Second, publicly owned lands managed by the U.S. Forest Service and other recreational management agencies have stay-limitation regulations designed to prohibit long-term residential occupancy.... Non-recreational homeless campers must relocate their campsites frequently. The stay limitation in the study area is fourteen days.
>
> Third, high residential mobility is a survival strategy pragmatically employed ... to keep their sleeping locations unpredictable, for reasons such as to deter would-be assailants from attacking them at night.
>
> Fourth,...within this specific social network, there were actors who stated that they live in a seasonal flux ...traveling south in the Fall and north in the Spring.

Thirteen of the 32 co-residents whom participants reported never participated in camp fire interactions. Most of these non-participating co-residents were never present at the camp ground. Rather, most non-participating co-residents in this social network were people recreational campers reported were their co-residents "back home" at the vacationers' usual and Census Day residences.

The 35 domiciles Southard inventoried included eight camp sites occupied by a succession of survival and recreational campers and encampments where only the rural homeless survival

campers parked mid-summer. Southard collected the addresses and locations of the houses or college quarters where recreational campers told her they were living as of Census Day. Twenty-two of these addresses were found on the Census Bureau's Master Address File. “These addresses ... (all came from) the recreational campers: people who had "a home address" to give” (Southard 2001:9).

The campground and encampments where the survival campers stayed were easy to geocode on Census Bureau maps. TIGER maps displayed the dirt roads that organized the formal camp ground and led to or encircled its sites. Everyone involved (the field ethnographer, Census project headquarters staff, and expert Census Bureau geographical clerks) easily pinpointed and agreed on the exact location of particular camp sites on TIGER maps.

In the housing units at eight of the home addresses that vacationers gave, eight whole households were matched to census records. Fifteen recreational campers and the exact co-residents they reported were enumerated in these whole household matches.

Eleven recreational campers gave addresses where some but not all the census records matched. In these partial household matches, there were census records for a total of eight additional people the recreational campers had not mentioned.

In one partial household match, there was no record for the camper at the address he gave as his permanent home where he stayed for a month in May and June 2000. At this out-of-state address, Census 2000 collected records matching the parents he reported living there and a census record for a sibling he had not mentioned. This camper reported an apartment address in still another state as a place where he lived for a while in the spring of 2000 and had left in mid-April 2000 before he began camping. He was found enumerated at this address with the roommate he reported was his co-resident there. Although this young adult camper considered his parents’ home his “permanent” home, he was correctly left off there. Where he was enumerated appears to be his correct default “Census Day” address.

The addresses of four housing units recreational campers reported were geocoded to out-of-state locations however no census records collected in these blocks matched 13 individuals. Census records for hundreds more residents were enumerated in the college dorms where several recreational campers said they had been living on Census Day in addition to the immediate roommates they mentioned, yet no census records were found for three recreational campers in their college dorms.

> It is possible that the 16 participants' addresses or locations were not found in the Census address lists because the information was inaccurate or incomplete, whether intentionally or not, or because the addresses and locations were described differently than on census maps and lists and so could not be recognized (Southard 2001:10).

Another possibility is that because they were off camping around the time of the Census, they were not enumerated in their "usual" homes in or in their dorms.

In the 2,482 census records collected in the census blocks searched, no participant in the campers' social network or any of their reported co-residents were found duplicated or erroneously enumerated. About half the individuals searched were found enumerated.

The survival campers were apparently not enumerated. The census blocks forming the formal camp ground and their encampments along roadways were easily and accurately identified in census geography. The Census Bureau classified all these as Zero Population Blocks, that is, areas without any listings and unpopulated. No evidence was found that Census 2000 ever listed the formal public campground as a Transient Quarters Special Place or ever listed any of the informal encampments various survival campers occupied between March and September 2000. The survival campers formed informal roadside encampments later in the summer. No HCUF census person records were attributed to any of the rural blocks they inhabited. Since the camp ground was never identified and the transient locations of their domiciles were never listed, the 16 survival campers participating in this social network or any of their non-participating co-residents were not found enumerated.

"These cases of domiciles located in camp grounds and in parked vehicles could be considered housing unit/whole household omissions" (Southard 2001:10) because the Census 2000 method enumerated occupied units in transient locations as housing. Since the rural survival campers in the social network did not use soup kitchens or shelters, they would not have been included in Census 2000's efforts to enumerate people without conventional housing at service sites.

The individuals matched to census records were recreational campers. These matched records were collected in housing units and college dorms that recreational campers gave as their addresses in seven different states.

4.2 Seasonal workers

The interaction that defined the social network Nancy Murray (2001) researched were the after-work/ off-duty social gatherings of seasonal co-workers. They lodged together in quarters their common employer provided. Murray focused on the finer, close-in social arrangements that led them to change rooms and roommates. The seasonal campers formed a small, dense, and balanced social network. All participants shared the same or similar occupations, job titles, and employment status. They were technically term employees, hired for the "season" at one work location. They each strung a series of assignments at different locations into almost full-time, year-round work. They were close in age (in their 20s) and educational achievement (at least high school, some with a few years college). Among themselves, they avoided identifying themselves in terms of race, ethnic, regional, national, class, or family backgrounds to consolidate their occupational and generational mutual support. The ethnographer characterized them as non-Hispanic whites. Since their workers' quarters and the ten blocks around it were not

enumerated, how the seasonal workers might have identified themselves in Census 2000 remains unknown.

The seasonal workers moved into a workers' dorm provided by their common employer in late March 2000 before Census Day. They remained there until early October 2000. The workers' dorm was the only place any of them stayed for as long a period the year before. At other times in the year, the individuals dispersed to other work sites states away. They considered the lodge they occupied the best workers' quarters available at the heavily touristed work site and liked working that season at that location. Each of them had vied for the assignment and the lodging. Depending on the participant, it was the third or fourth season they had returned to live together and form a peer group home in workers' quarters.

This workers' dorm was found on the Master Address File listed by the postal box address the seasonal workers used to receive mail and on the preliminary Fall 1999 component frame that lists Special Places and Group Quarters. However, no HCUF person records were collected in its census collection block or ten adjacent and surrounding blocks. There is no evidence any one in this social network was enumerated at their workers' quarters. Records of the Group Quarters listing was deleted without enumeration.

The recreational area where the social network participants preferred to work seasonally receives up to 10,000 visitors a day. The area contains a variety of accommodations including hotel rooms, rental cabins, and camp sites rented to visitors or used to house seasonal and temporary staff. Their workers' quarters (and other domiciles their employer provided on site to seasonal and more temporary workers) may have been misinterpreted as entirely transient accommodations. Under census rules of residence, however, the workers' quarters at their longest term seasonal assignment qualifies as the seasonal workers' Census Day residence. It was the only place where they spent six months or more the year before. They were living in the workers' quarters before and on Census Day. None of them lived any where else for as long in the period between October 1999 and October 2000. None of them rented or owned a housing unit in their own name. Their migrations among an average seasonal assignments at three work sites in different states and regions detached them from any reference address they might have subjectively considered as permanent.

4.3 Mexican former farm workers settling in the Midwest

The social network described by Alicia Chavira-Prado (2001) interacted 34 times between March and October 2000 at the meetings, rehearsals, and performances of an amateur folkloric dance club. The 19 participants in this voluntary social club and their 24 local non-participating co-residents were former migrant farm workers and their children settling[13] in the rural Midwest. Most participants under age 18 had been born and raised in the United States.

[13] The settlement process of Mexicans in the United States has been described by Alarcon 1997, Briody 1987, Chavez 1991, 1998; Massey 1985, 1986, Massey et al. 1987, 1998, and 2001, among others.

In terms of census categories, all participants' and their co-residents' "ethnicity" was Hispanic of Mexican origin. All participants and their local co-residents identified with their common national origin, spoke Spanish at home and in the social network, had a personal or family history of migrant farm work, and were settling in the U.S. Midwest. The majority of participants were young women, under age 18. All participants claimed they were single and had never married, except one who was the mother of younger participants. The jobs held by the older participants and the adult co-residents of the younger participants were fairly typical of occupations former farm workers enter in rural areas: nursery horticultural production, full time work on farms, poultry production and processing, packing harvest produce, and providing Spanish language services to farm workers still in the migrant stream.

Chavira-Prado originally expected that migrant farm workers might join the group. However, only Mexicans long settled or actively settling around the Midwest rural town participated. (They occasionally performed for current migrant farm workers and their children, but audiences were considered outside the frame of the dancers' interactions.) The cultural and social activities engaging this social network required participants dedicate scarce leisure time to rehearse and perform. They had to spend money on costumes and travel. Current migrant farm workers could not make these commitments. The group temporarily suspended its activities between late July and mid-August when farm and packing labor was locally in high demand.

Three single adult male participants and the co-resident father of other participants worked itinerantly, caging chickens for transport at rural locations across five states. These four men left the area on work trips about 15 times. The men spoke Spanish, and were just beginning to learn English. They did not know the names of all the places they stayed or the names of their co-workers and short term co-residents. They went where their employer dispatched them, sometimes spending the night in motels along rural highways. They preferred to work and share rooms together on the road, but were often dispatched to work and stay with English-speakers they did not personally know or understand very well. In the context of the social interaction, the participants in poultry services avoided discussing their work.

One of the bachelors arrived from Mexico early in 2000, joining two already settling. The three bachelors moved from one tied-down rental trailer to another just before Census Day. Between Fall 1999 and Fall 2000, the co-resident father working in poultry moved three times with his family. Participants in this family moved from Mexico to the U.S. Midwest in the Fall of 1999. Like others settling, they had previously stayed in a large labor camp set up to house migrant farm workers traveling with families located near the town. During the six months study period, this family household moved from the trailer they initially rented to housing closer to a local public school with a bilingual program.

Most other participants and their co-residents in this social network were residentially sedentary. During the summer, one teenage participant left to stay with her grandparents in another state. The family household of another participant received a teenage relative from out-of-state for the summer (Chavira-Prado 2001:10-17). Local farm work was plentiful during the summer of 2000. At various times of the year, people living in several participants' households traveled to work in distant rural locations and/or to visit relatives in other states or Mexico.

The participants lived in seven kin-related family households and the one bachelor household composed of adult male recent immigrants (Chavira-Prado 2001:10-17). Cliques and blocks within the folkloric dancers' social network corresponded to gender and reflected participants' co-residential groups. In this social network, higher mobility overlapped with affiliation in two particular households.

Over the course of the study, these eight households were domiciled in ten local housing. Participants' out-of-state destinations were described rather than reported with addresses and locations, so could not be geocoded. Few census records were collected in the rural blocks where their housing was located. The yield of census records in the search area was small. All census records extracted except the one erroneous enumeration were matched.

In four of the housing units found listed, household enumerations partially matched. In these four, nineteen individuals were matched, two were erroneously omitted within their households, and a record for one additional co-resident was found included in the census.

There was no census record for the bachelor who had recently entered the United States at the address where he was sharing the rent on Census Day. His two roommates matched. In the enumeration of one large family household, there was no census record for one preschool age son who was observed and reported as living there. In another family household, there was a record for a teenage son who was actually living in Mexico at the time of the Census and throughout the six-months study. The individual omitted and the individual erroneously included were both male and Mexican but with a considerable age difference. The teenager who came later was correctly not included in the Midwest household he joined for the summer.

One housing unit and whole household was not matched. No census HCUF records were found for five people who had been living together in a family household long term in the same housing unit. Although this trailer home is located near the center of town, it "was not visible from the streets that lined either side of it, its driveway has no special markings, and it had no visible house number" (Chavira-Prado 2001:17). No census records were found for any one in this family in the block to which their housing had been geocoded or in the search area for the social network.

> Several reasons why no records of (this family) were found seem likely. First, their trailer home is physically set back, unmarked, and difficult to find or see. This trailer home shares a lot with another house and it may be the trailer was never reported by the property owners as a legal residence. Even though the specific housing unit address was omitted, no records from their block area (not only the specific address) corresponded. Their inconsistent use of last names might have made it more difficult to identity records for them in a broader search area, if they were not, as it appears, a housing unit and whole household miss (Chavira-Prado 2001:16).

The mobile home the three bachelors occupied later was correctly enumerated as vacant. No record was found, however, for the housing unit where the chicken-catcher's family household moved later. They were matched and correctly enumerated at their Census Day address.

The matched census person records were remarkably similar to the reports of participants and their co-residents in this Midwest Mexican social network. The ethnographer attributes the successful representation of their attributes on the census to the availability of Spanish language forms and local Spanish-speaking enumerators in Census 2000. There were minor discrepancies in reporting Spanish surnames and ages. Chavira-Prado noted the variable use of Spanish double (maternal and paternal) last names and optional use of their husband's surname by married women as cultural regularities. The two enumerated bachelors reported ages and dates of birth to the census almost a decade older than the ages they represented themselves to be. This fits with the ethnographer's insight on why the adult men participated in the dance troupe and maintained housing in the community at extra expense.

Participation in the voluntary organization offered them a chance to see and talk with girls.

> Dance rehearsals further offered them opportunities for a physical closeness, usually socially sanctioned, similar to what one may experience at a social dance. ... (These) unaccompanied men...could have reduced their unusually long weekly commutes by moving out of state, closer to the point from where they were dispatched, however they continued their trips to work and participated in the dance group throughout the study. They preferred to maintain residence in their trailer home in town and to sacrifice time and money to participate. (Chavira-Prado 2001:17-19)

The participation of the immigrant men "may be a conscious attempt to secure marriage partners" among closely supervised young women of the Mexican Midwest community they were interested in courting (Chavira-Prado 2001:17-19). Social self-representation as closer in age to the teenage women may explain why their census records matched on items other than age in years and year of birth.

4.4. Haitian migrant farm workers in the South

Louis H. Marcelin and Louise Marcelin defined the interaction frame for the social network they traced as working together in agricultural fields. The Marcelins screened farm workers who work seasonally (November - April) near a city in the South to identify a crew that planned to migrate and agreed to cooperate with the research. Subgroups of the original crew joined and split as they migrated north.

Having defined the interaction as working together in the fields, the ethnographers had to visit farm workers at their migrant stops. In upstream labor camps and "farm worker" motels, they found subgroups sharing domiciles and meals. One new participant joined the social network in

a large rental labor camp where the crew stayed at one of their work sites further north. The participants who migrated for harvest work further north eventually returned to the same locality where they had started out. Most, but not all, returned to the same housing unit they had left.

The researchers traced participants' whereabouts by combining visits to their local and migrant work sites and conversations with participants upon their return. Seventeen farm workers participated in the twenty agricultural work interactions the Marcelins observed between mid-March and the end of July 2000 that defined the social network. In addition to participants who were also co-resident, the participants reported a total of 28 co-residents.

Participants and their co-residents in what the Marcelins termed their "domestic base households" and in the quarters they rented at migrant stops identified themselves as Haitian. They spoke Haitian Creole at home and among themselves at work. Identity as Haitian and use of the Creole language were sociocultural and linguistic traits binding participants into the social network and each of their co-residential arrangements (Marcelin and Marcelin 2001:7-8, 21-22). Most participants had been born in Haiti and lived in the United States since the early 1980s. Participants were generally older than the non-participating co-residents of their domestic base households, which included the farm workers' adult children, grandchildren, and other relatives born in Haiti and in the United States.

Marcelin and Marcelin (2001) introduced the concepts of "domestic base households" and (localized) "base communities" to differentiate co-residential arrangements and mobility patterns of the social network participants. The households the migrants formed further north were united by a sense of quasi-kinship based on common origins in the same regions of Haiti as well as their work together in the fields. These work households enveloped traveling couples who resided together during the work migration and back in their "base community."

The Marcelins identified as "domestic base households" the more enduring or repeated co-residential arrangements of kin-related households located near the "base" city where the participants usually worked in the local agricultural season, November through April or May. They applied the attribute "domestic" to identify households which included the participants' descendants or more long-term peer co-residents. The Marcelins introduced the attribute "base" to identify those "domestic households" in the local "base community" which sent off and received back highly mobile people.

The Marcelins observed that all but one Haitian migrant farm worker participant returned to the same locality where they had worked together in the spring, but not all returned to the same housing unit or set of co-residents. In the locality where they worked seasonally, they were in touch with other Haitians. Upon returning to that local community, the farm workers were taken in by co-nationals who were maintaining "base households" in the locality.

Each Haitian participant occupied a different and unique personal place in a larger transnational system of kinship, households, and other affiliations. An individual's mobility was in part

oriented to where their kin relatives and former co-residents had secured housing. With the exception of one older couple, each Haitian participant pursued an individual itinerary during the period of observation.

An individual's attachment to a " domestic base household" and to the local base community was demonstrated by his or her presence and return after absences. During in-depth interviews, the Marcelins mapped participants' personal histories of relocations among domiciles and sets of co-residents, including former partners, spouses, children, grandchildren, and other relatives. Kinship and a history of co-residence connected several participants with a particular current "domestic base household" and also to other households in other places. Participants occasionally visited households in other localities where they previously lived and where their primary kin relatives or their former domestic or work co-residents were living at various locations in the American South, in Haiti, and in other Caribbean island nations. Participants' personal connections to kin and former co-residents explained the appearances of unreported co-residents enumerated in their houses while they were temporarily away.

Individuals moving among various "base households" connected a large multi-local transnational residential system. In localities where a certain density of Haitians established households, a local "base community" could emerge and develop as a point of return.

Match results for the social network of Haitian migrant farm workers and their co-residents were complex.

Although most participants occupied them later and temporarily during migrations that began after Census Day, the Haitian farm workers had no chance of being enumerated at any of the northern workers' quarters and farm worker motels where they were traced. The various work domiciles they occupied were geocoded to census blocks, however the rental labor camps, one motel, and other domiciles where the farm workers stayed during their migrations and several housing units were not found listed or enumerated.

The larger agricultural labor camp they occupied was located in an area the Census Bureau geography classified as "Zero Population Blocks" that is, containing no listings for housing or Group Quarters. The camp had been established for years at a crossroads of truck and tractor tracks to surrounding agricultural fields. Locating housing and group quarters for farm workers in the midst of production fields is not uncommon. Census 2000 apparently never discovered or listed this labor camp or its permanent built and manufactured structures for housing and common infrastructure. At least seasonally, the blocks contained population. The Haitian farm work crews rented camp housing day-to-day or week-by-week in sectors ethnically segregated from units occupied by Afro-American, Mexican, and Guatemalan farm workers. Other farm workers lived for months and during Census 2000 enumeration at this unlisted labor camp where the Haitian farm workers stayed later. The one farm worker who joined the social network in the north may have been omitted as a result, although his census residence was unknown.
At one "farm workers' motel" where a crew sub-group stayed, a manager's apartment was enumerated but not any of the migrant farm workers that were its main clientele. The other farm workers' motel they occupied was not listed or enumerated at all.

In March, April, and most of May 2000, all but one of the Haitian migrant farm worker participants was living in a housing unit and commuting daily to work in near-by agricultural fields. Their correct census residences were unambiguously in particular urban houses and apartments.

In this city in the South from where participants commuted to work in local agricultural fields between November and April, four housing units and the whole households in them were matched: a total of 18 individuals were found enumerated. In six other housing units in the same general neighborhood, households were partially matched. In these six partially matched households, ten individuals searched were found enumerated, three were omitted, and census records were included for additional individuals who were not reported as co-residents.

In the 3,276 records extracted from the neighborhoods where the 45 Haitian farm workers and their co-residents maintained domestic base households, no HCUF census records matched a little more than a third. Fourteen individuals not found enumerated lived together in four whole households entirely missed.

One of the whole households missed resided at an address which was not found in its block or any where else in the large search area. This appears to be a case of a housing unit/whole household miss: that is, a whole household of people was omitted because a housing unit was not listed. Many small houses in this neighborhood were constructed after a hurricane devastated the area in between the 1990 and 2000 Decennial Censuses.

The addresses of the housing units where three other whole households were missed were identified on the Master Address File and census records were collected in these units. However, none of the census person records collected in these three units (or elsewhere in the search area for this social network) matched the participants or their co-residents in the omitted households. These cases with listed housing units enumerated with entirely different people are not easily explained. The participants' housing units may have been omitted and misidentified with the listed units. Other people may have in fact occupied the housing. Address mix-ups may have occurred during the enumeration.

Identifying in the partially matched households whether census records for additional co-residents the participants had not reported were correct enumerations required further discussions with participants. Haitian households have been described as particularly "fluid" and "complex": domestic arrangements adapted to transnational family life and marginal opportunities for income characterized by frequent changes in the composition of co-residents (Marcelin and Marcelin 2001; Wingerd 1992:5; Stepick and Stepick 1990 :35-44; Stepick and Stepick 1992:4; Basch, Schiller and Blanc 1994.)

To resolve the enumeration status and apply census "rules of residence" to the situations behind these unexpected enumerations, the ethnographers worked with the participants to map their personal connections to kin and former co-residents at other locations. This mapping clarified

that census records collected in the housing units with partial household matches were erroneously enumerated. The individuals were known temporary visitors and recent arrivals.

In one of these partially matched households, two farm worker participants were omitted. The housing unit was found listed at the address they gave. Louis and Louise Marcelin visited them there and observed them living in the company of the adult children and other relatives they stated were their co-residents. The two farm workers omitted were a senior couple who could be considered the householders. In the house they maintained, census records were collected for some but not all the adult children they reported as their long term co-residents and additional people the couple did not consider residents of their household.

They knew the census respondent and thought it possible she might have stayed at their house temporarily while they were away working. She was the mother of one of their grandchildren, but she lived somewhere else and the infant's father, their adult son, had been living in still a third place for some time. This young woman reported herself, her infant son, and selectively some of the younger long-term residents. The young woman respondent did not mention the absent senior couple or several of their older adult children and relatives whom the householders considered lived there. In the opinion of the omitted senior couple, since the young woman and her child usually live somewhere else, and their son who is the infant's father lives in a third location, this census respondent should not have reported either herself or her child as residents of their house. The senior couple took the view that they and those children and other relatives they named should have been enumerated in their household. Even if the enumeration took place while the farm worker couple were temporarily absent, it was their Census Day and long term residence.

The ethnographers identified another definite case of omission during temporary absence. In a housing unit where another participant was omitted, one census record matched his reported co-resident house-mate there and there were unmatched census records for additional people. The omitted participant was working in the local fields with the farm workers social network in March and April and living in the house. Instead of joining a crew to migrate north, he went to Haiti for a visit. His housing unit was apparently enumerated in May 2000 while he was in Haiti. Other participants recognized the additional people reported to the Census were subtenants whom the matched house mate recruited to share expenses while he was away. They had recently arrived from Haiti. It is unlikely they were in the house, the locality, or the United States before May 2000.

