THE CENSUS UNDERCOUNT, THE UNDERGROUND ECONOMY AND UNDOCUMENTED MIGRATION: THE CASE OF DOMINICANS IN SANTURCE, PUERTO RICO .

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INTRODUCTION

Many people conceal personal information from strangers because the latter might use that knowledge to harm them. Thus, "some individuals or households or whole communities customarily and habitually resist giving information they consider as private to outsiders" (Brownrigg and Fansler 1990:27). In particular, people may not cooperate with the government because they suspect its motives in collecting data. For example, Puerto Ricans and Blacks in New York City routinely withhold information from public assistance authorities to protect illicit or irregular sources of income (Bourgois 1990). In sum, people’s fear and distrust of strangers make it difficult to conduct a complete census of the population.

In 1990, the Bureau of the Census located about 98 percent of all persons residing in the United States (U.S. Department of Commerce 1991: Table 1). However, the census faces serious obstacles in counting certain segments of the population. The undercount especially affects ethnic minorities such as Blacks, Hispanics, and Asians (for ethnographic studies of these groups, see Hudgins *et al.* 1990; Bourgois 1990; Kang 1990). The Bureau of the Census estimates that it missed 4.8 percent of the Black population, 3.1 percent of the Asian-Pacific Islander population and 5 percent of the American Indian population in 1990 (Bureau of the Census 1991: Table 4). The undercount is even higher for several subgroups such as Black men in their twenties (Hainer *et al.* 1990).

Several studies have suggested that the Hispanic undercount is even more serious than the Black undercount. The Post-Enumeration Survey estimated that the 1990 Census missed 5.2 percent of the Hispanic population in the United States (Bureau of the Census 1991: Table 4). A comparison of the Current Population Survey (CPS) with census data found that the CPS missed 20 percent of all Hispanics (Hainer *et al.* 1990:515). Ethnographic research has hypothesized five main causes of the Hispanic undercount: (1) disbelief in the confidentiality of the census; (2) distrust of government authorities (Brownrigg and Martin 1989); (3) fear of losing public assistance; (4) fear of deportation among undocumented immigrants; and (5) cultural differences in defining household structure (Harwood 1970, cited by de la Puente 1990; Bourgois 1990; Rodríguez and Hagan 1991). In short, Hispanics are subject to substantial undercoverage in the census of the United States.

In Puerto Rico, the undercount rate ranged from an estimated 2 to 3 percent in 1980 (Vázquez 1990:13). Based on demographic projections, local demographer José Vázquez Calzada estimates that the 1990 Census missed about 50,000 people in Puerto Rico, or 1.4 percent of the population *(San Juan Star* 1990). The Census Bureau's official estimate of the undercount in the 1990 Census for Puerto Rico is not yet available. The reasons for Puerto Rico's undercount have not been studied systematically. However, many areas of the Island are difficult to enumerate. One demographic study found that inner-city neighborhoods in major metropolitan areas were more difficult to count than isolated rural areas in Puerto Rico (O'Brien 1984, cited by de la Puente 1990:11).

The purpose of this study is to determine the sociocultural causes of the undercount in the 1990 Census of Puerto Rico.[2] More specifically, the study provides an Alternative Enumeration of two census blocks located in Santurce. Data were collected using ethnographic methods. This research attempts to identify all persons and housing units in these two census blocks on Census Day (April 1, 1990) as well as during the Alternative Enumeration (May 15-June 29, 1990). Furthermore, the report compares the results of the fieldwork with 1990 Census data. Finally, the report explains the discrepancies between the Alternative Enumeration and the 1990 Census count.

The study tested two basic hypotheses. First, the census missed disproportionately more undocumented immigrants from the Dominican Republic than other residents of Puerto Rico because undocumented immigrants distrust nonresidents and conceal information to protect their resources. Many Dominicans living in Puerto Rico seek to remain invisible to government authorities because of their illegal status. Second, the census missed disproportionately more workers in the underground economy than other residents of Puerto Rico. Puerto Ricans as well as Dominicans who engage in informal economic activities deliberately conceal information from outsiders.[3] In sum, we hypothesized that the presence of a large undocumented population and widespread participation in the underground economy resulted in an undercount by the 1990 Census of Puerto Rico.

METHOD[4]

Ethnographic Sample

The ethnographic site for this study consisted of two census blocks in Santurce, a *barrio*[5] of the metropolitan area of San Juan, Puerto Rico. These blocks were selected because of their high Dominican concentration, primarily residential use, and safety. Because the blocks were chosen intentionally, the results of this research cannot be generalized beyond the population under study. The sample included all housing units and persons residing within the two census blocks from May 15 to June 29, 1990. These blocks contained 148 housing units, occupied or vacant, and 325 persons. The Bureau of the Census classified this site as an ethnically mixed urban neighborhood with a large undocumented population, primarily of Hispanic origin. Table 1 summarizes the demographic characteristics of the field site for the Alternative

Enumeration.

Data Collection

Fieldwork was based on three sources of information: (1) participant observation; (2) personal interviews; and (3) archival research. Each of these sources helped to obtain a complete enumeration of the residents in the two blocks. For each source, we used a different instrument to collect data, as described below.

Our observations focused on the residents' sociocultural characteristics, their households, housing units, and neighborhood. Detailed field notes were taken on residential mobility, family structure, reading habits, concealment of information, and resistance to cooperate with the government. Six researchers conducted structured observations on these topics on multiple occasions during six weeks of fieldwork in the neighborhood. Over 160 pages of field notes, typed single-spaced, were collected and coded for further analysis.

We also interviewed a member of most households in the ethnographic site and collected basic demographic data that appear on the census of Puerto Rico this included sex, age, marital status, and relationship to the household head. (Race, an item not collected in Puerto Rico, was observed rather than asked of each respondent.)[6] In addition, we determined the residents' birthplace, national origin, and place of residence on Census Day. We also collected information on most households' sources of income. These interviews were conducted in Spanish, except in three households where respondents spoke English as their first language.