The mapping of the participants' history of co-residence with kin and others further permitted the ethnographers to identify one set of census reports which had mixed up names, ages, and sexes. This set of census records was collected in one of the four housing units where a whole household was omitted. The census records enumerated in the house corresponded to visitors recently arrived from Haiti who were staying in the omitted farm workers' house. Although the participants had never been the participants' co-residents and were not their tenants, they were not strangers. They were visitors from an overseas' segment of the participants' larger social network of kinship and prior co-residence. The census records collected in the other three MAF-identified housing units in

which whole households were missed did not correspond to any one mapped in the participating farm workers' larger personal networks of kin and retrospective co-residents.

4.5 Commercial fishermen in the South

As Kathi R. Kitner explained,

> Because fishermen need to come to a dock to load up on provisions and other essentials, and must return to a dock to unload fish, the fishing dock and its associated industries provided a strategic primary point of contact between the ethnographer and the fishermen. The specific site where observations of social interactions were systematically recorded was on docked fishing boats. A docked boat was more quiet and more relaxed, allowing for better observation of network interactions.
>
> The interactions used to define the social network took place during the times just after the fish catch was unloaded and the fishermen began to relax a bit and catch up with news from onshore. These gatherings took place aboard the most recently arrived boats or on those of more popular captains (Kitner 2001: 9-10).

Forty-five participants ranging in age from six to 72 participated in the twelve interactions Kitner observed at the fish house dock (Kitner 2001:15) between March and September 2000.

> The fishermen participating in the interacting social network are primarily males between the ages of 21 years to 45 years of age. ... The women observed interacting ... included wives, girlfriends, mothers, and daughters of the men in the group. One fisherman was joined by his girl friend while he stayed on a boat at dock.... Traditionally, white males have dominated the fisheries of the South Atlantic. This demographic is most prevalent in the snapper grouper fishery. In the shrimp and blue crab fisheries, a greater percentage of African Americans participate. As the shrimp fishery has become more technologically intensive, this percentage has been reduced due to capital wealth disparities and historical discrimination in the south. Forty-three people in the social network of participants call themselves "white." The majority had been born in the same or a nearby coastal state; one person was born in another English-speaking country. ... The two Hispanic participants in the social interaction represented themselves as Puerto Ricans (Kitner 2001: 15).
>
> Most of their mobility stems from the nature of the work the fishermen perform. They must fish preferably when the weather is good, so this necessitates them being able to leave port quickly and return infrequently as long as the fish are biting and the weather holds.... Not being able to fish meant not earning money, and so when the weather finally cleared, the boats left for sea. Predicting where

> fishermen might be based on weather patterns or lunar cycles may seem antiquated in this era of super fast computers and other high-tech solutions, (yet) weather and lunar cycles are components determining some of the mobility among fishing peoples.... A fishing trip in this fishery lasts between three to seven days. The trip is usually cut short only if a mechanical problem develops with the boat, the weather is very bad, or the hold is full of fish. The latter is the least likely (Kitner 2001: 18).
>
> Some people at the dock call the fishermen who move frequently from boat to boat "boat-hoppers." This term is also used in jest among friends with only slight negative undertones. ... Another category of fishermen are the "tumbleweeds" -- people who just appear one day at the docks looking for work, work for a while, and then move on down the road. Most fishermen speak of "tumbleweeds" with derision.... If a tumbleweed does get to the point of actually going to sea, he must prove there that he is a hard worker. If he passes this test he is usually kept on as crew. There is enough turn over among tumbleweeds that crew is always needed on the boats (Kitner 2001: 19). Both crew and captains moved from boat to boat so frequently ...it was impossible to keep track of who was working which boat from trip to trip. When men shift from working one boat to another, they change not only boats, but ...associates, ...at sea and onshore. Because all boats are on different fishing schedules, when one crew is out fishing, others will be inshore. Therefore, work (groups) ... fluctuate in membership.
>
> Some fishermen just disappear from the docks and move onto other communities or to other occupations. ... During this study: two persons fell completely out of the network (Kitner 2001:19).

Kitner originally hoped to learn where the commercial fishermen went while they were at sea. Where fishermen fish, however, is somewhat of an occupational secret. Since the fishing vessels that served as their work quarters while they were at sea did not qualify as units of enumeration in Census 2000,[14] tracing was oriented to find out what domiciles fishermen occupied while they were not at sea. "At sea" was treated as one generic location for the work quarters domicile of fishing vessels; “at dock” the same vessels served as shore domiciles.

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[14] In Census 2000, only those fishing vessels where crew live on board for six months or more were defined as a type of workers’ Group Quarters. Few U.S. commercial fishing vessels qualified for shipboard enumeration. Boats at dock in marinas listed as Transient Quarters were enumerated as “housing units” if their occupants said they had no usual home (other than the boat). Slips at commercial fish landing docks were apparently not listed as Transient Quarters.

Thirty participants co-resided at least once with another participant. An additional nineteen people were reported as nonparticipating co-resident(s) of one or more of the people interacting at the fish house. These 19 ranged in age from two to 40.

> While on shore, most of the owner/operators of boats stayed in permanent dwellings such as houses and mobile homes. Some of the hired members of fishing boats' crews similarly lived in permanent structures. The most common domicile maintained by captains and some crew involved ownership of a small lot on which they placed a "mobile home" (a tied-down trailer or manufactured housing "single wide" / "double wide"). Some fishermen and their co-residents stayed with one or more of the households that other fishermen established in such housing within a ten-mile radius of the fish house (Kitner 2001: 15).
>
> Fishermen practiced a wide variety of behaviors in order to solve the basic human need to find shelter. The fishermen reported three basic types of household composition in their arrangements for housing on land.
>
> The first type is the nuclear family household in which the returning fisherman either rejoined his wife or domestic partner and their children whom he left while he fished, or entered as an unrelated guest or tenant for a temporary stay.
>
> The second is the all male temporary household group formed by two (and in one case, three) male, unrelated fishermen who become roommates or house mates to share the rent in motels, mobile homes, apartments, and sublet condos.
>
> The final type reported is the couple/ single person household in which the fisherman rejoined either his girlfriend at a place the fisherman and his domestic partner rented, or the girlfriend secured through her own economic activities: e.g., by working and paying the rent, house-sitting, obtaining rent-free quarters connected with resort service jobs (Kitner 2001: 15-16).
>
> In the census records, some of the fishermen were found enumerated in a fourth type of household: the stem family household consisting of one older parent, adult children, and sometimes the adult children's spouses or children. Fishermen returned to this type of household as adult sons.
>
> Several fishermen could not be traced to any domicile on land while they were in port. These men usually stayed rent-free on the fishing boats, sometimes alone and sometimes with another crew member. The fishermen explained that staying on board was an easy solution to the problem of where to stay. However, fishermen claimed that every once in a while even those of them who usually stayed on the vessel at a berth in between trips occasionally needed a stay in a place that offered hot water and clean sheets. So at times, depending on their

> financial resources, these fishermen would either rent an inexpensive motel room or go stay temporarily with a friend (Kitner 2001: 16).

Some fishermen received mail at the address of the fish house where they cashed out their share of the catch. Although the fish house has no sleeping facilities, participants staying on docked vessels took showers inside. The fish house was one fixed point in their nomadic existence where they could pick up mail.

Tracing fishermen to domiciles on shore proved difficult. Some fishing crew were traced through stays in multiple types and locations on shore with different co-residents. Some arrangements for shore domiciles were set up in the interactions at the dock. It took extra legwork to verify addresses for housing units described by location and cheap motels described only by name.

During the study, participants in the commercial fishermen's social network maintained housing or found places to stay within a ten mile radius north, east and west of the fish house dock in two adjacent countries. Between 1990 and 2000, a natural disaster, new construction, and development altered the configuration of lots, roads, and streets.

A tangle of geographical mixups affected census maps and the Master Address File in this area. Some named streets were missing or in the wrong order on Census Bureau electronic TIGER maps and American Fact Finder maps. Geographical clerks drew on supplementary resources, including discussions with the Coast Guard, to assign block geocodes to addresses submitted. Headquarters project staff canvassed the area and verified the differences between street names on TIGER and TIGER-derived maps and those posted on the ground and published in local commercial maps. The way housing addresses were listed on the MAF were not necessarily the correct or only addresses of the housing units. That is, MAF versions of housing addresses were not necessarily those which postal workers or occupants gave or which could be "read" from posted house numbers and street signs.

A compounding issue was that one ZIPCODE straddles the two counties. Several housing unit addresses were found on the MAF listed under two identification numbers each encoded with a different county.[15] Housing with their particular combinations of house number, street, and town existed in only one county, not in both. Some housing units with the straddling ZIPCODE were ascribed to the incorrect county. These problems may have resulted from a geographical program that automatically ascribes addresses to one default jurisdiction where a single ZIPCODE crosses county or town boundaries. A number of the domiciles occupied by participants in the commercial fishermen's social network were geocoded into zero population blocks.

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[15]Changing the location of housing units in census geography from one county to another is a common revision. The last digit in a listing's identification number on the Master Address File is reserved to note its location has or has not been "moved" in census geography.

The land and water census blocks of the fishing dock and adjacent marinas were correctly identified on census maps and classified as unpopulated. In searching the Census 2000 list of Transient Quarters and the Master Address File along this stretch of the coast, not only were the fishing port and next-door marinas unlisted but also numerous large year-round recreational vehicle (RV) parks and camp grounds and other marinas in the area. The shoreline and a U.S. highway bounded several of the "Zero Population Blocks" where several fishermen maintained their "usual homes" in tied-down trailers and where several had default census residences on docked vessels at a fishing pier. Other "Zero Population Blocks" bordered by correctly noted streets and highways contained houses that could not be found on the Master Address File. Multiple factors discussed above may have impacted the completeness and accuracy of listing and mapping in the area.

Few census person records were collected in and around the blocks identified as the census geography and specific listings for participants' domiciles. Because census records were sparse in the area extract, project staff specified a supplementary extract for this social network only. We modified our program to select and extract all HCUF person records collected anywhere in the two adjacent counties which recorded the same last names as any of the participants and co-residents. This "last name two county" extracted 13,416 person records from the some quarter million collected in the counties. The larger extract did not include census records with last names other than the participants' and the reported co-residents in the same household.
In the last name two county extract, matches already found in the area extract were replicated. Matched records were found for seven individuals searched who had not been in the area extract and possible matches for others.

The area extract lacked records for nine domiciles which had been the census residences of 18 individuals. These domiciles had been submitted with sufficient information for geocoding. In the larger last name two-county extract, only one of these 18 individuals was found enumerated. No matches were found for the other seventeen.

In six housing units occupied by participants in the commercial fishermen's social network, households were partially matched. In these six units, fourteen reported individuals were matched to census records, one was omitted, and records were present in the census for seven additional individuals who were not reported as co-residents.

Fourteen other domiciles occupied by a total of thirteen commercial fishermen in succession were geocoded into census "zero population blocks." No census record from these blocks matched any of the thirteen individuals who stayed in these blocks at the time of the Census or later. (One individual who was not among the participants and co-residents searched was found in the last name/two county extract enumerated in one of the blocks classified in census geography as Zero Population Blocks.)

Twenty domiciles address/locations were reported with information insufficient for geocoding. Records for the 21 individuals reported living at these locations were not expected in the area

based extract. Eighteen of the domiciles where 17 of these individuals had lived on Census Day or later were located in the adjacent counties. Census records matching them were expected to appear in the larger two county extract of all HCUF person records with any of their last names. However, none of the records extracted on last name from the two counties matched any of these individuals either.

No census records were collected any where in the two counties with three of the last names specified. Other relatively rare last names appeared on a handful of census records, but none matched the participants. Households of single mothers and children with rare last names may have been the estranged families of unenumerated fishermen. The specified last names that are among the 25 most common in the two counties and the United States yielded dozens and even thousands of records to examine for matches. In the case of the common surnames, the two county extract contained census records for men with the same first and last names as the individuals searched but older by 30-40 years: these may have been the participants' parents or namesake older relatives.

Two census residences reported with insufficient addresses were located in out-of-state places. The participants who occupied these domiciles entered the state and the interaction well after Census Day. Each housed a man and a woman. Records for these four individuals were not expected in the larger two county extract. If these individuals had been found enumerated at their later addresses, these would have been incorrect. Their enumeration status could not be resolved.

Kitner noted that participants found enumerated "had it all". They were captains of boats or had steady jobs. They had housing on land. They had families. However, several participants who maintained families in local homes were omitted together with their kin related co-residents in apparent housing unit/whole household misses.

Fishermen who repeatedly returned to the same home fixed in conventional housing units were enumerated. Enumeration records were not found for any of those fishermen who stayed in a succession of domiciles: on docked boats, and/or in hotels, and/or at different companions' homes, and/or in temporary rentals their lady friends secured. Although several men and unmarried couples were each traced to a half dozen or more unduplicated shore domiciles in the two counties, either the places they stayed were not listed or they were not enumerated in them, including their Census Day residences.

It is fairly conclusive that the habitually mobile people who did not maintain a "usual home" in a conventional housing unit and did not have regular personal access to any other kind of domicile on shore except docked vessels were not enumerated. No matches for them were found in either the MAFID# and block specified area extract or in the two county last name extract. With the exception of the four who were definitely in other states on Census Day, if any of the individuals identified as omitted were enumerated some where else, those enumerations would be erroneous.

The search for matches for the fishermen's social network produced more additional unreported co-residents. The unreported, unexpected enumerations were in housing units where one or more participants and/or their reported co-residents were matched. The number of "additional census co-residents" was greater in the fishermen's social network than any of the other five social networks.

The "census co-residents" identified in the area or last name extract were mainly as kin relatives (wives, children, parents, adult siblings) whom the participants did not report as their co-residents. Matches for several participants with marginal rather than social network central positions who were reported as living alone or with peers were found in the enumeration context of unreported and untraced family households. If, in fact, they were residing locally in family households, these participants may hung back from the sometimes rowdy interactions to hurry home. They may have bowed out to avoid fraternizing with "boat-hoppers" and "tumbleweeds" on the prowl for places to stay. Conversely, they may have been included by household respondents who thought they were at sea.

One unreported co-resident enumerated with one fisherman and his family was an adult male boarder. Although the man was not one of the individuals searched, several participants were traced to brief stays in work mates' homes on shore. These stays were temporary hospitality. Six individuals matched only in the last name two county extract (without addresses) were enumerated as room mates, house mates, and boarders and had person numbers indicating they were the fifth or sixth person enumerated in the unit. This enumeration profile is compatible with the all "room mate" temporary households and stays in friends' family households reported for them and for more numerous fishermen who were not found in either extract.

More individuals searched associated with the commercial fishermen's social network were apparently omitted than were found enumerated and "added" as unreported "census co-residents" put together.

In this social network, possible duplicate census records were identified in the larger last name extract. The ethnographer traced one fishing captain to the address of a housing unit found on the MAF. His co-residents there were his wife, his mother, and his child. He alternated stays with them and stays aboard his docked vessels with all-male groups. This captain's wife and mother were both participated in the social network, so were also subject to tracing. By the end of the study, the captain had separated from his wife and during his shore times, stayed with his mother.

In the extract based on specified housing units and census blocks, a census record for a man with this fisherman's name and characteristics was matched at the address reported as his family housing unit. The address was found on the MAF. At this listing the captain was enumerated

with his participant wife and their co-resident child.[16] In the larger two county extract based on last names, this housing unit/household match was replicated: that is, the same records were extracted using the last name principle for specification. In the two county last name extract, census record for a man with the same first and last name and similar characteristics was found at another address. In that second unit, he was enumerated as the adult son of an older woman respondent along with another of her adult children. This possible duplicate record found in the last name extract suggests that the man's mother may have lived in another housing unit all along and the captain's wife and mother, living in different places, had both reported him. The perspective that the captain's co-residents were his wife and his mother remains correct. The issue is whether the mother lived apart all along and the captain alternated shore stays between his co-resident wife and his co-resident mother in different housing units with stints alone and with all-male groups on the docked boat, or whether his mother moved to other housing after his marriage broke up. This case is qualified as a "possible" duplicate because there is a minor discrepancy (day of birth) between the two census records for the captain and missing information lowers the confidence of the match for his mother. If the two census records are, in fact, duplicate enumerations for the same man, it is possible respondents in two family households in different housing units reported this captain while he was away at sea or staying on his docked boat.

In a different case, another fisherman was matched in the area extract with an unreported woman co-resident. This household match was replicated at the same housing unit in the larger last name extract. Another record for a man with the same name and characteristics was found at another representation of the housing unit under a different identification number. The alternative listing duplicated the same unit in the other county.

In the course of searching for matches in the two county extract, the duplication of whole and partial households at sequential housing unit identification numbers or in the same block were common. The county and ZIPCODE mix-up in this area added the dimension of duplication of unique addresses as though one address existed in both counties. The duplication of person records in duplicated listings for housing units was not noted in the search areas for the other five social networks.

The fishermen were at sea more than half the time. Fishermen who darted in and out of a series of co-residents or who stayed on shore in a series of different domiciles with the same co-residents were not enumerated. More fishermen without fixed shore residences were omitted than fishermen who were attached to domestic households were enumerated.

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[16] In this case and others described, minor changes have been made in the description of household composition to prevent their identification.

4.6 An American Indian men's society in the West

Brian Gilley identified participants in the interactive social network affiliated as a local chapter of a pan-Indian men's society.

> They interacted during regularly scheduled meetings held biweekly at an urban Indian clinic, at informal social gatherings, and in organized weekend activities. On the average, at least eight to ten men were present at any given bimonthly meetings.... Between five and eight men attended meetings routinely; others attended occasionally or infrequently. (Gilley 2001:6).

Gilley defined participation in the regular meetings and the events the society organized as the interactions which defined the social network. Between March and September 2000, Gilley identified a social network of 21 participants in 21 interactions framed in the formal gatherings of the local society. Its regular meetings lasted a few hours; its sponsored events, several days. Between four and 18 of the 21 participants interacted in the various episodes. The ethnographer visited participants at home, attended informal gatherings of sub-groups in their homes, and observed about twice as many men affiliate with sub-groups from the local chapter in other contexts.

One formal analysis of the participants' social network matrix identified four main cliques. Another identified seventeen. The largest cliques consist of those men who attended meetings most constantly.

> Men join the group because they identify themselves as Native American and seek the support of individuals who share their particular situation and views. Demographically, participants in this social network range in age from their early 20s to their mid-50s. Men in their 40s and 50s predominate. Most members of the local chapter observed represent American Indians from Southeastern peoples -- Cherokee, Creek, Seminole, Lumbee, and Chickasaw -- and a few represent Western and Plains groups including the Tewa and Apache. The educational, occupational, and income levels of participants vary widely. About half the members of the group are college educated, although most have incomes of less than $30,000 a year. Most participants in this social network hold full time jobs in various industries, while several are receiving Social Security disability or are employed erratically (Gilley 2001:7).

Gilley characterized moves between rural and urban/suburban areas as dominating participants' mobility. Many men in the social network had relocated from rural to urban areas over the prior five or ten years. Most moves during the observation period were short term: visits to rural areas of origin, attendance at gatherings organized by the men's society held in other rural areas, and stays with other participants. Core participants were in the process of becoming urban Indians. Most were "generally 'stable'" and "directly tied down to jobs or other economic needs" and maintained or shared a place in the city (Gilley 2001:9).

> Their mobility peaks during the summer months when their ceremonial and tribal obligations increase. During the summer months, many members of this social network take up residence for a few days with a relative or friend who has a house in a rural area near the headquarters of their particular tribe, or, in the case of the members who are of Southeast descent, near their stomp grounds. Episodes of state-to-state migration were observed in this group typically to and from states further West. A few members of the group left for several months to stay at a family or friend's home in another state, and returned to participate in group activities and/or moved back ...for economic reasons (Gilley 2001:8).

Several participants considered themselves "homeless" and stayed with other participants as long as they were tolerated.

> Individuals who attended group meetings were observed soliciting places to stay. ... For example, a man would pull aside a member of the group.... and ask to stay for a "couple of days." Apparently, such a request is seldom refused unless it comes from a person who is seen as "taking advantage" of the support group and the social network.
>
> One man.... carried his bedroll and a satchel with his belongings when he came to the bimonthly meetings. In the past, several ... had taken this man in for brief periods of time. Once the man 'wore out his welcome' (as one participant put it), he would show back up at the bimonthly meetings carrying his belongings. At most of the bimonthly group meetings observed, this individual... pulled (someone)... aside to ask if he could come to stay with him. Or, during a 'talking circle' at the meeting, the man would discuss openly the fact that he "had no place to stay" and asked if anyone "would know of a place he could stay."
> ...
> Although the local YMCA primarily serves transients, (by the end of the study) this individual had resided at the "Y" for over a year. In his case, denying him the hospitality of co-members of the group, had the effect of stabilizing his residential situation (Gilley 2001: 10).

Several participants moved in with each other for short stays. Large sub-groups stayed together at the encampment events the society sponsored. Participants invited affiliates arriving from other localities to stay with them.

> Most moves to stay with other participants in this social network were ... havens ... to 'escape' a hostile domestic situation. Typically, (as participants described it,) a man who needed a place to stay would contact one or more of participants in the local social network of the men's society by telephone or 'stop by' to gain emotional support.

As a result of these conversations, the man in need would solicit a short-term stay. These short-term stays would last a few days. Once the situation that drove them to leave their primary residence was resolved, they would return there. During the study period, (several local) members of the social network were observed 'taking one another in' for a couple of days at a time (Gilley 2001: 11).

Members' contacts outside the local community provided (them with) 'places to stay' when participants in this social network travel to other states for powwows and ceremonies. People from Oklahoma chapters frequently traveled to ceremonies and events in one city further west, and stay with people living there during the events. Similarly, individuals traveling from that city to Oklahoma were hosted during their visits.

Gatherings offered a unique situation for individuals to connect with a larger number of people in the broader society, particularly members who live in other states or who attend bimonthly meetings infrequently. ... The atmosphere at these gatherings is much more generous as illustrated and reinforced by 'giveaways' and certain ceremonies that take place during camp outs and retreats.

Some men take advantage of the generous mood of these gatherings when they are seeking new places to stay. At least three men attended a retreat held in a remote area of another state in July 2000 with the intent of attempting to relocate their domicile, of finding someone who would agree to take them in on a temporary or semipermanent basis.

For example, one man who had been living in Boulder, Colorado attended the retreat to find a new residence. The condominium where he had been staying rent-free had been sold, so he needed to find a new place to live. He brought with him to the camp a large amount of clothing and valuable belongings as well bedding for an extended stay. While attending the retreat, this man reconnected with two members of the social network from Oklahoma whom he had known for three years. The two men from Oklahoma agreed to take him back to Oklahoma with them for an extended stay. The dispossessed Coloradan traveled with the two men when they returned to Oklahoma and took up residence with them...

The hosts transformed living room of this house into a kind of bedroom to accommodate ...man from Colorado. At the end of the observation period in October 2000, the individual from Colorado was still residing in Oklahoma (Gilley 2001: 11).

Participants moved in together to form households, took haven briefly in each other's homes, and stayed together at events often enough that the social network formed by society interactions closely resembled the participants' matrix of co-residence. Traced over six months, participants lived with only six co-residents who did not interact in the social network.

The census addresses established for 22 individuals (16 participants and the six non-participating co-residents) were used to specify an area extract; in the resulting 2,383 HCUF person records, matches were found for thirteen. Those found enumerated were in housing units with the "city style" street and house number addresses which participants had reported and the ethnographer checked and mapped. In six housing units, the whole households matched. This accounted for ten of the participants matched. In three housing units, reported households were partially matched. In the three housing units with partial household matches, three participants were matched, four were omitted, and one unreported co-resident was included by the census.

None of the census person records collected at the local YMCA matched the one participant who was living there as of Census Day. This participant was not found elsewhere in the search area extract for this social network (Gilley 2001: 16-20).

No living quarters of any kind were listed or enumerated at any of the rural areas where participants periodically stayed. The public and tribal camp grounds where participants stayed during events and the tribal ritual centers – church or stomp grounds– they visited were located in census zero population blocks. Census 2000 did not list units of any kind in these blocks and no person records were attributed to these blocks.

The TIGER map showed the unmistakable entrance road leading to the unlisted state campground where the American Indian men's society retreated, and not much more. This camp ground contained rental cabins, specialized recreational facilities, camping sites, and staff housing. Other zero population blocks where the Indian men stayed were traditional tribal ritual centers, including those known as "church" or cemetery or "stomp" grounds that contained houses. Houses at ritual centers are packed during ceremonies, and may be lent to those who need housing. In one tribal ritual center where the men's society stayed, located in a cluster of census "Zero Population Blocks" Gilley noted six households of elderly lived year-round. Similar houses on Indian "church" or "stomp" or ritual center grounds were unlisted in 1990 (Moore 1992).

As Gilley pointed out, by tracing where participants, the research discovered places where other people were not enumerated. People lived year round in housing at the unlisted state camp ground and unlisted tribal ritual center where the American Indian men's society held its Summer 2000 encampments.

Matches were not found for nine individuals. Two participants were simply not reported by their respective roommates. In both cases, the only census person record collected matched the one co-resident each man reported. These men were omitted in conventional housing at their census

and continuous domicile addresses. The two omitted this way were among the relatively more residentially stable participants.

Gilley discussed the situation of one of these men calling him “Kevin” (a pseudonym).

> “Kevin” reported he had been living with his domestic partner on and off for three years in the home that Kevin’s partner, "Zach," owned. On numerous occasions Gilley visited "Kevin" at that home. Kevin was living with Zach when the researcher met him, and Kevin appeared to be living with Zach throughout the period of this study. A census record matched Zach, but Kevin did not show up on the Census 2000 data captured at Zach’s domicile.
>
> What needs to be explained is why Zach did not report his co-resident and partner, Kevin, as living in his house. It is at Zach's house where Kevin would be considered resident according to Census residence rules. During the six month study period, Kevin left Zach's house at least three times for a few days to a week. Kevin went to stay temporarily with another social network participant, with his parents, and with a close friend. Kevin (explained) ...that when he left Zach’s house for brief stays elsewhere he left most of his possessions at Zach's house, and took only clothes and “necessities” with him to the new location.
>
> Kevin’s moves were often related to domestic issues with Kevin leaving for a short period of time to avoid some conflict. Kevin, like many Native men, would leave the domicile that he considered his primary residence at times of domestic turmoil. ... Therefore, when Kevin felt it necessary to “get away from Zach” he would go “stay with” a participant in the social network. How Zach, who is non-Indian, viewed Kevin’s stay in his home, was not probed, because Zach was a co-resident and did not himself participate in the social network of the men's society.
>
> Although Lobo (1990) observed Indian men move mainly into female-headed households when they left their female wives or partners, Gilley observed that the households of fellow male participants in the interactive social network of the men's society replaced female relative’s households as potential reserve places to stay.

Two other participants staying together were not reported by their co-resident, who was the mother of one of the men (Gilley 2001:16). Gilley called them "Jim" and "Will," and Jim’s mother, “Angela.”

> "Angela" lives in a tribally-owned house in a rural area in northeastern Oklahoma. After leaving jobs in Atlanta, "Jim" --with "Will" along-- moved into Angela's house. They reported they were living with Angela on Census Day 2000. However, Angela did not report Jim and Will (on her census form); ... according to the Decennial Census data capture, Angela lives there alone.
>
> Gilley visited Angela's house in late April and confirmed that Angela, Jim, and Will lived there together. However, after asking Jim about his movements, it became apparent that he had previously moved out of state (several times in the past) and then moved back into his mother Angela's house for brief periods of time. From Angela's comments, Gilley understood that she did not consider Jim and his friend as "co-residents" and certainly not as "permanent residents" in her home.
>
> ...When Gilley asked Jim's mother, Angela, about how she viewed her son's stay with her, she stated that moving someplace to work and moving back in with her was "just something that he did." She stated her reasons (for not naming her son, Jim, and his friend, Will on her census form) as follows: 1) Jim and Will did not own a portion of the home; 2) the tribe did not know they were living there paying her rent and for part of the utilities, and 3) Jim had never stayed for more than six months. Therefore, Angela stated that she did not view Jim or his friend as her "co-residents" or even "living" there because that implied a kind of permanence that she did not expect from Jim and Will's stay. Further, Jim spent a lot of time staying at the ceremonial grounds helping to maintain the place and "consulting with the elders" (learning about and conducting ceremonies). Although Jim and Will continued to live mainly at Angela's house throughout the six months of the study, in responding to the Census report Angela assumed that Jim and Will were going to "move on" after a brief stay with her and this resulted in her not reporting her son or his friend.
>
> As Angela stated, "... moving, like Jim does, is just something Indian men do" (Gilley 2001: 16-17).

The location and sort of address that could be found on the Master Address File for the Census Day whereabouts of five participants could not be confidently established.

Participants who are traditionally habitually mobile during the spring and summer joined the social network of the American Indian men's society after Census Day from out-of-state. Two provided the addresses where they had been living around Census Day found on the Master Address File, however no person records collected at these addresses or nearby matched these men.

Like some domiciles where participants in the American Indian men's social network were traced, some domiciles where the men stayed in April 2000 did not have "addresses" and were located in areas without listings. Prompts to recall where they slept overnight added outdoor locations to recollections of where "they stayed" (inside). To purify himself before a ceremony, one man slept outdoors. "In my blanket, on a hill, by a tree, not far from..." (Gilley in Randall, 2001- November 2001 video).

Upon closer examination, it became less certain where several of the men who arrived from out-of-state and who were seasonally habitually mobile men had been staying on "Census Day" and at other times in April and May 2000. For several, where they thought they might go in the Fall after the study ended was up in the air. They were, however, quite certain they had not been enumerated.

One such man was the itinerant traditional healer Gilley called "Chuck".

> "Chuck" maintained a home in northern Colorado, but was seldom absent from any ceremonial event or pow wow in which the men's society was participating. Because his services as a healer were sought by many people, Chuck ... traveled extensively throughout the Southwest, West and Great Plains, conducting ceremonies and usually staying for a couple days with the person who had required his services, or with friends in the area where he had traveled. Chuck would combine several healing service trips into longer trips which would inevitably include pow wows, men's society events, and community ceremonies.
>
> As with many of the other men interacting in this social network, Chuck's mobility took place largely during the Spring and Summer ceremonial and pow wow season. ... Most the ceremonies Chuck conducted occurred in outdoor constructed "lodges" which required good weather, as well as several days to build and prepare.
>
> Appropriate weather, combined with increased activity among the socially active Indian community during the summer, made Chuck's movements more frequent and last longer periods during that season.
>
> In July 2000, for example, Chuck spent two weeks working his way through the Southwest conducting ceremonies and staying with different families. The families would provide him with food, medicinal supplies, gas money, and a place to stay in exchange for his religious services. Chuck's two weeks of travels provided him with enough resources to meet a group from the men's society at a pow wow in Northern Colorado later in July (Gilley 2001: 19-20)

Chuck met a member of the local chapter of the men's society there and took him along with him for a couple weeks to assist with ceremonies and lodge construction. Although the man Chuck took along was not found enumerated either, Gilley points out his mobility differs from Chuck's. The assistant was on a "vacation" from work and was at other times residentially stable, whereas Chuck seasonally pursued an habitually mobile career.

Chuck originally told the researcher that he had been living at the address of his northern Colorado home on Census Day 2000, but later, after observing his extensive mobility, Gilley asked Chuck where he remembered sleeping on April 1, 2000. Chuck then stated he was staying as a guest in the house of the individual for whom he was conducting a healing ceremony in the Southwest.

> Another social network participant who was not matched to any census record was "Sean," a 33 year old well known in the Indian community and able to move among multiple states and seldom be concerned with having a place to stay.
>
> Sean's travels directly correlated with the pow wow and ceremonial season. Traditionally, the first major powwow in the West and Central West begins in mid-March. Pow wow activity hits its peak in mid-July and levels off in the beginning of August.
>
> Sean stayed with (two participants in the local chapter) until early May, when he moved back to the Northern Colorado area with a person who had also attended a ceremony in Northeastern Oklahoma later in the month. (One of his later moves was to) participate in a week-long ceremonial event in the Rocky Mountains in early August. While he was at this ceremony, Sean arranged to move to Oklahoma and stay with (the same two participants from the local men's society chapter again, promising to help one of them) assemble his regalia for pow wow dancing. The timing of this move was important...Sean had spent the time (in between stays with these two) from the early Spring until the late summer traveling to pow wows and various ceremonial events from a "home base" at his sister's condominium in northern Colorado.
>
> When Gilley asked Sean about his move to Oklahoma, (Sean explained) his sister was going to be ... temporarily moving back to the reservation, and since the powwow season was nearly over, he needed a place to "regroup" for the off-season in Fall and Winter. Sean stated that his plan was to live in Northern Colorado until the pow wow season got going and then move to the house in South Dakota of a cousin of his, who is a traveling vendor at pow wows (Gilley 2001: 18-19).

The habitually mobile participants in this social network, who seasonally moved itinerantly and may not have stayed as long as six months anywhere, were also the most prestigious (Gilley 2001:18-20). Their prestige made them widely welcome as invited guests. Gilley noted that some of the men apparently not enumerated are among the most active in the social and ceremonial aspects of the Native American community.

> Two major factors connect increased participation in the Indian community to the risk of omission in the Census:
>
> 1) a high rate of seasonal mobility and
> 2) access to multiple places to stay while traveling. ... (Gilley 2001: 19)

Contributing to an undercount of Indians in Census 2000 is the well-known avoidance by Native Americans of giving information to government officials and agencies (Gilley 2001: 22).

4.7 Social networks boundaries and census categories

The ethnographers compared Census Bureau answer categories for demographic and personal characteristics with how participants in the social network identified and represented themselves socially.

"Homophily" – people with similar traits affiliating – has been documented to figure in the recruitment of individuals into social networks and into cohesive subgroups within social networks. Studies have examined homophily effects for gender, co-national immigration status, language, ethnicity, and race among others. (For citations to this literature see Brownrigg 2002: 76-77 for gender, :78 for social networks among immigrants and other identity affiliations, and :79 for language communities.)

> Other race: Mexican; Hispanic ethnicity: Mexican; core culture: Mexican; language other than English: Mexican Spanish

Participants in the Midwest social network personally identified as Mexicans and were engaged in public performances of their distinct cultural heritage. Chavira-Prado predicted all participants and all non-participating co-residents would identify their race and Hispanic ethnicity as Mexican. She predicted respondents would check "some other race" rather than any of the other fourteen race categories listed on Census 2000 short forms and that they would write-in "Mexican" to specify that "other" race. On the HCUF records matched to participants and their co-residents, the Hispanic origins checked were "Mexican" and "other Hispanic"-- alone and in combination. However, those who checked "other Hispanic origin" alone then wrote-in Mexican. The matched records noted "Mexican" in write-ins, even on census records which also checked Mexican as the Hispanic ethnicity. Chavira-Prado reported each individual's birthplace. About twice as many had been born in Mexico than in the United States. Both those born in Mexico and those born in the United States identified their race and ethnicity as Mexican. The only race categories checked on the matched HCUF records were "some other race" and

"white." They used the write-in boxes for “other race” and for “other Hispanic” to specify Mexican. The write-in box for one youth born in the United States identified him as Mexican-American. Nationally, 18,521,486 people counted in the census checked some other race: 15,359,073 checking “some other race” alone. and 3,162,413 checking it in combination with one or more other race category.[17] Nationally, 14,891,303 people who identified an Hispanic origin in Census 2000 checked “some other race” alone.[18]

Language was an important boundary for the Midwest Mexicans. Participants spoke Spanish in the social network and at home. Participants and co-residents of the two households which had most recently migrated from Mexico spoke only Spanish. Residents of the other households were generally bi-lingual in Spanish and English, including children born in the United States.

Other race: Haitian

Louis and Louise Marcelin (2001) reported participants in the social network of actively migrating farm workers and their co-residents were Haitian. The Marcelins predicted which individuals would assert themselves as “some other race” and identify their race as Haitian. On the census records matching the individuals searched in this social network, "some other race" was in fact the most prevalent race category checked. On the matched census records, respondents had filled in multiple write-ins stating “Haitian” or some variant. Checking "other race" alone, or in combination with Black, was also widespread on census HCUF records with Haitian written in write-ins throughout the area searched.

All participants of the social network of seasonal and migrant farm workers and most of their co-residents identified themselves as Haitian. Haitian Creole was the language of interaction in this social network. Most participants had been born in Haiti.

The social network participants were farm workers. They were mainly older adults, age 50+ : men and women who had immigrated from Haiti in early 1980s and continued to visit relatives there. They spoke Haitian Creole at work and in their homes, and spoke English with varying degrees of fluency.

The ethnographers explained why most of the Haitian participants, and Haitians more generally, might not identify themselves as “Black.” The Haitians regard the race term, Black, as designating a U.S. born, culturally American social category different than Haitians. The Haitian migrant farm workers competed for harvest jobs against ethnically segmented crews. The Haitian crews competed with farm workers born in the United States whom Haitians called

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[17]QT-P5 Race alone or in combination:2000, from the Census 2000 Summary File 1 (SF1), 100-percent data, American Fact Finder.

[18]Table P8, Hispanic or Latino by Race (Universe: Total population from the Census 2000 Summary File 1 (SF1) 100-Percent Data), American Fact Finder detailed tables.

“Afro-Americans” or “Blacks” and farm workers who spoke Spanish, mainly recent immigrants from Latin America. In the agricultural labor camps where they stayed, Haitians crews, Afro-American crews, and Latin American crews rented spatially segregated areas. The Haitian farm workers complained they suspected Afro-American intermediaries deliberately misinformed Haitian farm workers to undermine their income. The ethnographers account one such incident they directly observed (Marcelin and Marcelin 2001:14-17). Their report provides additional illustrations of how the Haitian farm workers experienced prejudice. They noted some Haitians believe that recognition of Haitians in official statistics might help lift the Haitian minority out of marginality.

The Haitian Creole word for "race" connotes kin-relatedness and can be applied to a patronymic descent group or to a family. Haitians may speak of their family lines as "races". By extension, they conceive of the entire Haitian transnational community as one large descent group (Marcelin and Marcelin 2001: 31-34). One reason why Haitians are not attracted to color terms (“black” “white”) as categories for self-identification is the unflattering connotation of color terms for skin shades that signify the social classes recognized in their own language. Like Haitians, recent immigrants from elsewhere in the Caribbean and from Africa regard the census race category of Black as reserved for a native born social group historically formed in the United States, and as such, inappropriate for describing themselves.

The ethnographers singled out seven individuals whom they predicted might characterize themselves as Black on census returns. One was a bilingual who organized many of the farm work crews. The others were younger co-residents of the farm workers' households: children and grandchildren born in Haiti and in the United States. In areas around participants’ census residences, Haitians were a minority. They lived in urban neighborhoods largely populated by immigrants from several Latin American countries. In this environment, younger Haitians raised in the United States, fluent in English might identify themselves as Black to signify that they were not immigrants. In the social environment of their immigrant portal, they did not face challenges to the claim from the native-born group their parents called “Afro-Americans.”

On the HCUF census records matched to participants of the interacting social network of Haitian migrant farm workers and their co-residents, all but two records used one or more “write-in” boxes to state “Haitian” or some variant, including "Haitienne" and “Haitian American." Of the 28 subjects matched, 11 checked “some other race” and specified Haitian in the “other race” write-in box. Four of these 11 checked "some other race" alone and seven combined “some other race” and "Black." Fifteen of the 17 records that checked Black alone for race also used one or more write-ins (for Hispanic origin, for American Indian tribe, for other race) to express they were Haitian.

Native Americans

The social network of the local chapter of the American Indian men's society was bound by gender (all male) and cultural affiliation. Gilley reported participants in the social network identified as Native Americans. They shared a mutual recognition of their generalized American

Indian heritage or ancestry. All participants and all but one of their non-participating co-residents were adult men. All participants identified were born in the United States. They spoke English in the group. Most participants only spoke English in their usual urban residences. Several spoke an American Indian language on visits to tribal territories or with close relatives.

Within the social network, participants affirmed each other as American Indian or Native American. The ethnographer Gilley explained how the men affiliated with an emerging, urban-based, pan-Indian society. The men held this affiliation concept in addition to, and alongside, any identification each had with particular Indian tribes, traditional ritual groups, and family origins. Participants from further west identified with a single American Indian tribe. Most participants in the local chapter openly discussed their descent from more than one American Indian tribe. They were familiar with, and personally rejected the Bureau of Indian Affairs legal calculation of percent of "blood quantum" descent from only one tribe. Gilley described reasons why certain participants might be reluctant to state one "principal" or "enrolled" tribe on a census form. Some men descended from more than one Indian nation and did not want to favor one over the other. Some men were not enrolled in any tribe. Several participants acknowledged having some non-Indian ancestors from a definite European country, or who were Mexican or African American/Black. Non-participating co-residents included other American Indians and people who did not identify themselves as Indians, rather thought of themselves as white, Mexican, or African American.

After checking all participants' reported addresses, matching HCUF census person records were found for only eight. Four of the matching census person records checked American Indian race alone; two combined a check for American Indian race with a check for another race: one checking white, the other checking Black. One checked white only, and one checked black only. Three of the records with American Indian as the only statistical race category checked each specified a single tribe. The fourth such record specified two tribes. Among the matched were census records for three men who represented themselves as Cherokees. One checked American Indian race alone and wrote in Cherokee. The other two combined race checks for American Indian and white; one wrote-in Cherokee and the other left the space for writing-in the name of his tribe blank. Records were matched for two men who represented themselves as Osage within the chapter. One matching census record had Osage written in plus a second tribe which the man did not mention in social interactions. On the record for the other man known within the social network as Osage the tribe write-in space was blank. One man who represented himself as Chickasaw reported the same tribe on his matched census record, as did a man who represented himself and was reported on his matched census record as Choctaw.

Differences between the identities the men asserted through their participation in a social network involved with American Indian rituals and pow wows and what was written on matched census records may be due to enumeration reports given by non-Indian room mates or census enumerators' field imputations. Two matched census records that neither checked American Indian race nor provided tribal identification were the first or the only person enumerated at their housing unit; the person listed first on a census form is often the respondent.

Status and occupational affiliations (statistical race : predominantly white; ethnicity: non-Hispanic)

Two status groups – rural survival campers and urban recreational campers -- participated in the interaction defining the campers' social network. The social network was bonded by common activities, rather than the sort of demographic characteristics census records collect. In common the participants pursued camping, cooking, socializing, shared food, and were temporarily co-located in the same camp ground. Had the survival campers been enumerated, the status gulf between them and the recreational campers might have been reflected by census long form categories of occupation, employment status, income, and income sources. Southard reported the campers were non-Hispanic whites with the exception of two American Indians. On the census records matched to recreational campers collected at their usual homes, more individuals checked American Indian race. The language spoken in this social network was English; most individuals were born in the United States.

What participants in the social network of commercial fishermen interacting at the dock shared in common was an economic involvement in or dependence on fishing. Participants occupied as fishermen were central but not exclusive actors in the social network. Participants also were the companions, spouses, dependents, relatives, and friends of people occupied as fishermen, employees of the fish house and marine regulatory agencies, and unemployed hanger-ons, hoping for day work or a chance to be taken into a fishing crew. The social network included women as well as men, children and seniors as well as adults.

Most participants in the commercial fishermen's social network and their co-residents were reported as non-Hispanic whites. No records were found for two fishermen who represented themselves as Puerto Ricans. Matched records bore the predicted Census ethnic and race categories or else had no checks for those items. Most participants had been born in the same or an adjacent southern state.

The social network of seasonal workers had redundant boundaries directly related to their shared occupation, work status, and assignment. They did not assert race, ethnic, economic, or educational backgrounds among themselves. Census answer categories more closely related to how they identified themselves include age, English language, birthplace in the United States, and their common employer, occupation, and job status. They recognized distinctions of gender and seniority however sub-groups integrated both genders and different levels of experience. The friendships that created the boundary for this social network are not the kinds of characteristics collected in census data.

The language spoken in the social networks of the campers, fishermen's, seasonal workers, and American Indian men society was English. There were foreign born participants in the campers' and fishermen's networks. Participants and their co-residents in the social networks of seasonal workers and the American Indian men were entirely native-born.

4.8 Mobility, participant social networks, and matrices of co-residents

The universe of participants in the six social networks and their reported non-participating co-residents were the 245 individuals searched. The following section is based on data for those individuals.

4.8.1 Characterization of mobility

The mobility of each individual (social network participant or non-participating co-resident) was characterized along a three point scale. Mobility characterization was based on the number of moves and domiciles the ethnographers reported for the individual during the six months and ethnographers' descriptions of individual's mobility patterns during the prior six months or longer periods of time. The categories were sedentary, residentially mobile, and habitually mobile.

Sedentary ("non-movers") : No moves and only one domicile address/location were reported during the six months observation for 42 percent of the individuals searched. There was no evidence these individuals had changed domiciles in the six months before Census Day 2000.

Residentially mobile: These individuals were reported to have moved and changed domiciles at least once during the six month observation. Individuals classified as residentially mobile made conventional moves from one housing unit to another within or between localities, or regularly shuttled between domiciles at their work sites or centers of other activities and the same domestic domicile they had occupied over several years, or occasionally stayed away from their "usual" residence. Of the individuals searched, 20.8 percent were residentially mobile.

Habitually mobile: These individuals were observed and reported moving among two or more different domiciles during the six months before and/or after Census Day. As a matter of lifestyle or occupation, these individuals had moved frequently in the last few years. Of the individuals searched, 37.2 percent were habitually mobile.