An open-ended interview schedule covered two topics of special interest: migration history and occupational experiences.[7] The first part of the interview ranged from questions on why the migrants moved to Puerto Rico, to their present kinship and friendship networks. The second part of the interview focused on the respondents' informal economic activities, particularly their sources, functions, and contribution to household income.

Finally, we created a database from administrative records on the area's residents. Although several government agencies were contacted, most did not release the residents' names and addresses to protect their confidentiality. The most useful lists were compiled from the Commonwealth Treasury Department, the Property Register, the Head Start Project, and other community organizations. These lists served to corroborate data obtained through participant observation and personal interviews.

Procedure

To begin, we surveyed the area defined as Barrio Gandul and selected two out of 23 census blocks within the area that comprise the ethnographic site. The two blocks were physically contiguous and socially similar as well as accessible to us. We purposely avoided blocks with a large commercial activity facing main thoroughfares, and those suspected to have high crime rates. Furthermore, blocks with few housing units and many empty lots were discarded for the study. Multiple-story buildings were also avoided because of the difficulties of sub-sampling within census blocks.

Secondly, we drew a map of the selected blocks. This map preserved the geographic information contained in the 1990 Census map, but added physical features such as the approximate location of all housing units and a back alley not found on the census map. Following Census Bureau procedures, housing units were enumerated clockwise within each block. This strategy facilitated the comparison between our results and the 1990 Census of Puerto Rico.

The next step was to collect archival data on the selected blocks. Sources tapped included the local electric and water companies; the State Electoral Board; the Planning Board; and local schools and churches. All available information was entered into a computer database organized by address and was later compared to the enumeration based on participant observation.

At the same time, we interviewed leaders of the community's key institutions, such as the local Baptist church and the Catholic school. These interviews facilitated our entry into the community by enlisting the leaders' support for the project. The interviews also provided a wealth of background information on the neighborhood, particularly on its social problems. We also conducted interviews with representatives of Federal, Commonwealth, and Municipal agencies related to the census and neighborhood rehabilitation. We took notes during the interviews and later wrote detailed summaries.

The fieldwork itself was divided into three research teams with two members each.[8] Each team was responsible for enumerating and observing about 50 housing units within one block. Initially, we established visual contact with residents, without asking personal questions. At this stage, we recorded the residents' physical features (such as sex, race, and approximate age) as they left and entered their houses and in the street. We explained that we were conducting a study for the University of the Sacred Heart on the population of Santurce and its social problems.[9] If necessary, we added that we were trying to determine whether the census had counted all the residents in the area. We later approached residents to engage in informal conversation and establish rapport.

At this point, all addresses within the selected blocks were listed and described. We noted street names, number of housing units, and other identifying features such as apartment numbers and location. Each housing unit was classified as a house or building, and as occupied, vacant, or boarded up. This information was based upon direct inspection of housing structures whenever possible.

Afterwards, we enumerated all individuals residing within the blocks, based on personal observation and interviews. In addition to recording basic demographic characteristics, we observed behaviors related to the census undercount, such as language and literacy habits. These data were entered in two separate logs of systematic observations on households and individuals.

The results were later coded and analyzed statistically.

Toward the end of the fieldwork, we conducted intensive interviews with 30 residents willing to cooperate further with us. These interviews were embedded in informal conversations with adult members of the households. We took brief note of the informants' answers and later expanded upon them in field reports. These interviews generated about 50 pages of typed, single-spaced notes.

The last step in the procedure was matching the results of the Alternative Enumeration with 1990 Census data. The Center for Survey Methods Research at the Bureau of the Census conducted the initial matching by name, race, sex, and other demographic and household characteristics. We reviewed the matching report and resolved conflicts in the two data sets based on our field notes. A resolved list of housing units and persons residing in the two blocks on Census Day was submitted to the Bureau of the Census. This list provided much of the preliminary data reported in this paper.

RESEARCH SITE PROFILE

General Background

Barrio Gandul is located in the southwestern portion of Santurce, Puerto Rico. According to the Census, the boundaries of Barrio Gandul are Ponce de León Avenue to the north, San Juan Street to the east, Palmas Street to the south, and Cerra Street to the west. The neighborhood is intersected from north to south by Ernesto Cerra Street and from west to east by Fernández Juncos Avenue. The entire area, measuring about 43 *cuerdas,*[10] lies in the central business district of Santurce.

Contrary to other parts of Santurce, Barrio Gandul is primarily residential. A recent survey of the two Census blocks under study showed that 92 percent of all housing units were used for residential purposes (Estudios Técnicos 1989). In contrast, another study of central Santurce found that 41 percent of its physical structures were used for commercial purposes (Castañeda, Domenech, and Figueroa 1987).

Barrio Gandul bustles with public activity during the day and part of the night. Old men, women, and children constantly walk in the streets, especially along the two main avenues, Ponce de León and Fernández Juncos, and on Ernesto Cerra Street. These thoroughfares are lined by small businesses such as cafeterias, corner bars, grocery stores, barber shops, beauty parlors, and repair shops. Large stores and office buildings are also located along the main avenues. The neighborhood contains several public and private schools and churches, mostly Protestant. Perhaps the most distinctive characteristic of the neighborhood is the perennial aroma from a nearby coffee factory.

Historical Development
Barrio Gandul was established as a working-class neighborhood of Santurce between 1900 and 1930 (Flores *et al.* 1984). The neighborhood was defined by its access to the trolley along Ponce de León Avenue and the railroad along Palmas Street. In 1915, a causeway and drawbridge extended Highway No. 2 from Santurce across the bay to the outlying city of Bayamón. The intersection between Ponce de León and Ernesto Cerra, known as Parada 15, was the only connection between Santurce and Bayamón until the 1950s. During this decade, Labra Street on Parada 18 was extended and linked with the bridge to Bayamón. Thus, Barrio Gandul lost its character as a way-station between San Juan and the rest of the Island.