4.8.2 Individuals' traits correlated with the character of their mobility

Residential and habitual mobility was associated with occupation and personal access to conventional housing. Work as migrant and seasonal farm workers, laborers at dispersed poultry barns, captains and crew of fishing vessels, and other seasonal and full time work at multiple and/or distant sites required moves to and stays at various domiciles. None of the survival campers and particular individuals in the social networks of the American Indian men's society, commercial fishermen, and Haitian farm workers did not personally have on-going rights to conventional housing and moved frequently.

Characterization of individuals' mobility correlated positively with how many moves they made during the study period (Pearson's correlation .541**),[19] the number of domiciles they occupied (.577**), and their locations five years before (.247**).

Moves and domiciles

Data on the number of their moves and domiciles were considered in characterizing individuals as sedentary or not, so correlations with the mobility characterization were expected. Correlations are not perfect, however. Each "move" was between one reported domicile and another. Rather than globally characterize commercial fishermen as habitually mobile because they all routinely lived and worked on vessels at sea, their mobility on land was considered. Tracing was limited to fishermen's domiciles on land. Those who shuttled between a fixed residence on land and work at sea were characterized as residentially mobile. Those fishermen and several of their companions who ambulated among different domiciles while on land were characterized as habitually mobile.

Participants and co-residents in the social network of seasonal workers remained in the same workers quarters between mid-March and early October 2000. Although none of them moved during the six months observation, they were classified as "habitually mobile" because each had made several long distance relocations in the prior six months. They routinely lived in three or more distant domiciles each year. The number of moves and domiciles reported correlate positively and significantly with the independent social network measurements discussed below.

Location five years prior

The character of the individuals' mobility correlated with residence in a different location in 1995 (five years before Census Day 2000) Pearson's correlation .247*, but not with a different location the year before (Pearson's correlation -.021 not significant). The non-correlation of individuals' location one year before Census 2000 and the character of their mobility reflects the strong seasonality in the location circuits of the habitually mobile people. For example, more seasonal workers had been in exactly the same workers' dorm one year before the census than had discovered that choice assignment by the spring of 1995, although none of them had lived there continuously or in the period November-February any prior year.

The character of individuals' mobility correlated negatively with their gender (- .342**) and negatively with matching to Census 2000 person records (-.315**).

Gender

Five of the six social networks had more males than females and 72 percent of all participants were male. Overall, 66 percent of the individuals searched were male. The male non-participating co-residents (57 percent) were largely younger and sedentary. Younger males account for the nearly even split among the sedentary between males (49 percent of the non-

[19] "**" notes that the correlation is significant at the .01 level (2-tailed).
"*" notes that the correlation is significant at the .05 level (2-tailed).

movers) and females (51 percent). Of the residentially mobile who changed domiciles at least once, 69 percent were male. Of the habitually mobile, 84 percent were male. The significant correlation between the individuals' mobility characteristics and gender underscores that

- **more males than females were residentially or habitually mobile**.

Age and gender

Most habitually mobile individuals were adult male participants. The 14 habitually mobile adult women included participants and non-participating co-residents of habitually mobile men. More children and teens were sedentary than were habitually mobile. The habitually mobile teens and children moved with their habitually mobile family group or among related family households. Age was more closely related to individuals' mobility characteristics than gender for people under 20. Residential mobility picked up among older teens, age 14-19. Few older teens moved with their relatives. Several traveled on their own or with age peers between domiciles. The occasional residential mobility of several children were visits with their habitually mobile fathers. In these low income settings, we found no cases of the children of divorced, separated, or never married parents moving between their parents' houses. The Census residence of most children was with a sedentary parent. [20]

Census match

The negative correlation between individuals' mobility and match to census confirms that significantly fewer residential and habitually mobile "movers" were found enumerated in Census 2000 than sedentary "non-movers." Proportionately more females than males were sedentary; proportionately more females were found enumerated. Match status (whether or not a census record was found for the individual) also correlates negatively (though less significantly) with the number of moves and with the number of domiciles reported for the person.

4.8.3 Social network measurements

Several measures for each of the whole interacting social networks and associated matrices of co-residents registered significant positive correlations with the characterization of individuals'

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[20] Court-ordered child support was a common topic of conversation in the commercial fishermen's social network which included divorced and separated parents and their children. Non-custodial fathers among fishermen habitually mobile on shore interacted with their children in the fishing dock frame. The census records collected in the households of the seasonal and migrant farm workers identified as erroneously enumerated included one infant who moved together with his unmarried mother between the residences of both sets of grandparents, and another infant who had recently migrated with his grandmother and her stem family. Lobo (2001) observed parents visit their children at the homes of third party friends or relatives. One parental pair who lived on the street visited the apartment where their children slept. A separated parent conducted weekend child visitation in the same apartment.

mobility and/or census outcome. Several measures of centrality were universally calculated for each social network as a whole and for individual positions within his or her social network. Some of the same measures were applied to each associated matrix of co-residents.

Participant social networks

Each interacting social network of participants was expressed by a binary and a weighted version. In the binary version, each pair of participants reported to have interacted once or more is scored one. Actor dyads who did not interact are scored zero. The weighted version expresses the number of times each pair of participants interacted. Measures from the binary and weighted versions were normalized for the size of the social network. Normalized measures are generally considered appropriate for comparing social networks. (See Hanneman nd: 60-66 or Wasserman and Faust 1992 [1997]): 169-198 or Scott 2000: 83-98 and citations indexed for Actor/Entity position and centrality measures in Brownrigg 2002: 66).

The interaction links of each participant to other participants within his or her social network were measured. Co-participation in the episodes of interaction reported formed "non-directional" [21] ties. Measures of an actor's centrality degree are based on the number of links he or she enacted with all or any other actors in his or her social network. Measures of the position of the actors in their social network based on the social network data of observed interaction connections were calculated using well established social network measurements automated by specialized programs. The various centrality measures calculated for each actor's individual position were treated as personal attributes in another step of the analysis. In measures of the interacting social networks, only "participants" can have non-zero position scores. (Non-participating co-residents who did not engage in interactions have zero as their position scores.)

Centrality measures were developed to indicate how "centralized" social networks are around one or several key actors/entities. A whole social network and cohesive subgroups within social networks may have different structures of connections. One configuration graphs as a "star" : "spokes" from a central actor at the hub radiate out to actors who are not directly connected. Less centralized structures graph as line or circles. A line is formed where Actor 1 transacts with Actor 2, and Actor 2 with Actor 3, 3 with 4, and so on. If Actor *n* connects with A, a circle is completed. In a "wheel" graph, the central hub entity is connected to entities arranged in a ring. (See Freeman 1999 for an introduction to visualization issues in graphing social networks.)

An actor with a high "centrality index" is linked to more other actors than one with a lower score. Degree centrality has been interpreted in some previous research as indicating an actor's "popularity" or prestige. The measure uses binary social network data to compute the percent of all ties possible in the specific social network where the actor is observed. Theoretically, a

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[21] Other formulae are applied to measure centrality degree, closeness, and betweenness using directional social network data based on exchanges, acts, affect, or other relations or transactions which can be directed from one actor to another and can be unreciprocated.

completely unconnected actor would score 0; an actor connected to all others in the same social network would score 100 (Wasserman 2001). In this research, a participant could not score zero. At least two actors interacted in each episode recorded. By definition, a participant had to interact at least once with at least one other participant to be included in a social network. Each participant appeared in at least one dyad. The maximal centrality index score for an actor's position or for the social network as a whole can be expressed as 1.00 or as 100 percent. Calculations based on weighted data can exceed 1.0 or 100 percent. For an overview, see Faust 1997, Faust and Wasserman 1992, and "Centrality and Prestige" in Wasserman and Faust 1994[1997]: 169-198.

Measures of "betweenness" are based on binary data. Each actor who interacts with actors who do not themselves interact is identified as "between" them. The "betweenness" centrality of an actor is calculated by measuring how many times he or she stands as an intermediary on the path between two or more other actors. An individual betweenness measure sums the number of times that actor is on the "path" to and from unconnected actors. In graphs with lines drawn between each connected dyad, the individuals between linked pairs serve to connect the entire social network or its cohesive sub-groups into connected graphs. In the context of our research, individuals with high betweenness centrality interacted with social network participants who themselves did not interact. They provide an indirect or second-hand social connection for less connected actors. An actor's betweenness centrality score can be normalized by dividing it by the maximum number of connections theoretically possible given the number of actors in the particular social network. The specific betweenness measures of social network geodesics applied in this research were quantified for actor betweenness by Anthonisse (1977) and Freeman (1977) and for the social network betweenness as a whole group, by Freeman (1979) as automated in UCINET (Borgatti, Everett and Freeman 1999[2001]).

Measures of "farness" and "closeness" centrality also use binary data. How far away or close an actor is to other actors in a social network is considered a function of how many other actors stand between them. The farness of an actor is defined as the sum of all distances between the given actor and all other actors in the social network. If Actor 1 had a distance of 1 to Actor 2 and a distance of 2 to both Actor 3 and Actor 4, then Actor 1's "farness" score would be 5. "The closeness of an actor can be thought of as the inverse of the farness of an actor. To compute this measure, the reciprocal of the farness of an actor is divided by the minimum farness an actor can have. The result is expressed as a percentage – that is, on a scale from 0 to 100. An actor who is close to no others would be scored 0. An actor who is close (adjacent and directly connected) to all other actors would score 100. If an actor's farness measure were 5 and the minimum farness possible with the social network were 3 then that actor's closeness would be (1/5)/3=3/5 or 60 percent (after Wasserman 2001). For a review of actor closeness centrality see Freeman 1979.

The centrality degree, the betweenness centrality and the farness and closeness for the social network as a whole are calculated from all its actors' personal position measures. Actors in the same social network can be viewed as sharing in common the general measures for their social network as a whole. Each social network produced distinctive measurements (Table 1) and graphs (Appendix).

4.8.4. Mobility character and measures of participants' whole social network

The character of their participants' mobility significantly correlated with measures of the centrality of the whole social networks. Based on calculations using binary interaction data, the social network of the commercial fishermen displayed the highest centrality degree (46.56 percent). In the binary view, it was more than twice as centralized as the social network of the campers (at 21.77 percent) and about three times more centralized as that of the migrant farm workers, American Indian men's society, and seasonal workers. Using data weighted by the number of times each pair of participants interacted, the two social networks entirely composed of habitually mobile participants registered the highest centrality: the social network of seasonal workers at 400 and the Haitian migrant and seasonal farm workers at 392. The social network of the American Indian men's society, in which most participants were residentially or habitually mobile, had the next highest weighted centrality at 361. The measures of social network centrality degree calculated from data expressing the number of times each pair interacted were comparably lower for the campers and commercial fishermen than other social networks in this research although considerably higher than many more bounded whole social networks reported in the literature. Participants in the fishermen's social networks included mix of sedentary, residentially mobile, and habitually mobile people. Several participants associated with the fish house or government regulation fishing were more often present at the social frame of the dock than central fishermen. Captains and crew in the inherently mobile occupation left the interaction frame while they were at sea. They went off to interact intensely in unreported subsets. Stable crews continued to interact when they reappeared in the dock interactions; volatile crews imploded, sometimes during trips (Kitner 2001) and participants stopped interacting or left. Although no participants in the campers' social network were sedentary, most recreational campers were traced only between their census residence, a campsite, and back. By contrast, most participants in the social network of Midwest Mexicans were sedentary. This social network had the lowest centrality degree based on binary data (6.53 percent) and weighted data (11.63).

Table 1
Measures of the Centrality of the Participants' Social Networks
(as a whole)

(Binary Data)	Degree Centrality Index (Normalized)	Betweenness Centrality	Closeness Centrality
Haitian migrant farm workers (N=17)	15.83%	2.32%	23.33%
Mexicans settling in the Midwest (N=19)	6.54%	0.16%	10.99%
Seasonal workers (N=5)	16.67%	2.78%	23.33%
American Indian men's society (N=21)	15.79%	0.94%	23.90%
Commercial fishermen (N=45)	46.56%	7.25%	48.02%
Campers (N=51)	21.77%	10.70%	1.41%

Several measures of each social network as a whole correlated with their participants' mobility characteristics. Based on binary interaction data, participant's mobility characteristics correlated with

the degree centrality index of the interacting social network as a whole (Pearson's .281**),
the social network's betweenness centralization (.162**), and
the social networks' farness and closeness centralization which is the social network's average of the "farness" and "closeness" of its actors (.432**).

4.8.5 Correlations between participants' mobility and position in their social network

The character of participants' mobility correlated with their personal position in their social network. Using personal position measurements based on binary interaction data, for example, significant correlations were found for individual participants' degree of centrality (Pearson's .448**), individual participants' degree of centrality normalized for social network size (.387**), and individual participants' betweenness centrality (.236**).

Using data weighted by the number of times participant dyads interacted, significant correlations with participants' mobility characteristics were found for participants' degree of centrality (Pearson's.201**) and this measure normalized for network size (.180**).

- **Certain residentially and habitually mobile participants enjoyed measurably more central positions in their social networks.**

4.8. 6 Mobility character and cohesive sub-groups

Participants with higher centrality also appear in the cohesive subgroups based on links *n*-cliques and k- plexes, and in blocks that group participants with structurally equivalent positions. The correlation between measures of participants' positions and the character of their mobility confirms that ethnographers successfully framed interactions which not only involved "highly mobile people" but featured them as measurably central actors.

All participants in the social network of the seasonal workers and the social network of the Haitian farm workers were habitually mobile. As they structured a social network in which all participants interacted with each other in farm work, so all were "reachable" as adjacent and connected. Their social network did not have sub-cliques: all participants were present in the single 1-clique and single 2-clique that were simultaneously with the social network as a whole. Weighting the Haitian farm worker dyads by the number of times each pair interacted helped identified slightly more central participants. The interactive links among participants can be graphed as a connected ring cross-crossed by lines which illustrate that every node was connected to all the others.

For the social network of the seasonal workers, binary and weighted expressions demonstrated its participants' interactions centered on three co-equally "central" structurally equivalent participants. The central actors were present in the two cohesive 1-cliques (and two 1-k plexes) within this social network. These cliques and k plexes were distinguished by the presence of non-central individuals.

Certain fishing captains, boat crew, and officials related to the fish house dock were measurably central actors in their social network. The multiple central actors in the commercial fishermen's social network included the more "popular" captains described by Kitner (2001). Some of the central popular captains and their crews were habitually mobile on land as well as at sea, moving among various domiciles on shore and living with different co-residents. In graphs generated from the binary interaction data to represent commercial fishermen's social network, these central participants appear buried in the dense middle of lines draw to connect interacting dyads. The graph of this social network illustrates the star-like reach of central individuals who interacted with many other participants and the marginal position of those with only a few connections.

In the campers' social network, the habitually mobile survival campers were more central actors than recreational campers. Survival campers were the principal actors forming the larger cliques. Over time, interactions between dyads of survival campers at the single campground frame linked the temporary gatherings that appear as sub-graphs into a fully connected but loosely structured social network. In this social network, survival campers convening the social interaction and personally stood between successive cliques.

More participants in the American Indian men's society were occasionally residentially mobile than were habitually mobile year in and year out. The social network of affiliates of the American Indian men's society was reinforced by the cohesive sub-groups of four 1-cliques. In each of these cliques, everyone interacted with everyone else. A third of the social network participants overlapped in their presence in all four 1-cliques. Two of the four 1-cliques involved 76 percent of the participants; the other two involved 57 and 61 percent. In a special analysis of density revealed all participants were within two "steps" of each other, and five individuals were interacted with all of the interacting dyads. The ego network that each man formed by interaction included between 76 and 90 percent of participants with densities ranging from 76.90 to 82.86 percent. Using weighted data, 132 cliques were found in 18 clusters based on the number of single links each participant made. When graphed in the style of dendritic branching, a central figure who attended the societies' regular meetings and retreats emerged. Like the social network of the Haitian migrant farm workers, the American Indian men's social network graphs displays the nearly universal connections among participants.

Most participants in the Midwest Mexican folkloric dance group remained sedentary. The participants with itinerant jobs outside the locality interacted when they could but this was not often enough for them to be as central as the sedentary.

The significant positive correlations between measures of the individual participants' positions and the characterization of their mobility reflect the strong centrality and roles of the more mobile in these social networks.

4.8.7 Mobility and measures of the matrix of co-residents as a whole

We obtained the same measures using the binary data of the six matrices of co-residents. Sets of co-residents lived or stayed together in any type of domicile at least once during the six months. The matrix of co-residents includes all participants in the related interacting social network plus participants' unique co-residents: people who had not participated in the interactions defining the social network but did live or stay with one or more people who had participated. Each pair of actors who co-resided was scored one. A dyad created through co-residence may be composed of two participants who interacted and also lived together, or of one participant and one non-participating co-resident. Participants from the interacting social network who were not reported as living with anyone scored all zeros. Higher position scores reflected how many people an actor had lived with over six months. In the binary matrix, the duration of co-residence is not considered. Individuals could achieve high centrality scores by residing with a larger number of people continuously and simultaneously, or by residing with a series of people. In the context of co-residence, a position of comparably higher betweenness centrality identifies individuals who resided with a series of other people who did not themselves reside together.

Whereas the graph of each interacting social network in this study is by definition connected, the matrices of co-residents produce disconnected graphs. (Individuals reported to have lived alone are noted in the margins and do not appear in any subset linked by co-residence.) The low

centrality of the commercial fishermen's matrix of co-residents at 5.68 out of a possible 100, and the campers' matrix, at 6.45, reflects the preponderance of individuals in those social networks who lived alone or with one other person.

Graphs generated from the matrix of co-residents illustrate the connections of people who lived together. Two co-residents form a bar. Three form a triangle with its points reinforced by interconnections. Five co-residents are represented by a pentagon similarly cross-crossed with interconnections, and so on. See Appendix, graphs of co-residents.

Degree centrality of the matrices of co-residents

The higher the degree of centrality of the co-residential network as a whole, the more individuals lived together at least once. The centrality of co-residents among the Haitian farm workers scored 24.10 out of a possible 100 and American Indian men's society scored 26.62. In both these social networks, interacting participants intermittently co-resided with each other in large groups and several core pairs were continuously co-residents in a series of different domiciles. The episodes of co-residence by participants organized in migrant farm work crews or ritual retreat groups resulted in co-residential centrality almost as high as that of the seasonal workers, at 28.10, who continuously lived together under the same roof, though in various rooms and with changing roommates.

Table 2
Measures of the Centrality of the Matrices of Co-Residents

(Binary data)	Degree, Centrality Index	Closeness Centrality	Betweenness Centrality
Haitian migrant farm workers	24.10%	23.33% * 25.97%	27.32%
Mexicans settling in the Midwest	11.63%	0.76%	0.58%
Seasonal workers	28.21%	5.94%	5.92%
Commercial fishermen N=64	5.68%	0.22%	0.20%
American Indian Men	26.62%	5.6%	5.33%
Campers N=51	6.45%	0.24%	0.49%

*All measurements were calculated twice. This measurement produced different values.

The similarity of the centrality index for the Midwest Mexican's interaction social network and their matrix of co-residents reflects the influence or expression of co-residential cliques in social interactions outside their houses. Participants who lived together formed cohesive subgroups in the dance club.

Betweenness centrality of the social matrices of co-residents

The betweenness centrality scores for the six matrices of co-residents further contrast the residential patterns. The betweenness centrality of the Haitians' co-residential arrangements at 27.32 (out of a possible 100) is relatively high. This measure reflects that most participants lived with each other for short periods as well as with non-participating co-residents.

The betweenness centrality of the co-residential matrices for the American Indian men and young seasonal workers are measurably similar at 5.99 and 5.33 percent. Episodes of co-residence overlapped with interaction in the men society during the retreats, pilgrimages, and ritual visits. As described ethnographically, affiliates generously shared housing and moved in and out of each others' domiciles. Episodes of co-residence reinforced society interactions. The structure of the social network of American Indian men and their co-residential matrix have common features. Graphs generated from the episodes of interaction closely resemble graphs generated from their matrix of co-residents as there were very few non-participating co-residents.

A special analysis of the co-residential matrix of the American Indian men's society detailed four 1-cliques. Two 1-cliques were composed of the three-quarters of the participants who attended society events in the countryside. The other two cliques are formed by the co-residents in two

particular housing units. All but one of the non-participating co-residents but only one participant had an ego network consisting of only one co-resident person : that is, the individual lived with only one other person over the six months. Over two thirds of the participants (and over half the actors in this co-residential matrix) lived with 16 or 17 other people over six months. The exceptional participant who lived alone (scoring zeros in all measures of position in co-residents) was an isolate when the matrix was blocked. The largest block clustered individuals with similar personal measures of co-residential centrality. All but three were participants. (A non-participating co-resident who remained sedentary while others came and went ranked among those best connected through co-residence.) The high prestige healers came late in the study yet were so welcomed as house guests that they appear in the block group of people best articulated by co-residence.

The shifting residential locations of roommates within the seasonal worker's dorm formed a structure of co-residents technically similar to that of the American Indian society although behaviorally through qualitatively different episodes of co-residence.

The "betweenness" scores of 0.58 for the co-residents matrix of the Midwest Mexicans was low, the 0.49 for campers even lower, and the score of 0.20 for the co-residential matrix that included commercial fishermen was lowest. As described ethnographically, the Mexicans lived in family and one bachelor households; the campers and fishermen lived alone, in couple or partner pairs, or small nuclear or stem family groups. The habitually mobile fishermen itinerant on land who resided with a succession of co-residents achieved higher betweenness scores than most of the sedentary.

Similarities between various measures of the Midwest Mexicans' social network and matrix of co-residents reflect the influence of co-residence in the dancers' social interactions outside the houses where they lived. Co-resident participants formed exclusive cliques or the core of cliques which attached participants of the same gender and age who were the lone participant from their respective household.

4.8.8 Mobility and measures of individuals' positions in their matrix of co-residents

The character of individuals' mobility and measurements of their positions in their matrix of co-residents has a weak and negative correlation with the individual actors' degree of centrality after normalizing for the number of actors (Pearson's -.161* significant at .05 level).

The character of individuals' mobility and their role position of betweenness centrality in the matrix of co-residents correlate positively after normalizing for the number of people in their respective matrix (Pearson's .246**).

In the matrix of co-residents, measurements of an individual's position reflect the number of ties he or she formed with other actors by living or staying together. These ties could be formed by stable co-residence with a larger number or people or by co-residing with a series of people. Sets

of actors who co-resided with each other (and only with each other) share the same position measures. The shared scores reflect how many people were in the set of stable co-residents. Individuals who resided with more people generally achieved higher measures of co-residential centrality degree and co-residential betweenness centrality. Whereas measures of individual positions of co-residential centrality degree correlate weakly, negatively, or not at all with their mobility, individuals' betweenness centrality correlates significantly and positively.

Individuals who moved among co-residents were in measurably different positions than any of their occasional co-residents. Those individuals who moved among a series of co-residents generally had lower measures of centrality degree but because they connected "between" people who did not themselves share domiciles, these perpetual movers generally scored higher personal betweenness centrality. This result must be conditioned by the understanding that measures of co-residents are from binary matrices which treat episodes of co-residence of any duration equally. Individuals achieved higher centrality degree and betweenness centrality positions by living with more co-residents, however this could have been continuously or serially. Individuals in the block with the higher personal position measures of centrality in their matrix of co-residence included adult women and children who "stayed home" while their highly mobile occasional co-residents moved about. Individuals traced moving between different co-residents and individuals who stayed sedentary in a domicile which hosted a series of co-residents both scored high "betweenness"; despite their contrasting residential styles, these individuals connected people who did not reside with each other. Most individuals with high co-residential betweenness centrality were habitually mobile. A minority were themselves sedentary in domiciles with ever changing compositions, notably among the American Indians and Haitian farm workers.

Kinship

In their Census residences, a little over half the participants lived with one or more other participant and/or one or more non-participating co-resident who was related to them through kinship. The closest kin relationships of co-residents to social network participants (beside "self") were spouse, child or grand-child, co-habitant, parent or step-parent, sister, brother, aunt, uncle, niece, nephew, cousin, or child or in-law of a niece, nephew. Nine percent of all individuals were the unmarried companion of a participant and most of these were participant /co-residents. A third of the non-participating co-residents had no kinship link with the participant with whom they resided. Overall, 46 percent of the individuals were reported as living alone or unrelated by kinship to their co-resident. Non-kin co-residents shared costs and were related to participants as their room mates, partners, guests, sub-tenants, boarders, or hosts, or landlord/ landlady.

4.9 Summary census outcome

Beyond whether or not a searched individual (participant or co-resident) was matched to a census record, we distinguish classes of census outcome that identify characteristics important in the Census 2000 method.

Table 3
Summary Census Outcome

	Per Cent	% S T	N
Unknown Census Day residence (came late, no address)	5.3%	5.3%	13
Correctly enumerated but duplicated once	0.8%		2
Correctly enumerated with reported co-residents or alone	42.0%		103
Correctly enumerated with unreported co-resident(s)	8.2%		20
Correctly enumerated in a Group Quarters	1.6%		4
Correctly enumerated, sub-total, percent		**52.3%**	
Omitted in a whole household, housing unit listed	4.9%		12
Omitted in a whole household, housing unit missed	14.7%		36
Omitted where census co-residents were enumerated	4.1%		10
Omitted within an enumerated Group Quarters	0.8%		2
Omitted within a Group Quarters not enumerated	5.7%		14
Omitted in Transient Quarters not listed or enumerated	11.8%		29
Omitted, sub-total percent		**42%**	
Totals	100%	100%	245
Percent with Census Day residences in conventional housing		82.4%	

5. DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Most of the habitually and residentially mobile people found enumerated

- **had census residences in conventional housing**
  and
- **maintained ties with**
  and
- **repeatedly and routinely returned to**
  - **<u>the same set of residentially sedentary co-residents</u>**
- **in one locality.**

Habitually and residentially mobile people with all these traits were generally found enumerated. More habitually and residentially mobile people who lacked any one of this combination of traits were apparently omitted than were found enumerated.

5. 1 Analytical categories

Categories relevant to the analysis of census outcome contrast
"housing units" with other types of domiciles,
"households" (as defined by the Census) with " domestic base households", and
jurisdictions (like counties) with " local base communities".

5.1.1. Types of domiciles that were census units of enumeration

<u>Conventional housing units</u>

The Census Day residences of 82.4 percent of the individuals searched were in conventional housing units. Thirty-five percent lived in detached single-family houses, 17 percent in mobile homes, three percent in townhouses, and 26 percent in apartments, or condos, or in buildings with two or more units. Most of these conventional housing units had city-style addresses and were found listed on the Master Address File. These types of conventional housing units qualified as units of enumeration for the Census of Population and Housing. Census 2000 strived to compile a complete address list of all such housing. As for tenure, 33 percent rented, 11 percent were in domiciles they or their kin-related co-resident owned free and clear or were buying with a mortgage, and two percent were unrelated sub-tenants or landlords/landladies. (Structures in farm worker camps and cabins in some camp grounds were included as rentals. The renter/owner/sub-tenant categories were not applied to domiciles in camp grounds or on boats or employer-provided quarters where some individuals stayed for free.)

Census outcome: correct enumerations in housing units

Forty-two percent of the individuals searched were found enumerated alone or with exactly the co-resident(s) reported (See Table 3). These census "household" enumerations perfectly matched the sets of people reported as residing at the particular housing units.

Another 8.2 percent (see Table 3) were correctly enumerated at their reported census residence housing unit with unreported people. Census household enumerations with unreported co-residents occurred in four of the six social networks: among recreational campers, commercial fishermen and their entourage, Midwest Mexicans, and Haitian migrant farm workers. Census records for unreported first degree relatives (participants' parents, minor children and siblings) are probably correct. Several unexpected census records were identified as erroneous enumerations.

- **Census residence in a conventional housing unit with a city style address listed on the Master Address file were traits strongly associated with finding the searched individuals in Census 2000, whether they were personally sedentary or mobile.**

Census outcome: whole household omissions in missed housing

However, not all individuals with census residences in conventional housing units were found enumerated. Whole households of social network participants and their co-residents living in conventional housing were apparently omitted. No census records were found for 14.6 percent of the individuals searched at the listings for their units, in the blocks where the housing had been geocoded, or nearby search area. At least one case of a missed housing unit/ whole household omission occurred in the five of social networks which had any participants in conventional housing.

Census outcome: whole household omissions in listed housing

For 4.5 percent of the individuals searched, the housing units corresponding to the addresses of their census residences were on the HCUF but either the housing was classified as vacant or census person records for entirely different people were attributed to the unit.

Vacant

The individuals whose "usual" and census residences were in housing units that Census 2000 enumerated as vacant were recreational campers. Southard (2001) acknowledges that the address information these individuals provided may have been misreported, however these individuals were vacationing states away in April and/or May 2000 and may not have been home to be enumerated.

"Conflicting households"

Whole households of senior Haitian migrant farm workers and middle-aged American Indian men were omitted in their census residences. In their conventional housing units, Census 2000 enumerated demographically different people with different names. [22] These may be address mix-ups or geocoding errors. The people enumerated were definitely not in-movers because the

[22] The A.C.E. found 4,369 cases of such "conflicting households" in its sample, analyzed by Liu, Feldpausch and Smith 2002.

participants and co-residents omitted this way continued to reside in, or repeatedly returned, to their census residence housing units.

A total of 19.2 percent of the individuals searched were omitted in conventional housing units: 4.9 percent in listed housing, 14.7 percent in unlisted housing. In their reports, the ethnographers analyzed and commented on aspects of the physical housing, address scheme, and individuals' mobility situations which have led to the omission of whole households with or without housing unit misses.

Census units of enumeration other than "housing units"

Though less than a fifth of the people searched had census residences in Group Quarters and Transient Quarters that qualified as census units of enumeration and other non-housing, 16.7 percent of all individuals searched were omitted in census residences other than housing.

- **It should come as no surprise that highly mobile people occasionally stay in domiciles that Census 2000 classified as Group Quarters and Transient Quarters and in commercial accommodations.**

Census outcomes in Group Quarters

Various types of Group Quarters were defined as Census 2000 units of enumeration. Four participants (1.6 percent of the universe) were found enumerated in such domiciliary facilities. They were recreational campers enumerated in college dorms. Two individuals whose census residence were in Group Quarters were not found. One was searched in a college dorm and one in a YMCA where hundreds of other people were enumerated. The seasonal workers' were omitted in a missed Group Quarters. Their workers' dorm was originally listed and on the MAF, but it was not enumerated and was deleted as a Census 2000 unit of enumeration. The outcome for 5.7 percent of the individuals searched was omission in a missed Group Quarters.

Census outcomes in quasi-housing units: transient locations

None of the particular Transient Quarters where participants in the social networks stayed were listed or enumerated. No enumeration records were found for the 11.8 percent of the individuals searched whose census residences were in Transient Quarters. The Transient Quarters occupied by 25 of the omitted were never listed in any way. The individuals omitted in unlisted Transient Quarters were habitually mobile. Whole traveling households of survival campers were omitted because their *default* census residences were camp sites in a camp ground that the Census never listed and located in Zero Population Blocks. Commercial fishermen without rights to a housing unit on shore stayed on docked boats and also in inexpensive motels.

Other than their respective census residences, highly mobile social network participants were traced to additional Transient Quarters that were not listed or enumerated. Although Transient Quarters participants occupied those later, any people who occupied the locations or had permanent residences in these unlisted areas were not enumerated.

During their work migrations, the Haitian migrants stayed in large farm labor camps where traveling contract crews rent cabins, tied-down trailers, and other structures. The human habitations in these labor camps fall between definitions of Transient Quarters, Group Quarters, and temporary rental housing.[23] Nothing was listed in these large labor camps. Similarly, during their ritual migrations, the American Indian men occupied rental cabins in formal camp grounds and at ritual centers on tribal land that were not listed or enumerated. At the camp grounds and around the ritual centers there were permanent houses.

Zero Population Blocks?

The default Census Day residences and later domiciles of participants in four social networks were located in blocks that the Census Bureau classified as "Zero Population Blocks". The domiciles occupied by the campers, migrant farm workers', fishermen' [24] and American Indian's men society remained depicted as "unpopulated" in Census 2000. The block of and the blocks around the deleted workers' quarters were converted into Zero Population Blocks in Census 2000 although this area is periodically inhabited by over 10,000 people and continuously by core resident staff and has listings on the Master Address File.

Transient Quarters Enumeration

The Census 2000 operational design for listing and enumerating Transient Quarters gave people whose census residences were classified as Transient Quarters a slim chance of being enumerated. Census 2000 had first to identify and list the Transient Quarters as a "Special Place." Information for listing and screening "Special Places" was largely collected by telephone. Fewer listed Transient Quarters (than "Group Quarters" and "Service Based Enumeration" sites) were visited before the Transient Quarters enumeration operation. Census 2000 screened some Transient Quarters in telephone calls to find out if the likes of camp grounds would be open at the end of March 2000. In the camp grounds where people featured in this and related ethnographic research stayed (Mings 2001), there were no working telephones or attendants to contact. Camp grounds, marinas, RV parks, and other Transient Quarters were not universally listed. Fewer still "transient locations" in them, like pads, camp sites, hook-ups, slips, and other relevant outdoor living spaces were listed. Only listed and pre-screened Transient Quarters were scheduled for enumeration. The Transient Quarters enumeration operation was originally designed for a few hours on one day in March 2000, but had to be extended over several weeks in several large sites. Occupants of transient locations who stated they had no other home were

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[23] The particular camps the Haitians used are intermittently occupied by farm work crews throughout the year; "upstream" camps are more seasonal. Vacant units in some farm worker camps were listed during follow-up enumeration as "seasonal vacant housing held for farm workers."

[24] One individual not involved in the social network who was enumerated elsewhere gave the non-residential fish house as his "home" address. As a result, one census person record was recovered in one "zero population" block.

enumerated as “households”; such “housing units” as portable tents, motorized homes, and boats [25] were listed.

The rural survival campers were omitted because the camp grounds where they stationed their ambulatory households[26] in March and April 2000 were not listed, either as Transient Quarters or as Transient Non-Shelter Outdoor Locations. As rural, they did not use service sites concentrated in urban areas like soup kitchens and shelters. The formal public camp ground where they set up their census residences met the definition of Transient Quarters. In late March, however, there was no attendant the Census could have called to establish that the camp ground was occupied, despite the inclement weather (Southard 2001).

The side-of-the-road encampments where survival campers later stayed qualified as transient “outdoor” locations. Nationally, most such sites listed and enumerated were in urban areas. Camp grounds that charge user fees were excluded from the definition of this type of enumeration site. Like many others throughout the country, the camp ground that the campers social network occupied in March, April, and later charges a nominal fee on the honor system. This fee, though largely uncollected, excluded the camp ground as an outdoor transient locations site. The camp ground did qualify as a Transient Quarters and was occupied by the end of March, although park attendants did not check it in the early spring. When summer came, the survival campers decamped after a park attendant began making spot appearances to collect the posted fees and enforce stay limits.

Census 2000 made a good faith effort to enumerate people who lack access to conventional housing at places where they receive services. In related ethnographic research, Susan Lobo (2001) identified enumeration records collected in soup kitchens for highly mobile urban people

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[25]Neither the particular campground nor any nearby, and neither the fishing dock nor any other marina along the coast nearby were listed on the Master Address File or on the component of the Decennial frame that listed transient quarters. The researchers (Southard and Kitner) visited these locations before and on the day Transient Quarters enumeration was scheduled and later. They did not observe any census enumerators in these "Transient Quarters" (the camp ground, the fishing dock, marinas). People staying in and around these places did not report seeing any census workers there in March or later in 2000 either.

[26] In a related ethnographic evaluation, only one of the five camp grounds occupied by "snow birds" living in RVs in the Southwest (Mings 2001: 10) was listed on the Master Address File and none were listed on the pre-census list of Transient Quarters. HCUF census records for other people were found at the one campground found listed. None of these records matched anyone camping in recreational vehicles whom Mings personally interviewed on March 27-29, 2000: two days before the Transient Quarters enumeration was scheduled to take place.

who camped out in parks or slept in their parked cars or trucks March-June 2000. Most overnight shelters and soup kitchens listed and enumerated were in urban areas. The rural survival campers lived no where near any soup kitchens or overnight shelter, so they were not in a position to benefit from the Census 2000's service-based enumeration.

5.1.2. Types of domiciles that were not census units of enumeration : commercial accommodations

People whose census residences were in types of domiciles that Census 2000 did not consider "units of enumeration" had no “place” in the census and little chance of being enumerated. They were excluded by definition.

Motels and hotels

Participants in three social networks occasionally stayed in cheap motels. Practically speaking, people who paid to live or stay in commercial accommodations like motels were not slated for enumeration in Census 2000. Commercial accommodations available to the public were not listed or enumerated. Within hotels and motels, managers’ apartments, staff quarters, and rooms and sections contracted as temporary shelters were eligible for listing and enumeration. Managers’ apartments listed as housing units were enumerated in one of the “farm worker motels” migrant farm workers occupied and in one of the beach motels where fishermen stayed off and on. Other motels (and a boarding house) participants occupied were neither listed nor enumerated. In Lobo’s related research, habitually mobile people kept journals and mapped where they stayed in the period March-June 2000. Several accounted staying briefly in downtown “skid row” hotels which Census 2000 listed as shelters, a type of service site. In these hotels, only that handful of occupants whose tab was paid by third parties – the “legally homeless”– were enumerated. Clients paying for themselves who usually slept outdoors and had no homes were not. Commercial accommodations were not targeted as drop off points for “Be Counted” forms. These forms allowed people who believed they had not been enumerated to assert themselves to the Census.

- **Mobility –as a personal characteristic and economic necessity for certain lifestyles and occupations-- increases the odds of stays in types of public, commercial, and private accommodations that the Census 2000 either did not consider as units of enumeration or did not list, and did not enumerate.**

Insufficient information

For 5.3 percent of the individuals searched, their census residence remained unknown or was reported with insufficient information for geocoding or for defining a reasonable search area. The census residences of these individuals are believed to be outside the search areas specified for their social network. No matched census records were found for them and none were expected. The census outcome of these individuals remains unresolved. Most were “in-movers” who came late including people who appeared and disappeared. Had the search area for the

commercial fishermen's matrix of co-residence not been expanded to cover two counties, more individuals from that social network would have had this census outcome.

5.2 "Households"

The Census Bureau considers (co-) occupants of a housing unit as a "household."[27] Certain tabulations use the population in households and classify households by their composition (single person, family related, unrelated et al.) and by various statistical characteristics of person records in the set. Despite the statistical definition of a household, co-residential groups may organize themselves as "households" outside housing units (and co-occupants of a housing unit may not recognize they are organized as a household.) From the perspective of the social network measures, two people co-residing form a bonded dyad; three, a triad, and four or more form a particularly densely interconnected close cohesive group.

Sets of co-residents who stayed together over the six months and for longer durations in the past were "stable" associations. Some stable sets of co-residents were habitually mobile and others were completely sedentary.

5.2.1 Mobile Households of stable co-residents outside housing

The campers involved were stable sets of co-residents who continuously lived together in a minimum of two different places. Several survival camper couple, partner, and family households traveled together, shared ambulatory domiciles and resources, and set up their households in Transient Quarters and in less formal camping spots. Similarly, stable sets of co-resident recreational campers vacationed together at the camp ground then returned to the housing unit or Group Quarters which was their census residence. The seasonal workers organized a home in their workers' quarters and lived under the same roof for seven months a year.

5.2.2 Temporary households outside housing

During their work migrations, the Haitian farm workers formed temporary households in labor camps. Fishing crew partners and couples formed "households" that lived in and outside housing units. These out-of-housing "households" shared living expenses, slept within the same or adjacent structures, and cooked and ate meals together. [28]

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[27] American Fact Finder Glossary: "A household includes all the people who occupy a housing unit as their usual place of residence." CF American Housing Survey.

[28] In the 1980 Census, two or more households within one housing unit could be identified as sets of co-residents who shared cooking facilities and food, a definition consistent with United States Department of Agriculture Food Stamp qualifications, and private sub-divisions like rooms.

The temporary household arrangements among the traveling crews of the Haitian migrant farm workers and the seasonal workers in their workers' dorm resemble the "*ad hoc* households" described in earlier ethnographic research (Montoya 1992). Households Montoya described as *ad hoc* were set up in domiciles other than conventional housing units, notably in a rural former motel converted into single room occupancy ("SRO") rental units and in buildings not intended for human habitation.

5.2.3 Stable and sedentary co-residents in housing

Stable sets of co-residents who lived together and stayed sedentary in one housing unit throughout the study were unambiguously "non-movers." All but one Mexican participant age 18 or younger continuously lived in the same housing unit and with the same set of kin-related co-residents the whole time, for example. Unless they lived in housing units or blocks that produced no person enumerations, every one searched in these stable sets of sedentary co-residents in housing were found enumerated.

5.2.4 House-to-house movers

In this universe where almost half were residentially or habitually mobile people, moves by stable co-residential groups from one housing unit to another housing were relatively rare and complicated by the occasional presence of residentially and habitually mobile individuals. The habitually mobile Mexican bachelors moved from one housing unit to another; they traveled and occupied commercial accommodations together and apart. When they were all away working, no one stayed in their locked trailer home. Their married co-worker relocated his family from housing in Mexico to one trailer and then into better housing. Although others in his family group were continuously co-resident, he was often absent. Some fishermen locked up or lent out housing while they were working. While fishermen were at sea, their companions moved from housing unit to housing unit or to other quarters. The individuals in such couples alternated episodes of co-residence with each other with stays alone or with other people in the same or different domiciles.

5.2.5 Highly mobile people and their sedentary occasional co-residents

Several residentially and habitually mobile participants moved in and out of housing that was continuously occupied by at least one sedentary co-resident.

- **Our research suggests that residential and habitual mobility is predominantly an individual behavior and subject to interpretation within households.**

- **For habitually mobile people who had census residences in conventional housing, the presence or absence of sedentary co-residents forming a "domestic base" appears to have determined their census outcomes.**

- **How their sedentary co-residents viewed the highly mobile people, whether they were expected to stay or to return or not, whether they were even known, impacted whether or not the mobile people were enumerated, within households.**

"Domestic base households"

Following the Marcelins' suggestion, it is useful to recognize the function of "domestic base households" in the personal arrangements of highly mobile people. Domestic base households consisted of a minimum of one sedentary and one mobile co-resident domiciled in housing. A base household could be recognized by the repeated return of highly or habitually mobile individuals. Sets of co-residents with these traits were identified in four matrices of co-residence.

A "base household" may serve a single mobile individual. Although "partial household mobility" may be a characteristic of households characterized as "complex" (Schwede 2003), the sedentary residents (wives and children, mothers, girlfriends, and house mate/ partners) who provided "base households" for highly mobile participants in the social networks were not necessarily "complex" or populous.

The family households of the Mexicans settling in the Midwest could be globally characterized as localized base households, because, as Chavira-Prado pointed out, residents' mobility could occur at any time in the year. [29] The relatively large (5-8 person) Mexican family-related households settling in the Midwest were bound by kinship. During the six months study, most were stable and sedentary and more core co-residents continuously co-resided than individuals entered or left. Their sedentary habits contrast with strategies reported for earlier stages of migration from Mexico to the United States (Briody 1987, Chavez 1990, 1991, 1998 among others) and with the residential arrangements of the recently arrived bachelor participants still in an early stage.

Maintaining attachment to a domestic base household is a residential strategy for staging occupations that inherently require frequent moves or rapid moves to short-lived economic opportunities. As Chavira-Prado pointed out, migrant farm workers may own the housing unit that serves as their base. Home ownership can stabilizes the point of return after work migrations and can establish a stop in circuit of domiciles; it does not mean owners stay home.

- **Census outcomes for highly mobile individuals in base households (in conventional housing) were better than other situations**.

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[29] Chavira-Prado's ethnographic observation is consistent with survey results that indicate timing of Hispanics residential move are throughout the year (Schachter and Kuenzi 1996:17).

The habitually and residentially mobile individuals matched to Census 2000 records were largely enumerated in the context of their personal domestic base household. The habitually mobile found enumerated in this evaluation included migrant, seasonal, itinerant, and peripatetic workers whose income supported or shared the costs of maintaining the housing unit of their base household.

Habitually mobile who repeatedly returned to one "domestic base household" were, however, omitted where several people moved into or out of their households while they were away. When several Haitian migrant farm workers returned to their houses, some of their census co-residents had left, and/or other people had moved into their houses. The composition of their "domestic base households" changed (Marcelin and Marcelin 2001).

The number and turnover of residents and guests in domestic base households that senior Haitian farm workers established approached the volume described for "anchor households" in other research. Susan Lobo (2001) applied the term, anchor household coined by Lillian Ackerman (1989) to characterize households which routinely receive and dispatch multiple residentially and habitually mobile people. In anchor households, temporary residents and guests outnumber sedentary residents. Core householders (or their delegates) allow the housing they secure to serve as the staging point, temporary, or fall back residence for many relatives and acquaintances. The core householders in anchor households on Indian reservations (Ackerman 1989) and in an urban Indian community (Lobo 2001) were mature women and their daughters or mature couples. In eliciting the personal networks of co-residence of habitually mobile urban Black adult men, Fleisher (2001) identified the stable households of senior adults (parents and friends' parents) and adult women (mothers, sisters, and children's mothers) as the men's fall back and frequent occasional domiciles. While the pace, exact composition, and affiliation admission criteria in anchor households may vary culturally among social groups, sharing secured housing is a broad and adaptive network strategy to confront scarcity.