Many residents recall the origins and development of Barrio Gandul. The name of the neighborhood derives from the large number of *gandul*[11] plants that once grew there. The original inhabitants of the area were former slaves who worked the land of a wealthy Spaniard, don Vicente Balbás Peña, whose heirs still own much of the property. One aging man remembered the dirt roads and wooden shacks that dominated the landscape at the turn of the century. "Gandul was then an area of swamps and mangroves, surrounded by ditches to drain the water from the swamps," said a woman who arrived in 1918 (Cruz Rodríguez *et al.* 1990:9). Another resident remarked that Ernesto Cerra Street resembled an open-air market full of vegetables and fruits. Some residents miss the old days when Barrio Gandul was safer and more lively. "The community was poor but it was fantastic," said a young woman raised in the neighborhood. "We used to live here with pride, tranquility, and happiness."

Barrio Gandul has recently become a less desirable place for many residents. "Parada 15 has gained a bad reputation as a center of infection for AIDS," lamented a young resident. Moreover, the neighborhood has been transformed with the influx of immigrants, especially from the Dominican Republic. Older residents constantly complain that the immigrants supposedly make a lot of noise and do not dispose of garbage properly. "Foreigners throw their trash from the second floor of your house or leave it outside on Friday to have it picked up on Monday," said an old Puerto Rican woman. "The problem of this community is the foreigner," added another native resident. Dominicans compete dishonestly with Puerto Ricans for scarce jobs, according to one woman who lost her business because immigrant retailers outpriced her liquor store.

Physical Structures
Today, Barrio Gandul has various types of dwellings. The most common type along the main streets is a multiple-story building with small apartments and rooms for rent. Many structures have two floors, often occupied by a business on the first floor and a residence on the second floor. The area's cross-streets contain predominantly single-story houses, usually with a small apartment or converted unit in the back yard. In the field site, two out of three housing structures had one floor, and one out of three had two or more floors. Most of the houses were built with cement, but some were wooden and zinc structures. About 55 percent of the housing units were considered to

be in good condition, whereas 45 percent were deteriorated or inadequate (Estudios Técnicos 1989).

Barrio Gandul has a relatively high vacancy rate. According to the AE the two census blocks that comprise the ethnographic site contained 148 housing units. Of these 22 housing units were vacant, a 15.3 percent vacancy rate. This rate compares unfavorably with nearby areas of Santurce, such as Barrio Figueroa and Tras Talleres. Barrio Figueroa had a 5 percent vacancy rate in 1985 and Tras Talleres had a 6 percent vacancy rate in 1980 (Municipio de San Juan 1985:11; Flores *et al.* 1984:69).

The Population

The racial composition of Barrio Gandul is not known precisely because the census does not collect data on race in Puerto Rico. However, participant observation in the neighborhood suggests that about 55 percent of the residents were Black or mulatto (see Table 1). With regard to ethnic composition, Barrio Gandul has one of the highest proportions of foreign immigrants in Santurce. The 1980 Census found that 18 percent of the residents had been born outside of Puerto Rico and the United States (U.S. Department of Commerce 1984: Table P-2). Our 1987 survey revealed that about 25 percent of the population of Barrio Gandul had been born in the Dominican Republic (Duany 1990). Our most recent enumeration of the two census blocks found that a third of the residents was Dominican in origin (Table 1). Apart from the Dominican Republic, foreign immigrants came from St. Kitts, Anguila, Dominica, Cuba, and Colombia. A few Puerto Ricans were born in the United States.

Many of the older residents are immigrants from other parts of Puerto Rico (see Table 2). Only one out of four persons living in the blocks under study was born in Santurce. Many were rural migrants, especially from the Island's central highlands, who came to Santurce during the 1930s and 1940s. Half of the Puerto Ricans were born outside the San Juan metropolitan area, mostly in rural *municipios* such as Morovis, Vega Alta, and Fajardo. Most of the Dominicans were born outside the four largest cities of the Dominican Republic (Santo Domingo, Santiago, La Romana, and San Pedro de Macorís). The single largest number of Dominicans (22) came from the small town of Moca and several (10) came from Miches and Higüey.[12] One third of the Dominicans were undocumented immigrants;[13] two-thirds arrived in Puerto Rico after 1980. Thus, most residents of Barrio Gandul, Puerto Rican or Dominican, immigrated to Santurce, although at different points in time.

The socioeconomic characteristics of Barrio Gandul are predominantly those of a working-class population. In 1980, one third of the area's families lived under the poverty level and the unemployment rate hovered around 11 percent. The majority of the residents were employed as service workers, craft workers, operatives, and laborers. Most persons over 25 years of age had a low level of schooling; less than half had graduated from high school in 1980 (U.S. Department of Commerce 1984: Tables P-1, P-2). In sum, Barrio Gandul's residents tend to have a low socioeconomic status.

Still, the neighborhood is diverse. A recent study of one of our census blocks determined that half the residents rented their housing units and the other half owned them (DACO 1988). Another survey of Barrio Gandul found that one-fourth of the residents rented houses and one-fifth rented apartments (Cruz Rodríguez *et al.* 1990:19). Furthermore, many property owners lease the land from the Sucesión Balbás Peña and many tenants sublet rooms to other residents. Thus, the neighborhood has a four-tiered tenure structure, from boarders and tenants to leasers and landowners.

Most households in Barrio Gandul lie outside the formal economy (see Table 3). In our site, only 41 percent of the households received wages from regular employment and registered businesses as their primary source of income. About one-fourth of the households relied on retirement and disability pensions. Most households combined temporary, occasional, or seasonal labor with other sources of income, such as unregistered businesses and public assistance. Contrary to popular stereotypes of working-class neighborhoods, public assistance was a secondary source of household income. In short, households in Barrio Gandul tended to have irregular, unstable, and unreported sources of income.

Data on individual residents confirm the pattern outlined above (see Table 4). The primary source of income for most residents was not regular employment, but a combination of casual labor, public assistance, and other sources such as retirement and disability pensions. Only one individual reported an illegal source of income, trafficking with undocumented immigrants from the Dominican Republic. Many Dominican women did domestic work on a temporary, occasional, or seasonal basis. The men tended to be self-employed as craft and repair workers, especially in construction and repair services. Thus, most residents of Barrio Gandul did not receive wages on a fixed schedule or qualify for fringe benefits such as medical insurance and social security. In this sense, they were part of an underground economy.