- **The habitually mobile attached to a base household were in a fundamentally different residential situation than the habitually mobile who had no such attachment.**

- **Those lacking attachment to a particular base household overlap with those living largely outside housing units.**

The habitually mobile participants in the social network of commercial fishermen were adult men whose sporadic co-residential arrangements were largely set up outside conventional housing. The fishermen who were itinerant on shore partnered to lodge together in different types of domiciles at different locations. If they received enough cash from their share of the catch, pairs or trios of men rented efficiencies in beach or highway motels. If they could not afford a motel room, they stayed aboard docked vessels alone, with friends, or with companions, or accepted invitations to stay temporarily with other participants. Arrangements for on shore domiciles were commonly made during the interactions at the dock. None of the fishermen or their companions

who joined or left the social network during the six months observation had attachments to any "domestic base households" in the locality. Those who resumed co-residence with a wife or a girlfriend in between fishing trips, stayed in whatever temporary domicile their female partner had found on shore or as a couple aboard docked vessels, closely resembled co-residential structures among the survival campers.

Whether individuals moved in ("in-movers") or moved out ("out-movers) of their census residence was less on point for the census outcome of the habitually and residentially mobile than whether they later returned. The habitually mobile with base households repeatedly moved in and out and they were largely enumerated. The habitually mobile without base households, moved around and most were not enumerated. For more residentially mobile people made individual moves among domiciles than moved in continuously co-residential core groups.

How co-residents viewed people who moved in and out were closely related to census outcomes.

5.2.6 Within household matters

The highly mobile individuals attached to a "base household" in a localized "base community" found enumerated in the Census were either present at the time of enumeration, or, if they were temporarily absent, were named by a respondent with certain characteristics. Respondents who included absent mobile individuals had been, and continued to be repeatedly co-resident with the person. They were part of the sedentary core or the only sedentary resident of the household. Typically, the respondents who mentioned temporarily absent individuals were kin-related to them or else their domestic co-habitants.

Respondents with certain characteristics omitted individuals who were both present and temporarily away. These respondents were not part of the omitted individual's established base household of sedentary core of long term residents. These respondents were themselves in-movers or visitors, or else the individuals they omitted had fairly recently moved in. Several of these respondents received rent or shared costs for the housing they shared with the individuals they omitted.

Gilley noted that men who went away as little as once and for as little as a few days were omitted by their house mate or other co-resident, even though they came back. The situation in this social network seems to have more to do with the arrangements the men made as sub-tenants. In other social networks, habitually mobile fathers and husbands more often absent than present were enumerated as though at home in their family residences. The participants in the American Indian men's society social network who were not enumerated did not live continuously with the same co-resident(s) in the same domicile and did not personally hold firm (or any) tenure rights in the housing that was their Census residence. Their arrangements to share housing and expenses with unrelated roommates or in a relative's home were apparently fragile, disrupted by brief absences. Their stays in rural homelands, distant reservations, society events held across the territory of several western states, and in other participants' homes, though brief, formed an

impression that gave respondents reasons to fail to mention them. Participants offering each other places to stay and havens for respite from conflicts with their usual co-resident shifted the social location of their fundamental residence arrangements from particular domiciles and co-residents to the society as a whole.

5. 3 Communities

The social networks were immediate face-to-face communities in which habitually and highly mobile people interacted with each other and with residentially stable participants. Participants in the interacting social networks spoke of affiliations and connections with more populous communities outside the frames of interaction. Affiliations with imagined or enacted communities ran through shared occupation, social circumstances, languages other than English, and conscious social identities including kinship, places and nationalities of origin, activities, and beliefs. Over a longer periods than the six-month tracing, participants in each of the social networks might come into contact with people they considered community affiliates.

- **Over the six month period of observation, enveloping communities were the principal social terrain from where interacting social network participants arrived and to where they left.**

A community may interact in one place or at multiple locations. A community may itself be geographically dispersed or mobile and migratory. Communities may also be strictly imagined affiliations (Chavez 1991).

5.3.1 "Localized base community"

A "localized base community" may emerge in a place where interacting or affiliated mobile people co-locate "base households" and form interaction spheres. A localized base community may be an isolate or one locus of a multi-local community.[30]

Five whole social networks and the cliques of survival campers in the sixth were connected to larger communities.

In the four social networks nested in localized base communities, the "base households" of highly mobile people were geographically dispersed. These localized base communities were not concentrated in neighborhoods. Various ties across localized base households included interactions in gatherings at community focal points of the types observed. Among the American

[30]Marcelin and Marcelin (2001) introduced the concepts of "base household" and "localized base community" to explain the complexities of co-residence among low income Haitians.

Indians and Haitian farm workers, highly mobile individuals' residential visits and the hosting ethic interconnected households in and beyond the dispersed localized community.

Most participants in the social networks of the Haitian migrant farm workers and the Midwest Mexicans maintained localized base domestic households. The Haitians established base households in a city from where they could commute daily to seasonal agricultural field work six or seven months a year. The Midwest Mexicans were settling where year-round work and Spanish-language social and educational services were available. The local Spanish language services had been developed for migrant farm workers at a large, family-friendly labor camp. Farm workers basing themselves where they may seasonally commute daily to agricultural work and "settling out" from principal stops in their former migrant circuits have been reported from many agricultural areas of the United States (Alarcon 1997 among others). The length of time participants and their co-residents had been in these local base communities varied from a few months to the lifetime of individuals under 30. Three generations were present. The folkloric performances of the social network figured as one cultural declaration that Mexicans had established a local community. Each of these immigrant base communities were affiliated by common language, common national origin, common work backgrounds and prospects, and other social and cultural features.

Many participants in their social network maintained base households within about a ten mile radius of the dock where commercial fishermen landed fish. The housing rented by those who lived alone and motels they occupied in between fishing trips were in the same general area. The tied down trailers and rented town houses that served as fishermen's base households were scattered across two counties. The local base community was not a spatially concentrated fishing village. Community gatherings, however, centered on fishing, including those observed in the frame of the landing dock.

The meetings at a fixed locale on a regular schedule gathered American Indian men's society participants who lived in conventional housing in or just outside the city where meetings were held. Participants who traveled from rural areas attended less frequently.

Although the localized base communities of the social network participants traced were dispersed, highly mobile people may organize concentrated enclaves. Andereck (2001) compared census outcomes from the 1970, 1980 and 2000 Decennial Censuses in two enclave neighborhoods of traditionally mobile "Irish Travelers" sometimes called Gypsies. Over the last 30-40 years, the two bands gradually established localized base communities. Both are neighborhoods and social enclaves. The travelers co-located base households of kin-related co-residents in mobile homes. In one local base community the Travelers rent adjoining lots; in the other, the ethnic and kin-related enclave was located on purchased land. Workers continue to ply their trades peripatetically across a wide territory in the central and southern United States. The Travelers' residential "base communities" allow family groups to pursue the traditional mobility of trades geared to dispersed clients while permitting children to attend school.

- **Cultural norms divide localized base communities into those that serve highly mobile affiliates as a generalized host and those that restrict hosting to closer affiliates.**

The Marcelins observed that migrant farm workers who did not have base households nevertheless returned to the local base community. In the local base community, they were taken in by other Haitians who did have housing. The Haitian households hosted people related by kinship, previous co-residence, affiliations of language, national, sub-national origins, co-work, and other ties. The opportunity for the Haitian farm workers unattached to stable co-residents to find places to stay has a correlate. While those farm worker participants who did maintain base households were away, the composition of residents in their own housing units could and did change.

Reciprocal hosting was a strong ethical norm among men affiliated in the American Indian men' society, although one participant who abused it was eventually denied hospitality. Hosting rapidly articulated new comers. Housing was more privatized among the fishermen. Participants in the social network of the American Indian men's society and of the commercial fishermen were split about 50-50 between those who did and did not maintain attachments to a domestic base household. Fishermen without personal access to housing in the localized base community were rarely "taken in." As a result, most of the fishing crew and captains unattached to local base households of co-residents stayed aboard docked boats or in commercial motels and were rarely (and never continuously) domiciled in conventional housing units. Among the Midwest Mexicans, households appear more tightly bound by kinship, receiving and dispatching visitors from or to kin-related households in other locations.

5.3.2 Multi-local communities

An isolated base household, localized base community, or other facilities may serve as the physical-social nodes of a multi-local community. Mobile people moving through base households, base communities, and residential facilities at different locations help articulate multi-local communities as social, residential, economic and cultural systems.

Regional multi-local communities

The "chapter" that met regularly and interacted in one western city was one local node in the larger community of a territorially widespread American Indian men's society. Other nodes were localized where clusters of active society affiliates maintained or had access to housing. The society located where there were reciprocally hosted "places to stay" at least temporarily, and gathered for events. As dispersed within and across localities, affiliates of the society deliberately congregated at events that they and others sponsored.

Transnational multi-local communities

A transnational community moves among multiple locations in the country they enter and the country they left. The social networks of the Mexican and the Haitian participants were

embedded in localized base communities in turn connected to multi local transnational systems. Mexican households received and dispatched individuals to and from kin-related households at distant locations in other U.S. states and in Mexico. Transnational relocations from Mexico and long term visits to Mexico occurred during and before the six month study period. The Haitian households received visitors from Haiti and dispatched residents on visits to Haiti during the same six months. (None of the other social networks received or dispatched anyone across international borders.)

The transnational component of mobility and the population of movers coming into the United States from abroad directly associate mobility with communities speaking languages other than English.

Occupational multi-local communities

The occupational community of commercial fishing hovers near multiple points on shore where fish are landed and vessels dock. Residential "fishing villages" exist around some of these points. (See Orbach 1977, NMFS 2000, McCay and Cieri 2000.) The commercial fishermen and their associates, kin, and companions in the social network form one nexus of a larger dispersed community engaged in, or dependent upon, fishing. Captains and many fishermen found their way to particular local "base community" through connections in that larger, multi-local occupational community. The fishermen and their companions who were unattached to base households or private housing in the local community were also less committed to the local fleet. Several "floated" among the local vessels and to and from fisheries at other shore landing points.

The seasonal workers' quarters was one facility in a system of residences their common employer operated at the multiple sites for the larger community of seasonal workers. The young seasonal workers shared an occupation and employment status unique to their common employer. Their employment status, individual circuits among seasonal work places, and remote work sites limited their access to conventional housing. Although they formed a temporary peer residential household and voiced intentions to establish it as a base by reconvening the next season at the same work place, they had little control over work assignments.

While the peer group household of 14 seasonal workers living in workers' quarters does not qualify as a census tabulation "household" or as a typical "domestic" household, it is one residential site of a self-conscious and multi-local occupational community. The item noting the year when participants had "first occupied this domicile" revealed that participants had first occupied the same workers' quarters three or four years before. The same seasonal workers had repeatedly returned to the same work site, same domicile, and formed same set of co-residents over several years. This arrangement though "*ad hoc*" was purposefully achieved.

Their seasonal workers' household the participants formed, in effect, functioned as the localized base community which participants strived to include in their migration circuits. They reconvened at their social and residential point of return after individual dispersions. That they remained residentially stable and working at the same site throughout the six months study

testifies to the success of their planning. In order for the participants to regroup seasonally in the same living quarters, they had to agree and plan ahead, each had to achieve a similar seniority and job status with their common employer, and compete for the preferred assignment. At other times of the year, the participants dispersed to other work sites. When they dispersed, participants went to other stations where their service employed seasonal workers. Descriptions of their experiences elsewhere in the "service" (community) with others sharing their common occupation, employer, conditions and terms of employment were an important topic of conversation. The multiple locations where social networks like that observed and this community could be enacted were fixed by work sites.

A dispersed and habitually mobile community

Recreational campers came from and returned to residential localities in seven states. Whatever short-lived sense of "community" recreational campers may have experienced while they shared the same leisure activity at the same time and place was contained within the interacting social network. There is no evidence that recreational interacted outside the frame after the end of their vacations.

The survival campers, however, did interact with other survival campers outside the frame and at other times. The same kind of interactions observed to form large cliques centered and primarily composed of survival campers linked them to other rural homeless over time. Organizing communal cooking fires when they happened to camp in the same area is a culturally distinctive and adaptive social behavior that serves to link survival campers into and as a loose but self-conscious community.

Their dispersed community is habitually mobile and circulates across long distances between and within regions. By mid- March 2000, survival campers in the social network had relocated to the Northwest from states with milder climates. Participant survival campers circulated their campsites within the micro-region near the preferred camp group throughout the spring and summer. They enacted and formed community by gathering. The gatherings and their large social network cliques were spontaneous. Off scene, they attended larger planned congregations.

Congregating communities: events

Whether residentially concentrated or dispersed, with fixed nodes or constantly on the move, communities may enact themselves periodically by congregating. Cross-culturally, spatially dispersed communities and habitually mobile communities tend to rely on periodic large gatherings to manifest their affiliation (Arensberg 1965).

"Perpetually homeless" campers living on public lands throughout the country are a major constituency of a conscious community which holds local or region gatherings and annually stages immense encampments in remote rural areas. The annual week-long congregations of this self-described "largest non-organization of non-members in the world" (***http://www.welcomehome.org/rainbow/html***) have topped 100,000 people the last few years.

Travel circuits of the more upscale "snow birds" described by Mings (2001) are structured by major gathering events.

Thousands and tens of thousands congregate at better known American Indian congregational events, including major annual pow wows open to all. (See Pow Wow Calendars online.) Although the local chapter sponsored encampments in remote rural areas, affiliates of the American Indian men's society also convened and connected at scheduled events organized by tribes and other American Indian organizations. They grafted their gatherings onto events held on a seasonal schedule across a wide territory. Gilley notes that although tribal affiliation remained personally important for some participants, the identity ideology they shared and the major events the society attended were distinctly inter-tribal and pan-Native American.

5.4 Moving in and moving out

- **Itineraries and schedules of moves were highly individualized.**

Mobility is more an individual than a group behavior. Crews of fishing vessels and migrant farm co-workers moved and lived together but broke up and re-grouped with others. The largest group of people who traveled and stayed together briefly were the 13 American Indian men who attended one encampment. Conventional moves of "whole households" (2-6 continuous or intermittent co-residents) from housing unit to housing unit were rare in this universe. More participants in the campers' social network continuously lived in stable co-residential sets than in any other social network, but their moves were not house-to-house. Transient locations were also prominent in the mix of domiciles shared by co-residential sets of non-kin associated adult men who moved together and repeatedly (if not constantly) in the social networks of the American Indian men's society and of commercial fishermen.

Various descriptors and measures can be applied to categorize residential and habitual mobility, evoking frequency, pace, schedule, itinerary, or distances among destinations. Base households, base communities, and larger systems of multi-local communities figure in diverse configurations of itineraries and schedules. No evidence associated the character of their mobility or their census outcome with whether individuals commuted, moved seasonally, followed circuits, or shuttled to one distant work site or into itinerant circuits or circulation.

- **The social network tracing study suggests a key distinction between habitually or highly mobile people who are attached to a "base household"**
  - **in a "localized base community" versus those who are not.**

For habitually mobile people who are attached to localized domestic base households, application of census rules of residence may be somewhat problematic and contradictory, but their moves between and among domiciles can be examined in terms of the length and duration of residence. Highly mobile people who repeatedly return to the same co-residents can be represented by respondents who personally know them.

- **Habitually mobile people who lack attachment to base households (or without established access to a housing unit) are marginally or literally homeless, no matter what their income level. They rarely live "six months or more" in one place or in housing. New approaches are necessary to provide them with places of enumeration in the census.**

For habitually mobile people who are not attached to a base household and do not personally rent or own housing where they stay alone, the only place where they can and should be enumerated is strictly *defacto*: at whatever type of domicile where they can be found at the time of enumeration. They do not have what the Census Bureau terms "a usual home." Some of them do not stay anywhere as long as six months and do not have firm tenure rights to stay in the domiciles they find.

5.5 Questions answered

The evaluation was framed by a set of questions. In the next section, answers to questions are summarized.

5.5.1 What interactions in social networks influence and explain or determine the duration of individuals' stays in domiciles (in households, institutions, or other places where people sleep) and their residential mobility?

Interactions in five of the six social networks resulted in new episodes of co-residence. Participants in five social networks who lived together long term were predominantly related by kinship -- married couples, nuclear families, sisters, cousins. Kin relationships are commonly ideologically charged as ideally "permanent" and set boundaries for the most cohesive co-residential groups.

The new associations in co-residence that directly arose out of social network interactions tended to last short-term (over a few days or weeks) and medium-term (several months). Some participants who began living together during the study were still co-residing at the end. Interactions around the campers' communal cooking fires resulted in unattached male survival campers teaming up with a survival camper household or partnering for a while (Southard 2001). These interactions did not result in survival campers being invited to go home with recreational campers, or recreational campers deciding to abandon the housing or group quarters they usually occupied. One male recreational camper crossed the status barrier and partnered to camp with survival campers for over a month.

Acquaintance through interacting in the American Indian men's society directly provided participants with places to stay. Participants hosted others who were experiencing domestic discord, who were effectively homeless, or were arriving from other areas. Reciprocity in hosting was expected. Members of the society expected they would be taken in by affiliates who

had housing and interacted to arrange episodes of communal co-residence in remote rural locations.

The duration of individuals' stays in particular domiciles and their association in co-residential groups are separate matters. The duration of stays in a domicile were determined by rules, conditions, and circumstances largely extraneous to immediate interactions in the social networks. Stays were cut short and moves propelled by pursuit of economic opportunities, interpersonal relationships, government regulations, ceremonial schedules, even the weather.

Regular jobs limited the duration of gatherings and trips away of the employed and housed participants in the American Indian men's society. Those with housing vied to host esteemed ritual specialists who moved itinerantly among patients and ceremonies and dancers moving along pow wow circuits, facilitating indefinite stays and flexible itineraries for the most habitually mobile participants (Gilley 2001: 9-18). The time table for hosting a haven for a participant to escape from domestic troubles was set at a few days; the limit for hosting someone who needed a "place to stay" hovered at two to four weeks.

The duration of fishermen's stays on shore was circumscribed by fishing trips at sea. Migrant farm workers' stays at work quarters and away from their base households were shaped by opportunities to earn money harvesting crops. The duration of campers' stays in formal campgrounds were limited by state regulations. Stays in spontaneous camps could be cut short by authorities at a moments' notice. Stays in rental housing were cut short as residents maximized economic factors including transportation and travel time to income-producing work and access to services in languages other than English. Housing ownership secured the domestic base households staging mobility but did not necessarily influence the duration of individuals' stays.

The contrast between duration of stays in domiciles and duration of co-residence is illustrated by the survival campers. Survival campers maintained enduring "households" of continuous co-residents who were not fixed in any one domicile (or any conventional housing) or at one place for long.

Some participants in all six social networks lived together from the beginning to the end of the research. The largest, most stable, and sedentary sets of co-residents were those Midwest Mexicans who continuously lived together in separate housing units. People and resources flowed among kin-related households, intensively among those co-located in the Midwest base community. Interactions in the social network did not result in any new episodes of co-residence among participants, except in distant work locations.

Within each of the larger interacting social networks, cohesive subgroups (cliques and blocks defined by participants' interactions) were formed by or centered on two or more participants who were also co-residents. In the social network of commercial fishermen, for example, subgroups centered on a captain and his core crew reflected work relationships that included

periods of co-residence at sea. Cohesive subgroups in the Haitian and American Indian interactive social networks reflected which participants engaged in travel and temporary periods of co-residence together.

In the social network of the Midwest Mexicans, participants who resided together in family households either formed exclusive cliques. The tight boundaries and separation of the co-residential groups influenced the sub-group structure of the interactive social network.

Since we were interested in finding out if interactions in social networks resulted in or resulted from episodes of co-residence, the incidents of participants who first interacted in nonresidential social settings and then became co-residents, at least temporarily, and the background influence of co-residence on the formation of cohesive subgroups within the social networks are both satisfactory findings.

5.5.2 How much more likely are people who change domiciles once or more in six months to be omitted or erroneously enumerated in Census 2000 than people who are residentially stable over a six-month period?

More people who changed their domiciles at least once during the six-month study period were omitted than were enumerated; the ratio was 71 omitted to 60 found enumerated. Far more people who changed domiciles at least once in the six-month study period were omitted in than were identified as erroneously enumerated: this ratio is 71:2.

5.5.3 What characteristics -- of people, their networks, mobility, housing, household, occupational or other social or economic factors -- are closely associated with omission in the census?

- **Whole households in missed units appears to be the leading direct immediate reason for omission in the census.**

- **The most commonly omitted types of census residences were domiciles that are not conventional housing.**

Both people who stayed put in and people who frequently or habitually moved were equally vulnerable to "whole household omission" if their Census residence was a unit that Census 2000 either did not list, listed but then did not enumerate, or possibly misplaced in a different geography. Census records could not be found to match people reported as male and female, young and old, parents and children, white, black, American Indian, Hispanics and non-Hispanics, central and well integrated in their social networks, or marginal.

Betweenness centrality scores (Freeman 1977, 1979; Freeman, Borgatti, and White 1991, Marsden 2002) from the matrix of co-residents were particularly indicative. In some social networks, the more connected and central social network participants had positive census

outcomes, however, frequent mobility and the types of domiciles habitually mobile people occupied had more influence on their census outcome than their centrality.

None of the survival campers were enumerated although they were measurably central in the interactive social network around campground fires. Several recreational campers who were enumerated in Census 2000, on the other hand, were so marginal in the campfire social network that their personal centrality scores were zero. Since none of the places where the rural homeless survival campers stayed were listed or enumerated, position in their social network did not improve the survival campers' chance of being enumerated in Census 2000. What mattered was not the recreational campers' centrality scores, only that recreational campers had a census residence in conventional housing or in a college dormitory that Census 2000 had listed so there was a unit where they had a chance to be enumerated.

Census 2000 omitted all the young seasonal workers living together in the same workers' dormitory by not enumerating their living quarters. If the Census did not list, or listed but then did not enumerate the units which were the participants' Census Day residences, (or perhaps, misplaced them in census geography), it did not matter whether the individuals were central or peripheral in their social network. The "missed unit" circumstances affected both relatively stable and highly mobile people.

The omission of housing and other units of enumeration on the Census Bureau's Master Address File and/or Decennial Master Address File is directly related to omissions of whole households, other co-residential groups, and individuals living in those units. Those participants whose Census Day residences were in those housing units and those Transient Quarters that the Census apparently never listed did not have a "place" to be enumerated in Census 2000. Once listed, a unit must be enumerated. The Census residence of the social network living in a workers' dorm was found listed on the Master Address File but no HCUF census person records were found.

Omission in missed housing units has a different relationship to mobility and other characteristics of people than omission in Transient Quarters or Group Quarters.

- **Whole households were apparently omitted in missed conventional housing units in four social networks.**

The cases of whole household omission in unlisted conventional housing units illustrate some aspects of what makes housing "irregular" and less likely to be listed. "Irregular housing" consists of units not easily identified as housing units or housing units with addresses that break out of the pattern of surrounding units. Irregularity can be illustrated by the missed trailer home set back on a lot in a rural area, trailer homes located behind and parallel to the main street on which trailer houses were numbered, and one small frame house. The set back trailer could not been seen from the road.

A cluster of trailer homes had in their address the name of a street and highway parallel to but unconnected to the dirt road these homes face. Project staff found these addresses difficult to find on the ground. House numbers along the main street seemed to skip without explanation. No street signs indicated the parallel dirt road had the same name as the highway. This group of trailer homes and one small frame single family house in another city missed on Census lists were both located in densely populated pockets of low income housing constructed or rebuilt and reconfigured after hurricanes. The trailer homes had been vacated after a hurricane and the lots (if not the same mobile homes) had been re-occupied. The small frame houses had been built during the 1990s after another hurricane. Both areas had been reconfigured as well as reconstructed and should have been thoroughly re-listed prior to Census 2000.

On the ground, the addresses of several mobile homes and new town houses not identified on the Master Address File had clearly posted house numbers aligned on streets also clearly posted. Although local maps showed these streets, Census Bureau maps skipped these streets and listed them in the wrong order. Several mobile homes on increasingly valuable house lots conveyed by inheritance or sale within families that have been settled in one community for centuries were not listed in blocks the Census classified as "zero population blocks." Problems in how the shore communities were ascribed to county led to omissions and duplications under different unit identifications.

Theoretically, the timing of residential mobility close to Census Day could be a factor in the omission of whole households in housing units that Census listed then erroneously enumerated as vacant. A twist on the theme of vacancy is stereotyping certain kinds of housing as seasonally vacant. The census throroughly listed the apartments of one beach condominium however then classified most units as vacant. There were no person records for two participants living in the condo around Census Day. During the “off” or “low” season, fishermen and low income service workers were able to rent these vacation apartments. Participants in the fishermen's social network staying in this beach condo may have been omitted because an enumerator (or manager or other proxy respondent) globally characterized the building’s units as seasonally vacant. The couple could stay in the resort from the late fall until well past Census Day but could not afford the “high” or vacation season rental rates from late spring to early fall. Pockets of occupants may be scattered throughout seasonal (summer or winter) resort areas year round. Others, like this highly mobile couple, take advantage of "low season" rental rates and "house sitting" or "guard" opportunities.

Most participants in the social networks examined had low incomes. The more “middle class” exceptions to this generalization included some peripheral vacationers in the campers’ network and permanently employed individuals who interacted with the commercial fishermen’s and Indian men’s networks. In so far as frequent changes of domiciles and the occupation of irregular housing, non-conventional housing, and transient quarters are related to poverty,

- **not considering or defining the kinds of domiciles that low income, highly mobile people occupy as Census units of enumeration (or not listing or not**

enumerating them) connects the behaviors of residential mobility with omission in the census.

- **The omission of individuals and households whose Census residences were not in conventional housing units is related to high mobility through this mechanism.**

People staying temporarily in Transient Quarters and accommodations who have a usual home somewhere could be asked to state the address or location of that home. The alternative that Census 2000 depended upon was that back at their "usual home" a respondent would be present and enumerate by proxy the person temporarily absent.

The cases sketched above suggest that whether people temporarily away from their "usual home" are enumerated depends the views of respondents there.

Respondents' views

Within households, the respondent decides whom to include on a census form. The respondent for a household can filter in or filter out "usual residents" who are temporarily absent and people who are actually staying in the housing unit who have no other home.

The participants omitted within partially enumerated households at listed housing units were relatively central in their respective interactive social networks. What the participants omitted in partial household enumerations have in common is their mobility. Their omission in enumerated households is related to their mobility through the views of the respective respondents for these households. Respondents who were visitors staying temporarily or who were new boarders apparently provided strictly *de facto* rosters. These respondents did not mention participants who were temporarily away. There are cases of participants who were the "householders" of the housing units in which they were omitted and cases of participants who were partners, unrelated boarders, sub-tenants, and guests.

Reasons why respondents who were the omitted participants' room mates (and for one participant, his mother) omitted them lie in these householder-respondents' perceptions of the individual participants' "tenure" and their expectations about the future of the co-residential arrangements. The participants' personal histories of moves away and even short term absences affected the perceptions of these householder-respondents.

In one household, a house mate erroneously included immigrants who arrived and began subletting after Census Day and did not report the older male householder residing there on Census Day who was temporarily away. In another housing unit, a visitor did not report the householders who were temporarily away yet did (erroneously) report herself and her child as though they resided there. A mother decided not to report the adult son living in her home since before Census Day on her census form because he had moved away and lived independently before and they both expected he would again. Interviewed seven months after he arrived, with her house filling with temporary visitors he invited to stay, she still did not view her son's stay as

“permanent.” Meanwhile, another family reported an adult son long absent who was expected to return, even though he was and had been absent Census Day and long enough he did not qualify as a resident under census rules.

Another “within household” concern is the influence of respondents’ appraisals on their decision to include in their census report people “staying temporarily” who have no other home.

Non-mention of co-residents may stem from the household respondent's evaluation of whether or not the person really "belonged" or should be listed. Respondents classified (and perhaps hoped!) the person was not "really" a resident or assumed an "out-of-sight/out-of-mind" attitude towards those temporarily away or towards those whom the respondent did not know well enough to provide proxy information. Respondents for households evaluated some participants as "not really here" because they were just staying "for a while" (temporarily) or "visiting" or "had stayed then left before" or said they were “going to get their own place” or other expressions that distanced the person from "membership" or permanence in the household.

One case of residents "not really here" according to the Census respondent was documented in the social network of the American Indian men's society. An older woman living in tribal housing reported herself to the Census as living alone. The ethnographer directly observed that her son and his friend living in the woman's house at the time of the Census. He observed the two men lived there throughout the six months study period, in between short stays at community retreats and rituals. Towards the end of the study period, the two men invited additional members of the society moving into the area from out of state to stay with them at the mother's house as well. The ethnographer sat down with the woman to explore her own view of her son's (and by then, his three friends') stay at her house. Because her adult son had gone away for months or years at a time before, returned for a while then left again, she expected the episode of co-residence would end the same way. In her view, her son did not live in her house, it was her house and could not be considered his "residence." His more or less continuous presence there for more than six months (with his friends living there, too) did not change her appraisal (Gilley 2001:16).

Cases of co- residents "out-of-sight/out-of-mind" occurred in the Haitian farm workers' households. In the flux of temporary stays, people were omitted and erroneously reported. The ethnographers mapped affiliations and movements of selected co-residents to additional households elsewhere in the base community, in the United States and in Haiti to help explain omissions and erroneous inclusions in the census files. Although according to Census rules of residence, most participants should have been included in the census at the addresses they reported in their base community along with the co-residents they reported, not all were. One householder absent visiting the households of his kin was not mentioned by his usual co-residents. A junior relative responding for a housing unit where she did not live neglected to mention the senior householders. In both these cases, individuals temporarily absent from their "usual home" housing unit and household at the time of enumeration were not mentioned by the young adult relatives who happened to respond for the household. These younger relatives went

as far as to omit the senior householder(s) who owned the house and kept it as his or their primary and base residences if though they temporarily worked or visited elsewhere.

More senior members (adults age 40+) provided more complete information about those physically present and temporarily absent. In this cultural context, politeness, privacy, and age deference interplay. More junior relatives, lightly attached to the senior householders as cousins or nieces or as the non-resident mother of the householders' grandchildren, either do not know or else feel constrained to give proxy information about senior householders. Senior members (who control tenancy arrangements) have the right to report proxy on any one they appraise as resident (Marcelin and Marcelin 2001: 24-31).

5.5.4 Can people be more reliably identified (and re-identified) from their position in social networks, from their interactions and transactions with others, than by comparing sets of address and person records?

The short answer to this question is yes -- through careful fieldwork or computation, however, automatically, not yet. We searched for software that could automatically harvest and generate social networks by flagging relationships between entities in data base records of the type the Census Bureau collects by the millions. Statistics on foreign trade have been used to construct and analyze the social networks in which countries are the entities; data the Census Bureau compiles on foreign trade could enrich such a model for analysis. Available social network analysis and graphing programs are limited by their data input requirements (Brownrigg 2002: 85-101). Data preparation and data entry for the analysis of whole or socio-centric social networks are notably un-automated. The program "Pajek" embeds social network linkages and analysis at the scale of the nation. Pajek is of interest as an analytical and more logical data base for organizing research in countries which maintain national registers (Brownrigg 2002: 94-95). Links between two or more individuals, whether in households, localities, or places of employment provide multiple pointers to the same individual which can be more redundant and more reliable than mere matching of names and personal characteristics.

The most immediately promising social network for Decennial concerns is the small scale social network formed by household (or Group Quarters) residents. Taking person records found enumerated together into account results in more confident matches and more confident automated identification of duplicated persons. Each of the two or more person records found enumerated together provides an alternative to using address in matching. This helps surmount the problem of identification of whole and partial households duplicated at different addresses or at units of enumeration erroneously listed more than once. Person records enumerated together can be treated like item attributes of each other.

5.5.5 How well do Census Bureau categories fit with the socially represented characteristics people use to form interacting social networks?

Participants in each social network shared certain social identities which the Census treat as demographic characteristics. Affiliation with certain social identities appeared to function as a "perimeter " or boundary for each of the social networks as a whole. People with shared identity characteristics other than the boundary traits clustered in the formally analyzed cohesive sub-groups. (See Everett and Borgatti 1999a.) The ethnographers' reports described the dynamics of the social identities that underlay each interacting social network and they discussed how well those social identities mesh with Census Bureau categories. Matching items on matched census records largely confirm the statistical categories the ethnographers had predicted for individuals' selections.

Census 2000 answer categories that correspond the social identities functioning as perimeter boundaries for whole social networks included Hispanic ethnicity, national origin, language spoken at home, and occupation. Categories clustered in certain cohesive sub-groups: gender, range of age, co-affiliation in residential households, occupation, and mobility characteristics.

Social identities of the unenumerated

The ethnographers' reports of the individuals who were not found enumerated characterized them as people of various ages, ethnic affiliations, occupations, and language preferences. None of the survival campers at the camp ground site in the Northwest and none of the seasonal workers in a workers quarters whom the ethnographers categorized as non-Hispanic whites were enumerated. The survival campers' salient characteristics were extreme poverty, homelessness, lack of employment or low paid part-time occupations, and use of food distribution programs. No records were collected in the area where the young seasonal workers stayed so there is no basis to compare the researcher's appraisal of how they might be represented in census "race" and "ethnic" categories.

5. 6 Recommendations

Our main general recommendations are:

Recommendation 1:

Consider adapting census methods to more closely fit the cultural habits of distinct populations, including the traditionally, seasonally, and occupationally mobile.

Recommendation 2:

Design and test the feasibility of Census operations appropriate for the contemporary patterns of mobility in the United States, including transnational migration.

The ethnographers who traced the social networks offered recommendations for overcoming specific barriers and challenges for Decennial enumeration they observed in the lifestyles of highly mobile people. We summarize and endorse the recommendations from the individual social network studies and add recommendations for designing Census planning, outreach strategies, and modified operations.

5.6.1 Implementing recommendations 1 and 2 in planning

Mobility needs to be emphasized in the profile of who are "hard-to-enumerate" and to locate potential hot spots for undercount and other census errors. Residential and habitual mobility is largely an individual behavior, however areas with more movers than the national average can be identified.

Five year mobility as an indicator

This research found a correlation between having lived in a different residence five years before Census Day 2000 with residential and habitual moves in the spring and summer of the census year. (One year mobility was clouded by strictly seasonal moves and did not correlate with subsequent mobility. Habitual seasonal relocations had taken place before Census Day and the later May-June follow-up operation during the census and prior years.)

In the counties where the participants of the social networks traced were domiciled, the percentages of the population over age five who had lived somewhere else five years before were 30 to 57 percent higher than the national average (of 20.9 percent, Berkner and Faber 2003:6). This suggests that areas with high percentages of people who moved in less than five years before the time of enumeration may contain residential arrangements that also accommodate highly and habitually mobile. The percent of the population who moved in during the five years before the date of enumeration may, therefore, indicate areas "hard-to-enumerate" due to the presence of mobile people. Use of this indicator is suggested for planning, including for the update of the Planning Data Base. Census Bureau staff have already analyzed answers to the long form questions on peoples' whereabouts five years before Census 2000 (Berkner and Faber 2003; Perry and Schachter 2003) so census information to implement this indicator is available. Information from the rolling long form of the American Community Survey could be used to update the mover population profile in its sample areas.

"Census Day" in winter

The enumeration of Alaska Natives began in January and February 2000 when they gather in villages for the winter; at other times of the year, many Alaska Natives traditionally disperse. Survey data on house-to-house moves has consistently indicated that far fewer households in the United States make residential moves during the winter. Scheduling "Census Day" in January or February could reduce the effects of mobility on the census enumeration, coverage, and its measurement.

5.6.2 Implementing recommendations 1 and 2 with strategies and messages appropriate for outreach to highly and habitually mobile people

In designing outreach strategies for highly and habitually mobile people, it is critical to distinguish broad classes of mobile people: those who 1a) repeatedly return to a localized domestic base household (which can be considered their "usual home") and/or 1b) to a localized base community versus 2) those who habitually move among multiple places. Outreach strategies and messages need to be tailored to these broad classes as well as to particular local and cultural patterns and schedules of mobility.

- **This research found that as long as their census residences were listed and enumerated, even habitually and the most highly mobile people who repeatedly returned to the same co-resident(s) serving as their localized domestic base households were found enumerated in Census 2000, no matter how often or how far the mobile individuals traced went away.**

The residentially and habitually mobile who repeatedly return to the same localized domestic households remain in contact with and can be reached through their sedentary co-residents. This class of mobile people can be characterized as having "usual" homes. Mobile people who return to the same locality but rarely to the same domiciles or same co-residents and mobile people who circulated among locations alone or in household groups do not have "usual" homes.

Highly mobile people who cycle back to a "localized base community" may be reached by accessing the communications of their social networks in those local areas. Although mobile people who revolve back to localized domestic co-residents have a very different residential situation than mobile people who occupy a series of different types of domiciles, habitually mobile individuals with contrasting access to housing can be reached through community communications networks in and around the locality they use as their base.

The participation of mobile peoples' more sedentary co-residents and associates in the kinds of organizations that Census 2000 attracted as partners undoubtably varies. Generally, for outreach and promotion, and for educating and encouraging people, it is important to identify and communicate via social networks and the culturally significant contexts of diverse communities.

Interactive social networks and larger communities are formed by interpersonal ties. Most participants in each of the separate social networks shared in common personal affiliation with some of the broad social identities collected as census categories: national origin, language, age group, and occupation, for example. The intensely communicating groups formed through collaborative activities were interactive sub-sets within broad demographic categories. The Haitian farm workers, for example, formed an interacting social network within a larger localized community of common national origin and language to pursue a specialized economic strategy that was more like that pursued by contract farm workers from other social groups whom the Haitians considered different and their competitors. As farm workers and as residents of a local area with immigrants from multiple other countries, the Haitians formed a linguistically and

culturally distinct segment with separate communication structures. The social network of the American Indian men was part of a larger society that affiliated Indian men from rural and urban areas, disparate tribes, and states, in the performance of highly specialized social identities well known within the broader Indian community.

Significant communities may operate across multiple dispersed locations and may interact primarily in temporary gatherings. Affiliates of multi-local communities may have more effective contact with each other across long distances than with residents of places where they are residentially dispersed or staying temporarily. Highly mobile people may move along the multiple locations of a broader community where they have private affiliations, based on kinship, occupation, birthplace in the same town, or prior interactive experiences, for example, or where others in their community are known to stay. The fishermen who appeared during the tracing knew the particular fleet as one location of their occupational community.

Congregating events

All sorts of groups periodically gather for events. American Indian men living nearby an urban meeting place attended regular meetings; sub-groups went off to stay together and with others from further away temporarily during events the society sponsored and events sponsored by other Indian organizations. For communities which are usually dispersed (within a locality or across multiple localities) and communities of people like the survival campers who are habitually on the move, temporary residential congregation events are especially important. Gathering events may be at fixed times and places or spontaneous. Outreach to dispersed and mobile communities which periodically converge in large gatherings must be timed to their schedules. Relevant large gatherings, like prize-money pow wows and the annual Rainbow Family reunion, are generally well publicized on the Internet.

Outreach messages

In the localized base communities of highly mobile people, it is relevant to diffuse educational messages requesting that respondents include household residents who are temporarily away and individuals staying with them who may have no other home. Mobility often takes the form of temporary absences and temporary stays. This research suggests that mobile people face a greater risk of omission than erroneous inclusion during “temporary” stays in household situations. Some participants who left their census residences as little as once (taking respites or trips away from their "usual homes") were omitted, even though their absences were brief. Ultimately, respondents decide whom to report. Radio and television spot ads “promoting” the Census and rules printed on flyers or forms may be too abbreviated media for explaining residence rules. Respondents may require audiovisual “training” and explanations to understand Census residence rules and whom they should list as "residents" of their households because the individuals have no other or regular home.

It remains important to encourage respondents, allay their fears, and let potential respondents know they are important in the effort to count every person and to make the census complete (Marcelin and Marcelin 2001). As Gilley (2001) noted, it is worth considering the historical relations between the Federal Government and certain groups from American Indians to recent

immigrants to understand why distrust may exist. Respondents need to be assured that the information the Census collects will not be used to hurt people in any way and that it will not be seen by the Immigration and Naturalization Services or other law enforcement agencies.

The ethnographic social network tracing and the comparative mobility research conducted in 2000 and earlier ethnographic evaluations have noted diverse reasons why residents may view individuals living in their households as "illegal" or as people they should refrain from reporting on “official” government census forms. Residents may be "illegal" from the point of view of the landlord (Rodriguez and Hagan 1991: 7-8), or eligibility for public housing (Holmes 1991; Hudgins, Holmes and Locke 1990). The housing itself or its internal subdivisions may be “illegal” from the perspective of local occupancy ordinances (Romero 1992:9; Mahler 1993:9, 11). Co-resident immigrants may have different status rights for their stays in the United States. A single household may include combinations of U.S. born and naturalized citizens, legally resident aliens, temporary visitors, and undocumented immigrants (Duany 1992:12; Stepick and Stepick 1990:44). Undocumented who "entered without inspection" may be residents of the particular housing according to census rules while “legal” entrants and citizens are not. In such contexts, respondents’ decisions about whom to include on the "official" Census may be based on whom they consider a "legal" resident of the United States.

Languages

Mobility is instrumental in the retention of languages other than English and for the new transnational pattern of immigration. Data from Census 2000 suggests a greater number of people moved from abroad during the 1990s than had been previously estimated. (Compare Statistical Abstract 1991-2000 with Perry and Schachter 2003.) Immigration has increased the number of people who speak languages other than English. Communities of U.S. residents functioning in languages other than English without speaking, reading or writing English well are enriched by the pattern of visiting and modern communications. Adaptations of census methods to the contemporary linguistic demographics of the United States make it pragmatic to develop enumeration forms and provide enumeration support, outreach, and education in languages other than English.

Transnational immigration

Contemporary immigration increasingly involves travel back and forth between the United States and immigrants’ places of origin. Immigrants maintain their connections by international visiting among other mechanisms (Basch, Glick-Schiller, and Blanc 1994; Massey 1985, 1986, Massey et al 1987, 1998, 2001, Alarcon 1997, among others). In the new “transnational” pattern of immigration, new comers establish themselves in the United States without abandoning their attachments to their families and societies of origin. Immigrants themselves visit, communicate with, send remittances to, and receive visitors from their families and places of origin. The lower costs and greater speed and reliability of modern transportation and communications technologies compared to historic periods of migration are one explanation why contemporary immigration has been able to assume this “transnational” pattern.

The transnational pattern of immigration results in the temporary absence of residents (of the United States and of particular households) and the temporary presence of non-resident visitors. International visiting in the two social networks with the most foreign born participants explained some cases of omission and erroneous inclusions in Census 2000; international visiting leading to similar cases of omissions and erroneous inclusions was documented in areas with foreign born in the 1990 ethnographic evaluations (Wingerd 1992:7; Rodriguez and Hagen 1992; Kang 1992, among others). Foreign-born householders interviewed in Schwede's (2003) research discussed transnational visiting as an aspect of what made their household arrangements complex.

In the social context of transnational communities that prefer to speak languages other than English, census "rules of residence" may be particularly difficult to understand or apply. The pattern of transnational visiting adds another reason why it is important to craft outreach and messages to educate, encourage, and assure respondents in languages people understand.

5.6.3 Recommendations for improving existing operations and testing modified operations

Recommendation 3:

> **For the existing categories of census units of enumeration, continue to improve the Master Address File, the listing of housing units, Group Quarters, and Service-Based Sites, as well as Census Bureau geographical programs and electronic maps**.

If a domestic domicile or residential facility is not listed, it is unlikely that residents of the unit will be counted. The immediate reasons why census records were not found for most the mobile people traced in this research were related to the unit they occupied as their census residence: either that unit was never listed, was deleted prior to its enumeration, was enumerated as vacant or with other people, or may have been geographically misplaced in a location different than its actual whereabouts.

- **Missed units of types that qualified as units of enumerations accounted for the omission of whole households and group quarters residents, regardless of, and unrelated to, the mobility characteristics of their occupants.**

Housing units missing on census lists

- **Unit-based issues affect all co-residents – stable and highly mobile alike.**

Although residential mobility does not directly explain why whole households were omitted in missed conventional housing (because stable residents of the same households were omitted along with the highly mobile), there may be some indirect connections. People with low incomes (for example from low pay work that requires mobility) may land in less costly and more "irregular" or sub-standard housing. Various irregularities of the physical appearance, lay out, or

address of housing units were previously identified for the missed housing that resulted in the omission of the households in them (Brownrigg 1991; de la Puente 1993:11-19).

Tied-down older trailers on lots shared with other housing were a type of housing units missed which resulted in the omission of whole households occupied by the Midwest Mexicans and South Atlantic commercial fishermen. Hurricanes had devastated the localities where participants in the commercial fishermen's and Haitian migrant farm workers' social networks maintained their base households; rebuilding between 1990 and 2000 had changed the housing and streets. Census 2000 updated addresses in these areas at the last minute, after local governments pointed out problems. The coastal area where the fishermen lived was further affected by an influx of population into new resort and retirement real estate developments.

In listing and checking addresses of housing units, it is important to develop and test methods to assure that trailer homes and other low-cost housing are not missed, especially where multiple domiciles share a single property or lot. Areas built, reconstructed, or reconfigured challenge pre-census address updates. One solution is to identify areas hit by disasters like hurricanes and earthquakes for address listing updates soon after rebuilding has begun. Similarly, better methods are needed to identify areas of new housing developments and change systematically for updating listings.