In Puerto Rico, odd jobs are popularly known as *chiripas;* and they include petty commodity production, sales, and services as well as paid employment outside the formal economy (Petrovich and Laureano 1986-87). In Barrio Gandul, we found people who cleaned houses; repaired cars in the streets; collected aluminum cans and bottles; sold home-made *limbers* (ice cones); cooked *pasteles* (a local food); did alterations on clothes; maintained gardens and lawns; painted commercial signs for small businesses; and sold fruits and vegetables in a small truck. Such activities often supplemented income from formal employment and public assistance. In this regard, the informal economy served as a survival strategy for the neighborhood's poor residents.

In sum, Barrio Gandul is difficult to enumerate for several reasons. The prevailing cost of housing is lower than in other parts of Santurce; most housing units are rented for less than $200 a month (DACO 1988). Although the neighborhood contains schools and places where reading materials are distributed, most residents are not active readers and some are barely literate. This feature may help to explain why some residents did not complete the census form.[14] Moreover, the most common level of education among persons over age 18 is primary school. Finally, local residents and the general public perceive Barrio Gandul as a crime-ridden area, although participant observation and police statistics suggest that it is much safer than other parts of Santurce (see Flores *et al.* 1984). The following pages will document and discuss the census undercount of Barrio Gandul.

QUANTITATIVE ANALYSIS

The quantitative analysis that follows focuses on housing units and individuals.

Housing Units

Based on preliminary estimates, the census enumerated a total of 107 housing units, of these, 6 were duplicates, 3 were misgeocoded and 1 was a non-existent housing unit. Of the remaining 97 housing units the census correctly enumerated 84 occupied units and 13 vacant units. Most of the units were located in buildings with two or more apartments. About 43 percent of the units were subsidized by the government under the local rent control program.

Individuals

The census omission rate at the site was 27 percent.[1] A total of 73 individuals were missed by the census. Table 5 displays the demographic characteristics of individuals missed by the census and individuals correctly enumerated by the census. This table shows that relatively more men than women were omitted from the census. Mulattos were relatively more likely to be left off the census than Whites and Blacks. Individual ages 30 to 44 were more likely to be missed by the census than individuals in the other age categories displayed in Table 5. And finally, unmarried partners, stepsons and stepdaughters and grandson and granddaughters were comparably more prone to be missed by the census than any of the other relationship categories.

We estimate that the census omitted 15 out of 40 informal workers (38 percent) in our ethnographic sample. Informality tended to be associated with immigrant status. Nearly half (48 percent) of all Dominican immigrants in the site were informal workers. Many of these *chiriperos* were not reported to the census because of their clandestine labor situation. Even though the short census form does not ask employment questions, many informal workers avoided giving personal information to strangers.

QUALITATIVE ANALYSIS

The results of this research will be discussed in terms of five basic hypotheses about

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[1] The census omission rate was calculated by dividing individuals found by the Alternative Enumeration (AE) but not the census (n=74) by individuals found by the AE and the census (n=275).

the sociocultural causes of the census undercount: (1) residential mobility; (2) language and literacy; (3) irregular housing and unusual households; (4) concealment; and (5) resistance.[16] This section will pay special attention to concealment by undocumented immigrants and informal workers, the two major concerns of this study. The evidence suggests that the latter factor explains much of the census undercount of Barrio Gandul. In this respect, the neighborhood resembles Little Haiti in Miami (Stepick and Stepick 1990b) and Spanish Harlem in New York City (Bourgois 1990).

Residential Mobility

Barrio Gandul has a high rate of residential mobility. One of the sociocultural variables that influence mobility in the neighborhood is the familiar pattern of foreign immigration and native out migration. The availability of low-cost housing in Barrio Gandul, as well as its central location, attracts Dominican immigrants. Dominicans also enter the area because they have relatives or friends who live there and can help them to find jobs and housing. At the same time, Puerto Rican residents find Barrio Gandul increasingly undesirable. Crime, drug addiction, and prostitution have tarnished the neighborhood's public image. Furthermore, the area's high vacancy rate attracts many homeless people, whom established residents dislike because of their alleged drug addiction and alcoholism. In sum, Barrio Gandul has a substantial population flux that is difficult to census.

International migration has had a stronger impact on Barrio Gandul than on most neighborhoods in Puerto Rico (Duany 1990). In the past two decades, newcomers have arrived en masse from the Dominican Republic, and in smaller numbers from the English-speaking Caribbean (St. Kitts, Anguila, Dominica) and other Latin American countries (such as Cuba and Colombia). The Dominican community in Barrio Gandul serves as a major gateway to other low-income neighborhoods in Santurce, such as Barrio Obrero and Villa Palmeras. Undocumented immigrants tend to live in single rooms and small apartments rented by their compatriots and thus become invisible to outsiders. In many cases, Dominicans cluster in difficult to enumerate housing units such as large apartment buildings and converted units in back alleys. Often hidden from public view, these units provide an excellent refuge for clandestine workers. Residence in these units tends to be of short duration, thereby making it more difficult to count a highly mobile population.

Immigrant status is thus an important variable in the census undercount of Barrio Gandul. According to our preliminary estimates, Dominicans were almost twice as likely as Puerto Ricans to be missed by the census. The reasons for the relatively high census omission of the foreign-born are discussed below.

Language and Literacy

Language and literacy accounted for a small part of the census undercount of Barrio Gandul. For one thing, the vast majority of the residents received their census forms in Spanish, their home language. For another, Spanish-speaking enumerators censused most households. Spanish, rather than English, constituted a barrier for three households whose home language was English. The census counted only one of these households. Compared to the mainland United States, the language situation in Puerto Rico is inverted. However, the language barrier to full enumeration is much less important in the Island than in the mainland.

Literacy also played a minor role in this site because most residents did not fill out a census form; census enumerators visited most households to collect the necessary information. Should local census procedures change, Barrio Gandul would be exposed to an even higher undercoverage than in 1990. Most residents are not comfortable reading and writing documents such as tax returns and welfare applications. They either do not have to file such forms or have them completed by the appropriate government agency. In this regard, the strategy of door-to-door enumeration has proven more effective than mail returns in Puerto Rico.

Irregular Housing and Unusual Households

Unlike language and literacy, irregular housing was a leading cause of undercount in Barrio Gandul. Many housing units were not recognized as living quarters by census enumerators and, initially, by us. The most glaring omission was an entire nuclei of eight housing units located in a back alley that did not appear in the census map. Other omissions included converted and reconverted units, especially vacant ones at the time of the Alternative Enumeration. The irregular housing pattern of the neighborhood stemmed from its untidy property structure, in which many yards *(parcelas)* were subdivided into smaller lots containing several units. A single address typically had a multiple set of housing units. This situation confuses outsiders and makes it difficult to census the neighborhood.

Furthermore, most households in Barrio Gandul deviate from the middle-class ideal of the nuclear family. Rather, the majority of the households were single-person, single-parent, or extended families. Ambiguous residents included unmarried partners and distant relatives who do not fit easily into conventional census definitions. Some household members maintained alternative residences in Puerto Rico, the Dominican Republic, and the United States. It is therefore difficult to define the permanent or transient status of many residents for census purposes.

As noted before, ambiguous residence was a significant component of the undercount of Barrio Gandul. In our ethnographic site, ambiguous residents tended to be young, male, single Dominicans living in buildings with two or more apartments. In a typical case, one Dominican young man slept in his aunt’s one-bedroom apartment during the day and worked by night as a part-time waiter. His aunt did not declare him as a resident because she considered him a member of her sister’s household in a nearby condominium. Similar cases of unclear relationship to other household members were documented during repeated observations and interviews.

Concealment

Residents of Barrio Gandul conceal members of their households for three main reasons. First, Dominicans hide undocumented immigrants who fear deportation by government authorities. For example, the census did not count three members of an immigrant household in the site. All three were undocumented Dominicans who rented rooms in the house. The head, a Dominican woman, did not declare the men as members of her household. However, repeated observations and interviews confirmed their residence in the unit. One of the men had recently arrived from the Dominican Republic, while another was apparently moving out. A third denied being Dominican, despite his strong Dominican accent. These cases illustrate the pattern of selective reporting common among undercounted groups, including Blacks (Hudgins 1989).

A second type of concealment involves people with an ambiguous relationship to the household head, especially unmarried partners. One Puerto Rican woman said that she maintained her three children by herself, although she did not receive a salary. Her only sources of income were allegedly public assistance, food stamps, and child alimony. On the last week of fieldwork, we saw a man park his car in front of the house and enter the premises. His brother, who lived next door, confirmed that the man lived in the house and was married to the household head. We believe that the woman was protecting her sources of income by not including her partner as part of her household. This undercount pattern is found in low-income communities that depend on welfare and other government subsidies (see Bourgois 1990).

Finally, the census missed informal workers because of their clandestine, "off-the-books" situation. One retired individual received both a disability pension and a Social Security check. In addition, he did odd jobs as a painter of commercial signs for small businesses such as restaurants and cafeterias. The man was secretive about his occupation because he could lose his pension if his former employer found out about it. We did not know about his artistic abilities until the end of our fieldwork. Like other informal workers, the man withheld information about his income-generating activities from outsiders (see Castells and Portes 1989). Census enumerators missed this man because he lived in a difficult to enumerate unit and was extremely suspicious of strangers to the community.

Resistance

Refusal to cooperate with the census was not a crucial issue in our site. Most residents were willing to participate in our study as well as in the census. On average, we contacted a household member on the second visit; only 12 households refused to cooperate with us. We found few instances of open defiance and opposition to the census or the local government. However, many residents were wary of probes into their private lives. The sample area had been surveyed intensively prior to our arrival by several local agencies, including the Department of Consumer Affairs, the Planning Board, and the School of Social Work. Census enumerators returned to the site in mid-June and coincided with our fieldwork there. Yet residents had seen little improvement in their community as a result of these surveys. Some residents were understandably suspicious of our motives as researchers, but most were willing to talk to us. A few invited us to drink and eat in their front porches. We observed a similar attitude toward census enumerators.

Resistance was initially greater among Dominican members of the community. In one instance, a Dominican research assistant felt threatened by several Dominican women who cornered her in a back alley and questioned her intentions. Some immigrants were concerned that we might be working for the U.S. Immigration and Naturalization Service. But after the first few weeks, we gained the trust of many Dominican residents. In the end, Dominicans were often friendlier than Puerto Ricans. We suspect that census enumerators had problems counting Dominicans because enumerators spent little time in the neighborhood and were unable to establish rapport with most residents.

CONCLUSIONS AND RECOMMENDATIONS

This study has shown that the census faces many of the same obstacles in Puerto Rico as in the mainland United States. To begin, Island residents often conceal information from enumerators to protect their resources. In particular, concealment due to undocumented migration and economic informality explain much of the undercoverage. In Barrio Gandul, irregular housing arrangements is a major cause of the census undercount. Language and literacy are minor barriers to censusing in Puerto Rico, except among English-speaking immigrants. Nor does resistance to government authorities characterize the community that we studied, which we feel is fairly typical of lower-class urban neighborhoods in the Island.

As an inner-city ghetto, Barrio Gandul is subject to census undercoverage for several reasons. First, the residents' low socioeconomic status is associated with primary educational levels. Second, the neighborhood is stigmatized as a center of prostitution, drug addiction, crime, and other vices. Third, most housing units have irregular addresses and many are not easily recognized as living quarters. Fourth, most households do not conform to the nuclear family model of middle-class neighborhoods. Finally, participants in the underground economy are often not reported to outsiders.