Placement in census geography

Mobility behaviors of the population are not related to correct placement of listed housing units and residential facilities in census geography. Census geography and the correct "geocoding" of listings is in the purview of Census Bureau staff. Various problems in the accuracy of Census maps and geographical placement of listed units were identified that appear related to the missing units. Where one ZIPCODE straddled two adjoining counties, some addresses were found duplicated while others were not listed in either county.

To improve geographical placement, tests could be conducted to verify if collecting the name of the county (or county equivalent) on unit listings could improve the automated or clerical geocoding. Collecting the name (not the code) of the county (or county-equivalent) during address canvassing and recording it on electronic lists could potentially assist the correct placement of units in census geography and avoid assigning units and population to incorrect counties based on ZIPCODE. County name could help also arbitrate which of two or more listings for the same address is correct for those units duplicated in different jurisdictions under different listing identifications.

Missing and unrecognized domiciles other than housing units

Habitually mobile participants who were not living in housing on Census Day, rather in types of domiciles that Census 2000 did not classify, list, or treat as units of enumeration, had no chance to be correctly enumerated in their default Census residences. The entire social network of young seasonal workers was omitted at their work quarters. This domicile qualified as their census residence, following rules: it was where they stayed as the longest in the year (and longer

than six months) and where they were residing by Census Day. Like the migrant farm workers and commercial fisherman traced, the seasonal workers had no opportunity to be enumerated at their work quarters.

The survival campers were omitted because the camp ground they occupied in late March and April 2000 and again later was never listed. Other camp grounds where participants in other social networks stayed were never listed, and neither were all the camp grounds where the "snowbirds" Mings (2001) visited at the end of March 2000 when such sites were scheduled for enumeration. The public camp grounds where participants in three social networks stayed were no secrets. Blocks the Census Bureau classified as having zero population were indicated by roads on local maps and on Internet sources. The large migrant labor camps where the Haitian farm workers stayed and tribal ritual centers where some American Indian men stayed illustrate somewhat more "hidden" and less formal residential facility sites. There were however state roads into and through these sites outlining blocks the Census classified as unpopulated.(More generally, it's worth checking "Zero Population Blocks" with roads for living quarters.)

Participants in five social networks occupied places that qualified as "Transient Quarters" and were not listed. The work quarters of the sixth may have been deleted a global drop of its environment its surrounding public camp grounds and concession commercial accommodations. Farm worker and fishermen occupied several motels; in two, managers' apartments were enumerated, but no rental rooms, and the others were not listed or enumerated at all.

In five of the social networks, at least a few of the more mobile individuals never or very rarely stayed in housing and had no personal access rights (through ownership, rental, or kinship dependence) to any housing. (The Midwest Mexicans were the only participants traced who all maintained access to a housing unit in their localized base community.) This result suggests that in order to enumerate highly mobile people, particularly, those who are habitually mobile and simply do not have "usual" homes and never or very rarely stay in conventional housing, the kinds of domiciles where they do stay must be recognized and listed as units of enumeration.

Census 2000, like other late-20th century Decennial Censuses of the Population, was largely based on lists of residential "units of enumeration" (housing and Group Quarters) with little leeway for other collection points. As long as the census of the population is based on "units of enumeration" yet does not list or enumerate completely the workers' quarters, transient quarters, and commercial accommodation residences, people who live and stay in certain types of domiciles are out of luck.

Advance publicity and residence rules for Census 2000 stated that people without a usual residence would be counted where they are staying on Census Day. (Census 2000, Residence Rule 5). For several of the omitted mobile people traced in this research, that was not the case. The Census could not count them where they stayed because the places where they were staying were not on census lists. They were cast as living no where. They had no units of enumeration.

Many domiciles that were the census or later residences of the habitually mobile people met the criteria for listing as Transient Quarters "units of enumeration" but were either never listed or else were screened out before enumeration. Other types of domiciles mobile people occupied were not eligible for listing or recognition as "units of enumeration" including residential facilities clearly marked as open for business as well more unusual domiciles.

Habitually mobile people who do not live anywhere as long as "six months or more" need to be enumerated on a *de facto* basis in the types of domiciles they in fact inhabit. This means that "Transient Quarters", work domiciles, and commercial accommodations (neglected in Census 2000) need to be listed and enumerated in order to improve coverage of mobile people. Hotels and motels are not only the default census residence of part of the population but also the "usual home" of some residentially stable people – a point Census 2000 Field staff made during debriefings as they questioned why hotel and motel commercial residential facilities had not been listed or enumerated.

Although this intensive research examined the census outcome of only a few hundred people, participants in the interactive social networks traced are probably not the only people in the United States who stay in a succession of camp grounds, boats, labor camps, hotels, motels, YMCAs, and if they are lucky, at friends' homes or in borrowed or rented housing week-to-week. In Census 2000, a limited number of Transient Quarters were listed and screened for enumeration by personal visit in a special operation. In the few Transient Quarters enumerated, the approach was to enumerate occupants who claimed they had no "usual" home. Other occupants of Transient Quarters were not enumerated on the spot. Rather, Field Representatives handed them a form stating the assumption that they would be enumerated back at the address of their usual home.

Recommendation 4:

> **To include the under covered Transient Quarters, work quarters, and types of residential accommodations that were unrecognized or excluded by definition as units of enumeration in Census 2000, it will be necessary to develop and test methods to expand the listings and develop more inclusive enumeration operations for types of domiciles that are often the default census residences of mobile people (among others)**.

Future censuses need to assure that all camp grounds, recreational vehicle parks, marinas, and other so-called Transient Quarters occupied as of Census Day are listed inclusively rather than selectively. In order to make enumeration easier, certain assumptions and approaches could be retooled. The list of such ambulatory and portable dwellings as recreational vehicles ("RVs"), campers, tents, and boats in Transient Quarters as "housing" for population enumeration purposes was poorly tracked before and after its insertion into the Decennial Master Address File, was by design excluded from the Master Address File and purged from the separate Group Quarters component frame soon after enumeration, was not checked automatically, and was not

fully documented nor evaluated. Few census "units of enumeration" were recognized and listed in indoor accommodations where a potentially larger number of people had their default census residences than "Transient Quarters" which are essentially outdoor facilities. In developing census lists, over 40,000 hotels and motels were identified, initially listed, and geocoded. These commercial residential facilities were screened in telephone and personal visit interviews in order to identify and list managers' apartments ("embedded housing") and those rooms or sections used to house the homeless via third-party payments from government or non-profit contracts or with vouchers. The majority of the commercial accommodations in the United States for self-paying guests in hotels, motels, and similar interior lodgings were not considered units of enumeration in Census 2000. A number of hotels were added as census addresses after active duty military declared them as their "usual home" in the "self-enumeration" organized in military units and ships.

The feasibility and cost of new approaches could be developed in small scale tests, test censuses, and panels in the American Community Survey sample areas. Two expanded operations are sketched to illustrate how certain mobile people can be included. These are to expand the ship enumeration to all fishing and other commercial U.S. registered vessels and to develop a "Check into the Census" campaign to enumerate occupants in all indoor and outdoor residential facilities whether staying overnight or longer term.

Expand the enumeration of work place vessels

One example of how census enumeration procedures can be improved to increase the chances of enumerating the habitually mobile is to extend the existing special method of ship board enumeration to all U.S. registered commercial fishing and maritime vessels. In enumerating the U.S. fishing fleet and other United States flag commercial vessels in the same manner as ships of the Merchant Marine, military, and U.S. government, fishing and other maritime crews without "usual homes" would be permitted to state as their "usual address" on shore in the United States -- where they receive mail.

The Census Bureau has established procedures and used a specialized form (the D23) for enumerating people on board ships. Shipboard personnel "self-enumerate": basically, vessel staff distribute and collect sealed individual census reports on behalf of the Census Bureau. (See United States Bureau of the Census, Census 2000, 1999, ***(8)*** Form D-23.)
As in the case of the military self-enumeration, many seaboard personnel ended up being attributed to the address of the "usual home" they declared. Like the military individual reports, the Census 2000 shipboard operation, in effect, extended the privilege of two alternative "census units of enumeration" to certain classes of individuals.

In Census 2000, a handful of fishing vessels that remain at sea continuously for six months or more were defined as units of enumeration. This literal application of a residence rule meant for people to vessels screened out whole fisheries. The duration of commercial fishing trips varies by fishery, fishing technology, region, weather, mechanical conditions, and success. In the fishery where one social network was traced, the "average trip lasts between three and seven days"

(Kitner 2001: 18). In the Atlantic, the average length of pelagic long line trips is about 13 days and varies from eight in the South Atlantic to 36 in New England (2002 SAFE Report for the Atlantic Table 5.20). Even though each trip is short, over the course of a year, a fisherman working regularly may live discontinuously at sea more than six months. Those without usual homes may stay on board a work vessel longer than anywhere else.

Kitner described the residential circumstances of commercial fishermen vis-a-vis Census Bureau rules:

> "The Census Bureau defines "usual residence" as "the place where [a] persons lives and sleeps most of the time" [31].... This seemingly straightforward and simple concept of residence becomes murky when applied to many commercial fishermen whose usual residence is aboard a fishing vessel, which in itself is a mobile unit" (Kitner 2001).

At any given time, up to half the commercial fishing fleet is at sea. Although those fishermen who are associated with stable households may be reported by their co-residents while they are at sea, this research found no one reports fishermen who are not attached to long term co-residents in conventional housing. On shore, the fishermen who were not found enumerated in Census 2000 stayed on docked boats, at cheap motels, and with friends. The fish house where they showered and shaved when they stayed aboard docked boats and where several received mail was not listed on the MAF, but was inserted into the DMAF after one man asserted the non-residential building as his "usual home" address. Not all the various beach and highway motels where fishermen stayed were listed. Neither the dock where they stayed on boats or any other marina along the coast was listed as a Transient Quarters.

Kitner noted that many fishermen's receive mail at non-residential places because they have no fixed domicile on shore. Fishermen may be more closely associated with a fishing vessel, a fleet and its landing, a particular fishery, or fishing technology than with any domicile on land. The attachment of fishermen and of fishing vessels to particular port communities varies a great deal (Fricke 1973; Orbach 1977; Griffith and Dyer 1996; McCay and Cieri 2000; Jacob and Epson 2000; Jacob et al 2002; Hall-Arber et al 2001; NMFS 2000).

Vessels where they work and stay are effective places to reach fishermen, whether they are attached or unattached to localized communities or base households. As in the case of military and shipboard enumerations in Census 2000, the proposed expansion of shipboard enumeration would supplement that based on housing units. Fishermen enumerated on vessels who are attached to shore households could declare them as their usual homes and their enumerations could be verified or inserted at census unit address of their usual homes. Extending the special method of the maritime enumeration to commercial fishing vessels is one method to enfranchise those habitually mobile fishermen who do not have a "usual home" anywhere.

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[31] ***http://www.census.gov/population/www/censusdata/resid_rules.html***

Lists of commercial fishing vessels are available from the Coast Guard, the National Marine Fisheries Service Fisheries, and other state, regional, and federal authorities that license or regulate and issue permits to U.S. commercial fishing fleet. A federal law, 46 U.S.C. 12119, requires that information on all vessels registered in the United States be updated and published each year. The United States Coast Guard's (USCG) has been annually updating the United States vessel data base which is freely available to the public and searchable on line.

The development of methods for an expanded and more complete shipboard enumeration is ideally suited to small scale tests, beginning for example with fisheries and fleets in different regions.

> "Check into the Census": an attended "Be Counted" campaign at temporary work quarters, Transient Quarters, commercial accommodations, non-profit lodgings, and other residential service sites

The "Check into the Census" campaign would apply a unified approach to enumerate occupants in the mainly outdoor residential facilities called Transient Quarters in Census 2000 (camp grounds, recreational vehicle parks, marinas, etc.) and in indoor residential service facilities including commercial hotels and motels, non-profit lodgings (YMCAs, Youth hostels), and other residential service facility sites. "Check into the Census" would apply some techniques piloted during Census 2000 operations mainly at non-residential Service-Based Enumeration sites to the diverse residential services which apparently experienced coverage gaps or were not recognized as units of enumeration at all in 2000.

The "Check into the Census" campaign would improve upon the Census 2000 "Be Counted" operation with closer attention to the distribution and collection of forms in quick turn-around (less than 24 hours). "Check into the Census" forms would resemble registration slips and collect the same information as Individual Census Questionnaires (IQC) or Be Counted forms did in Census 2000 or equivalent forms in future test and Decennial censuses. These "check in" forms would be distributed to the current occupants and new registrants at all outdoor and indoor residential facilities. In some facilities, the forms could be distributed to respondents and collected on site by cooperating staff trained and sworn by the Census Bureau. These sites would be organized with the features of a "self-enumeration" conducted by facilities staff as in the existing shipboard and military unit self-enumerations. In more remote, understaffed or larger facilities, Census Bureau staff enumerators would distribute and collect forms and assist respondents. In these sites, the operation would more closely resemble the Census 2000 Service-Based Enumeration operation. As on forms used in the Service-Based Enumeration and Be Counted supplement in Census 2000, occupants of the outdoor and indoor commercial and public accommodations could declare the address of their "usual home" if they had one, otherwise the geocoded address of the residential facility would be treated as their default unit of enumeration.

More comprehensive listing of residential facilities

The foundation for a "Check into the Census" campaign would be a more comprehensive listing of sites. The site lists should include all outdoor facilities for ambulant domiciles (camp grounds, RV parks, marinas, and the like, whether commercial or operated by local, state, or federal government agencies, where people park, camp, or dock on a paid or free basis) and all indoor commercial and non-profit lodging residential facilities. Tens of thousands of potential Check into the Census sites are already listed on the Master Address File under the rubric of special places ("in which" managers' apartments or Group Quarters are the actual units of enumeration). Hotels, motels and other indoor and outdoor accommodations, camp grounds, marinas, recreational vehicle parks, and the like are listed as establishments on the Census Bureau's Business Register. Listings of residential services are widely available from commercial sources, association directories, state health departments, and numerous on line Internet postings. (See various commercial travel and the National Parks Service Internet sites, for examples.)

Listings for the Check into the Census campaign would be for the main named residential facility. Listings would note the maximum number of interior sites or rooms and occupancy information, however individual rooms or locations would not be listed or assigned unique identifications. Listing residential facility sites as whole for the "Check in to the Census" operation will avoid elevating locations like boat slips, camper hook-ups, and tent sites, or ambulatory domiciles like boats, motorized homes, recreational vehicles, pulled trailer homes, or hotel and motel rooms to the status of (pseudo) "housing units" solely for the purpose of population enumeration.

The main site listings for camp grounds should include all federal, state and private parks and recreational areas that offer camping sites, hook-ups, rental cabins, and lodges, boat slips. Camp grounds and other so called Transient Quarters where people live who have no usual home would be enumerated in this operation, notably rural survival homeless camping on public lands. There should be no distinction between "free" and "fee" camp grounds because most public camp grounds post nominal fees although lacking mechanisms or personnel to collect the fees. The listings should include the largely private facilities for temporary and seasonal workers, such as rental agricultural labor camps, rental mobile home parks, and "farm worker" motels. These types of domiciles may be more prevalent as the temporary and seasonal quarters of migrant and seasonal workers in agriculture, recreation, construction, and similar trades than the "dormitories on farm" and "seasonal vacant housing held for migrants" that were listed in Census 2000. (Housing or dormitories for staff at "Check into the Census" residential facilities would continue to be listed as permanent housing units or Group Quarters, as appropriate.)

Information on the characteristics of the residential facilities, particularly the facilities' maximum occupancy, historic occupancy around the same time of year as "Census Day" is set, the availability of staff for training, need for assistance, and facility layouts, could be collected in a survey beginning with public information from the Internet and supplemented with telephone and

personal visit interviews. This survey would identify which residential facilities are willing and capable of self-enumeration and which facilities require more assistance from census enumerators than training, dropping off, and collecting back the completed forms. A key operational purpose of the survey would be to establish the maximum number of check in forms to be printed with the site's name, address, geocode, and census identification for distribution to occupant respondents.

Although the residential service site as a whole would be the listed and geocoded unit of enumeration, interior units like rooms, hook-ups, slips on piers and other internal units could be listed on site for short term use to control and cross-check the distribution and receipt of forms from occupants.

Forms for the Check In

Forms for the "Check into the Census" campaign would be Individual Census Questionnaires (IQCs) developed to resemble the familiar style of registration forms popular in the country. Experienced travelers are accustomed to filling out registration forms. Like enumeration operations at the Census 2000 Service-Based Sites, (but unlike the Census 2000 enumeration operations in Transient Quarters where occupants were screened out), every one occupying a residential services site, "Transient Quarters" or commercial accommodations, the night before or night of "Census Day" (or other set date) would fill out an individual census form. With the cooperation and permission of on-site residential facility staff, information to complete missing items on Check into the Census forms could be drawn from occupants' regular registrations.

"Check into the Census" forms would normally be completed by occupants and new registrants and placed in sealed envelopes at a collection point supervised by staff for pick up by Bureau personnel the next day. Every person staying in the facility and every person arriving would fill out a "Check-in" form. Co-residents who considered themselves a traveling household group could return the individual forms enclosed together in the same envelope.

As in the case of non-residential Service-Based Enumeration sites in Census 2000, every occupant in the residential service sites of the Check into the Census campaign would be enumerated. There would be no screening, or questioning, or advanced stereotyping of the character of their stay. As was the case with the less well attended Be Counted, SBE Individual Census Questionnaires, and the Military - Maritime forms, individuals enumerated on a "Check into the Census" form who declared a "usual home elsewhere" would be attributed to their usual homes as long as their information could be identified with listed housing or Group Quarters. If occupants of the residential services did not declare a usual home, or if their address could not be verified, their enumeration would be attributed to the census geography of the residential facility where the record was collected.

Travelers away from home are obviously not home to answer the census. The collection, geocoding, and census record search for the recreational campers vacationing away from home in this research demonstrates that it is feasible to collect information about vacationers' usual homes at the transient locations where they are staying temporarily. This may be more efficient

than undertaking multiple follow-up visits, encountering non-response, taking proxies from neighbors, or erroneously counting housing units left empty by travelers as vacant.

Recommendation 5:

Consider seasonal differences in the distribution of the population of the United States when estimating population, and consider the development of the capacity to measure seasonal differences in the distribution of the population.

This recommendation suggests developing survey methods to detect and measure strictly seasonal moves and the large differences that accrue in the number of people living in certain places during one season of the year. "Seasons" include climatic seasons (winter, summer) and institutional calendars such as the traditional Memorial Day to Labor Day resort season, the "school" year, academic semester and quarter calendars, and other partial year periods. Seasonal differences in the distribution of the population of the United States are a Decennial Census concern because the American Community Survey (A.C.S.) is the proposed replacement for the census long form sample. The next (2010) and future Decennials will have a different mandate if the American Community Survey (A.C.S.) replaces the once a decade collection of the sample in the census with a "rolling" survey conducted throughout the year in sample areas. On one hand, the A.C.S. is a survey vehicle which can begin to measure seasonal shifts in the population of areas; on the other, state and smaller area estimates of population using A.C.S. data collected at different times of the year may be affected by seasonal differences in the population of areas. In areas subject to seasonal population peaks and lows, the population count should be expected to vary by the month the survey is collected. Accurate estimating from samples logically requires that in areas subject to seasonal population peaks and lows, seasonal differences in the population at the time of the survey need to be taken into account in deriving estimates, rather than smoothing or raking.

Over time, the American Community Survey could collect the data necessary to measure and adjust for seasonal differences in the distribution of the population of the United States. This data would make it possible to develop a capacity to make "seasonal adjustments" in estimating the distribution of the population in the United States.

Seasonal adjustment is a pillar of the statistical interpretation of economic data in the United States. Weather and climate seasons and holiday seasons influence many economic activities. Economists do not expect (or worry) if construction starts are lower in the month of January than in June or if fewer toys are sold in August than December.

Millions of residents of the United States routinely relocate to spend a season away from their "usual residence." Agricultural and recreational areas are notable receiving areas. Foreign workers enter the United States to perform seasonal agricultural work and many leave the country at other times in the year. Students seasonally move to colleges and boarding schools as the academic year begins and leave when it ends.

In designing questions to measure seasonal relocations and other mobility information, it is important keep in mind that mobility is highly individualized, so questions need to be asked person for person. As on the Census 2000 long form, questions to identify part-year residents, addresses one or five years before, birthplace, or other information related to mobility and migration make sense for individuals. Individuals' mobility breaks up "households" or sets of co-residents. Questions about the dates, destinations, origins, motives and the like are best answered and best understood person for person: asking a respondent to characterize globally the multiple mobility histories and situations in one household could be confusing. If the general population resembles the individuals examined in this research, whole households moving from house to house – the only type of residential mobility for which the Census Bureau has collected survey data – appear to be far less common than individual moving among households and other types of domiciles.

Measurements of seasonal differences in distribution of the population can provide important information for planning social service infrastructure, economic strategies, and security. In areas which receive seasonal population influxes at times of year other than around Census Day, the static Census Day "snapshot" population counts are lower than the maximum population for which jurisdictions need to provide services. In other areas, the Census Day snapshot includes seasonal part-year residents who relocate elsewhere later in the year. Measurement of seasonal differences in the distribution of population will permit jurisdictions to plan for seasonal differences in the population and population apices, rather than population as of Census Day or on the average.

Demographers currently measure the contribution of net migration (in or out) using estimates of the population in an area for the same month at least one year apart. In areas subject to population annual peaks and lows, the figures for net migration will vary according to the month of the measure.

Seasonal flows may result in net migration, as in the case of the Midwest Mexicans, who began settling out around one stop along their former Midwest Stream migrant farm work circuit. This suggests the hypothesis that the long distant moves detected in existing surveys interpreted as net migration measure settlement, but migration flows are higher. Seasons can trigger an exodus, as in the case of the Haitians who left their local winter base community in the spring. Opportunities for farm work clearly fluctuate by climatic seasons. The Department of Agriculture quarterly farm surveys of hired workers by region have reported fluctuations in the numbers of hired farm workers since the early 1970s. In 2000 for example, this National Agricultural Statistical Service survey estimated there were 1.05 million workers on the nation's farms and ranches the week of April 9-15 – more people than the Census 2000 reported were employed in farming, forestry and fisheries occupations combined for the same period-- and 1.37 million the week of July 9-15 (Department of Agriculture, NASS:2001; American Fact Finder SF 3 Table P50).

Climatic seasons can set the parameters for inhabiting areas. The survival campers headed to the Northwest in the spring from Southwest camps warmer during winter. Seasonal workers relocated to operate recreational areas for the swell of guests vacationing between March through

October. Among younger participants and co-residents in the social networks of the fishermen and former migrant workers, students and their caretakers remained sedentary during the "school year" but soon after school ended and before sessions began again, students dispersed away from their school year (and Census Day) residences, or moved with their families. As seasons trigger migrations and relocations, seasons time event congregations. American Indians in the men's society traced, as many others, intensified travels to the more numerous pow wow gatherings held during the summer.

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