The census clearly needs to improve its coverage of ethnically mixed, urban areas such as Barrio Gandul. In particular, the Bureau of the Census should revise and update its address lists and maps more thoroughly by means of field visits and archival documentation. Cross-checking lists from several government agencies, such as the Commonwealth Treasury Department and the water and electric companies, should generate more reliable information than is presently available. Moreover, census enumerators should be trained to observe and record housing units and households common in low-income neighborhoods. In our site, the census missed a large proportion of vacant units and single-person households. The census should especially target such housing types in the year 2000.

Finally, the Bureau of the Census should make a greater effort to reach out to Puerto Rico's immigrant population, especially undocumented Dominicans. More specifically, the census should stress its confidentiality and lack of connection with U.S. immigration authorities and the local police. Outreach campaigns can be better coordinated with the Dominican consulates in San Juan and Mayagüez as well as voluntary associations such as the Association of Dominican Businessmen and Professionals. Ethnic media, particularly radio programs and newspapers, should be tapped further to increase census awareness among Dominican immigrants. Lastly, the census should recruit more Dominican enumerators in areas of immigrant concentration, such as Barrio Gandul, Barrio Obrero, and Villa Palmeras. These strategies should help to reduce the census undercount of undocumented Dominicans in Puerto Rico in the year 2000.

TABLE 1

CHARACTERISTICS OF THE RESEARCH SITE
IN BARRIO GANDUL PER THE ALTERNATIVE ENUMERATION

Characteristic	Number[a]	Percent
Sex		
Male	151	51.0
Female	145	49.0
Age		
0-6	23	7.8
7-14	24	8.2
15-18	18	6.1
19-29	38	12.9
30-44	77	26.2
45-64	57	19.4
65-and over	56	19.1
Race		
White	121	44.8
Black	90	33.3
Mulatto	59	21.8
Ethnicity[b]		
Puerto Rican	186	63.0
Dominican	98	33.2
Other	11	3.7
Marital Status		
Single	147	51.9
Married	94	33.2
Separated	11	3.9
Divorced	13	4.6
Widowed	18	6.3

[a] The total number of cases varies, due to missing information.

[b] Refers to national origin, regardless of birthplace.

Source: Author's Alternative Enumeration. Note: The Census of Puerto Rico does not request “race” identifications.

TABLE 2

BIRTHPLACE OF THE RESIDENTS
OF BARRIO GANDUL PER THE ALTERNATIVE ENUMERATION

Birthplace	Number[a]	Percent
Puerto Rico		
Santurce	84	27.4
Other San Juan	15	4.9
Other major cities	17	5.5
Other *municipios*	45	14.7
Unspecified	32	10.4
Subtotal	193	62.9
Dominican Republic		
Santo Domingo	14	4.6
Other major cities	14	4.6
Other places	54	17.6
Unspecified	16	5.2
Subtotal	98	32.0
Other countries		
St. Kitts	7	2.3
United States	5	1.6
Anguila	1	.3
Colombia	1	.3
Cuba	1	.3
Dominica	1	.3
Subtotal	16	5.1
TOTAL	307	100.0

[a] Total Number of Cases Varies Due to Missing Information

Source: Author's alternative enumeration.

TABLE 3

PRIMARY SOURCE OF HOUSEHOLD INCOME
IN BARRIO GANDUL PER THE ALTERNATIVE ENUMERATION

Source	Number[a]	**Percent**
Regular employment	42	37.8
Temporary, occasional, or seasonal labor	14	12.6
Licensed business with locale	3	2.7
Farm or artisanal enterprise	1	.9
Unregistered business	9	8.1
Retirement or disability pensions	27	24.3
Rents, dividends, and interest	4	3.6
Public assistance	6	5.4
Child support	1	.9
Other[b]	4	3.6
Total	111	99.9

[a] Excludes 3 missing cases.

[b] Includes family support.

Source: Author's alternative enumeration.

TABLE 4

PRIMARY SOURCE OF INCOME OF SELECTED
INDIVIDUALS IN BARRIO GANDUL PER THE ALTERNATIVE ENUMERATION

Source	Number	Percent
Regular employment	27	23.9
Temporary, occasional, or seasonal labor	31	27.4
"Off-the-books" employment or unregistered business	9	8.0
Illegal income	1	.9
Public assistance	7	6.2
Other[a]	38	33.6
Total	113	100.0

[a] Includes retirement and disability pensions.

Source: Author's Alternative Enumeration.

TABLE 5
CHARACTERISTICS OF INDIVIDUALS MISSED BY THE CENSUS
BUT COUNTED BY THE ALTERNATIVE ENUMERATION OF BARRIO GANDUL
(IN PERCENTAGES)

Characteristic	Correctly Enumerated By the Census[2] (N=202)	Missed by the Census (N=73)
Sex		
Male	60.0	26.9
Female	66.3	18.8
Age		
0-6	56.7	16.7
7-14	69.2	15.4
15-18	64.7	17.7
19-29	65.0	25.0
30-44	22.8	32.5
45-64	59.0	27.9
65 and over	73.0	11.1
Missing data	1.0	1.4
Race		
White	80.0	20.0
Black	72.7	27.3
Mulatto	61.1	35.2
Missing data	10.4	13.7
Relationship to household head		
Householder	64.8	23.8
Husband/wife	68.9	17.8
Daughter/son	70.0	16.3
Stepson/stepdaughter	33.3	66.7
Father/mother	50.0	25.0
Brother/sister	50.0	10.0
Grandson/granddaughter	60.0	33.3
Other relative	70.0	10.0
Unmarried partner	10.0	70.0
Housemate/roommate	100.0	0.0
Boarder	0.0	100.0
Missing data	0.0	5.5

Note: A total of 73 individuals were not enumerated by the census within the sample area. These individuals may have been enumerated by the census elsewhere.

Sources: Author's Alternative Enumeration and Census data.

[2] A total of 202 individuals were correctly enumerated by the census within the sample area. Excluded from this total are individuals who were incorrectly enumerated by the census and individuals whose Census Day status cannot be determined.

END NOTES

1. This research was supported by a Joint Statistical Agreement between the Bureau of the Census and the University of the Sacred Heart. The co-principal investigators for the project were César A. Rey and Luisa Hernández Angueira. I appreciate the comments and suggestions on an earlier draft of this report by Manuel de la Puente, Elizabeth Martin, and Leslie Brownrigg of the Center for Survey Methods Research at the U.S. Census Bureau. I also wish to thank my wife, Diana R. Johnson, Sonia Castro Cardona, and Cecilia Rodríguez for their research assistance. Finally, I appreciate Angie Rivera's secretarial support and Ricardo Barahona's help with data processing and analysis.

2. This research was the only ethnographic study of the Island funded by the Bureau of the Census as part of the Ethnographic Evaluation of the Behavioral Causes of Census Undercount project. Twenty-eight sample areas were located in the mainland.

3. The other major study of the census undercount due to participation in the underground economy (Bourgois 1990) focused on its illegal aspects, mainly drug trafficking. However, the present study concentrates on the legal aspects of the underground economy, that is, on "unregistered businesses that pay no taxes" (Stepick and Stepick 1990b:44). We adopted the definition of the underground or informal economy offered by Castells and Portes (1989) as the sum total of income-generating activities, excluding those involving contractual and legally regulated employment. For a pioneering study of the informal economy in Puerto Rico, see Petrovich and Laureano (1986-87).

4. Methodologically, we followed closely the guidelines for the Alternative Enumeration of the Center for Survey Methods Research of the Bureau of the Census (Brownrigg and Fansler 1990), as well as Rynearson and Gosebrink's (1989) study of Laotian refugees in St. Louis, Missouri. For a perceptive methodological discussion dealing with Haitian immigrants in Miami, Florida, see Stepick and Stepick (1990a).

5. For census purposes, a *barrio* is defined as the primary legal subdivision of a *municipio,* the equivalent of a county in the United States. "From a sociological perspective, the popular concept or image of a barrio in Puerto Rico does not coincide with this census statistical version" (Sperling 1990:116).

6. The Bureau of the Census' guidelines asked us to "report the race the person considers himself/herself to be" (Fansler and Brownrigg 1990:11). However, asking Puerto Ricans and Dominicans about their race was embarrassing for respondents as well as for researchers. We therefore decided to classify each person's physical appearance in one of three categories: White, Black, or mulatto. This classification was primarily based on the person's skin color. Although this method is not scientifically valid, it offers an approximate assessment of the residents' racial identity, judged by local standards.

7. In designing this instrument, we followed Wayne Cornelius' (1981) sound methodological advice on interviewing undocumented immigrants.

8. The researchers included a Puerto Rican husband and wife, two Dominican women,

and a Cuban husband and wife. Four of the researchers were white in physical appearance and two were mulatto; in age they ranged from 28 to 39 years.

9. Many residents assigned us a personal identity other than academic researchers. For example, people asked us if we worked for FEMA (the Federal Emergency Management Administration); the FBI; or a Protestant Church like the Mormons. Our most commonly attributed identity was employees of a government agency, such as the Planning Board and the Housing Department.

10. One *cuerda* is roughly equivalent to an acre.

11. *Gandul* is the African-derived name of an edible grain that grows on a shrub. It also means "lazy" or "vagabond" in Spanish.

12. The latter two towns are major senders of undocumented migrants from the Dominican Republic to Puerto Rico.

13. For the purposes of this research, undocumented immigrants were identified in three major ways. First, some people openly told us that they did not "have papers," meaning a U.S. immigrant visa. Second, we assumed that foreigners who had arrived in Puerto Rico after the general amnesty of 1986 were undocumented. Finally, immigrants who did not want to discuss their legal status or were very uneasy with the topic were classified as undocumented.

14. However, most of the 1990 Census of Puerto Rico was conducted door-to-door by census enumerators rather than by mail as in most parts of the United States (Armstrong 1990). Only five states used traditional non-mail census methods to enumerate most addresses (Griffin *et al.* 1990:1). In our site, enumerators censused 87 percent of the residents.

15. This report does not focus specifically on two variables associated with the census undercount in the United States, language and literacy, because the vast majority of the residents in the sample area spoke Spanish (the main census language in Puerto Rico) and were not observed to read or write frequently.

16. These hypotheses were derived from past fieldwork on the census undercount (Brownrigg and Martin 1989).

REFERENCES CITED

Armstrong, Fernando
1990 Personal interview. Bureau of the Census, San Juan, Puerto Rico, June 14.

Bourgois, Philippe
1990 Hypotheses and ethnographic analysis of concealment in the underground economy: the economic and ideologic dynamics of the census undercount. Ethnographic Exploratory Research Paper No. 6. Undercount Behavioral Research Group, Bureau of the Census, Washington, D.C., March.

Bravo, Esther
1990 Personal interview. Neighborhood Association of Alto del Cabro, Santurce, Puerto Rico, June 25.

Brownrigg, Leslie A., and Elizabeth Martin
1989 Proposed study plan for Ethnographic Evaluation of the Behavioral Causes of Undercount. Paper prepared for the Committee of the American Statistical Association and the Census Advisory Committee on Population Statistics at the Joint Advisory Committee Meeting, Alexandria, Virginia, April 13-14.

Brownrigg, Leslie A., and Elaine Fansler
1990 1990 Guidelines for the Alternative Enumeration. Part Three: Behavioral Observations. Bureau of the Census, Washington, D.C. Photocopy.

Bureau of the Census, Economics and Statistics Administration
1991 Census Bureau releases refined estimates from Post-Enumeration Survey of 1990 Census coverage, ***United States Department of Commerce News,*** June 13, 1991.

Castañeda, I., N. Domenech Abreu, and O. Figueroa Navedo
1987 Una identificación de necesidades y recursos en las personas deambulantes de Santurce. Master's thesis, University of Puerto Rico, Río Piedras.

Castells, Manuel, and Alejandro Portes
1989 World underneath: the origins, dynamics, and effects of the informal economy, IN: Alejandro Portes, Manuel Castells, and Lauren Benton, eds., ***The informal economy: studies in advanced and less Developed Countries****.* Baltimore: The Johns Hopkins University Press.

Cornelius, Wayne A.
1981 *Interviewing undocumented immigrants: methodological reflections based on fieldwork in Mexico and the United States.* Working Paper in U.S.-Mexican Studies 2, Program in United States-Mexican Studies, University of California, San Diego.

Cruz Rodríguez, Aida Iris, Nicolás García Trinidad, Vivian E.Díaz Vázquez, and Nora I.

Ortiz Navarro
1990 Perfil sub-barrio Gandul: Santurce, Puerto Rico. Unpublished paper, Graduate School of Social Work, University of Puerto Rico, Río Piedras.

DACO (Departamento de Asuntos del Consumidor)
1988 Estudio sobre la ley de alquileres razonables en Puerto Rico. Unpublished data.

de la Puente, Manuel
1990 The Census undercount of the Hispanic Population. . ***Latino Studies Journal*** Volume III (January): Number 1.

Duany, Jorge, ed.
1990 ***Los dominicanos en Puerto Rico: Migración en la semi-periferia****.* Río Piedras: Huracán.

Estudios Técnicos
1989 Inventario de estructuras para el sector central de Santurce. Prepared for the Puerto Rico Planning Board. Unpublished data.

Fansler, Elaine, and Leslie A. Brownrigg
1990 1990 Guidelines for the Alternative Enumeration. Part Two: Presentation of the Alternative Enumeration. Bureau of the Census, Washington, D.C. Photocopy.

Flores, Luis, Torres, Beauchamp, Marvel
1984 *Santurce: Un ordenamiento urbano.* Photocopy.

Griffin, Deborah, Joan M. Pausche, Emilda B. Rivers, Amy L. Tillman, and James B. Treat
1990 Improving the coverage of addresses in the 1990 Census: preliminary results. Paper presented at the Annual Meeting of the American Statistical Association, Anaheim, California, August.

Hainer, Peter, Catherine Hines, Elizabeth Martin, and Gary Shapiro
1990 Research on improving coverage in household surveys. Photocopy.

Hogan, Howard
1989 Nine years of coverage evaluation research: what have we learned? *Proceedings of the American Statistical Association.*

1991 The Post-Enumeration Survey: an overview. Proceedings of the American Statistical Association.

Hudgins, John
1989 Black men and their households. Paper presented at the Ethnographic Census Evaluation Conference, Bureau of the Census, New Orleans, Louisiana, December 12-14.

Hudgins, John L., Bernadette J. Holmes, and Mamie Locke
1990 The impact of family structure variations among Black families on the

under-enumeration of Black males. part I: review of the literature. Ethnographic Exploratory Research Paper No. 7, Undercount Behavioral Research Group, Bureau of the Census, Washington, D.C., March.

Kang, Tai S.
1990 An ethnography of Koreans in Queens, New York and elsewhere in the United States. Ethnographic Exploratory Research Paper No. 8, Undercount Behavioral Research Group, Bureau of the Census, Washington, D.C., March.

Martin, Elizabeth, Leslie A. Brownrigg, and Robert E. Fay
1990 Results of ethnographic studies of 1988 Dress Rehearsal Census coverage. *Proceedings of the American Statistical Association.*

Municipio de San Juan, Oficina de Planificación y Presupuesto
1985 Estudio descriptivo de la Comunidad Figueroa. Photocopy.

Petrovich, Janice, and Sandra Laureano
1986 Towards an analysis of Puerto Rican women and the informal
1987 economy, ***Homines*** 10 (2):70-80.

Rodríguez, Néstor P., and Jacqueline S. Hagan
1991 Investigating census coverage and content among the undocumented: an ethnographic study of Latino immigrant tenants in Houston. Ethnographic Evaluation of the 1990 Decennial Census Report No. 3, Bureau of the Census, Washington, D.C., December.

Rynearson, Ann M., and Thomas A. Gosebrink
1990 Asian Americans in a mixed neighborhood. Final Report, International Institute of Metropolitan St. Louis, Missouri, October.

San Juan Star
1990 Census expects tally to top 3.6 Million. September 13, p. 2.

Sperling, Jonathan
1990 Census geography in Puerto Rico: a technical addendum for the 1990 Census, ***Caribbean Studies*** 23 (3-4):111-30.

Stepick, Alex, and Carol Dutton Stepick
1990a People in the shadows: survey research among Haitians in Miami, ***Human Organization*** 49 (1):64-77.

1990b What's in it for Me? What's in It for you? ethnographic research on the possible undercount of Haitians in Miami. Ethnographic Exploratory Research Report #11, Undercount Behavioral Research Group, Bureau of the Census, Washington, D.C., July.

U.S. Department of Commerce, Bureau of the Census
1984 ***1980 Census of Population and Housing: Census Tracts****.* San Juan, Puerto

Rico. Washington, D.C: U.S. Government Printing Office.

Vázquez, José L.
1990 El censo de 1990: ¿nos sacará del limbo? ***Diálogo*** University of Puerto Rico, September, p. 13.

DISCLAIMER

(1998) This paper reports the results of research and analysis undertaken by Jorge Duany and his associates at the Universidad del Sagrado Corazon in Puerto Rico. Research results and conclusions expressed are those of the authors and have not been endorsed by the Census Bureau. This report is released to inform interested parties of research and to encourage discussion.

(1992) This is the final report for one of the 29 independent Joint Statistical Agreement projects which conducted an ethnographic evaluation of the behavioral causes of undercount. All 29 studies followed common methodological guidelines. This report is based on an analysis of the results of a match between the author(s)' Alternative Enumeration to data from the 1990 Decennial Census forms for the same site. Each ethnographic site contained about 100 housing units. Information was compiled from census forms that were recovered through October 10, 1990. The data on which this report is based should be considered preliminary for several reasons: Between October 10, 1990 and December 31, 1990, additional census forms MAY have been added to or deleted from the official enumeration of the site as a result of coverage improvement operations, local review, or other late census operations. Differences between October 10, 1990 and final census results as reported on the Unedited Detail File were incorporated in later analyses of data from this site. The consistency of the authors' coding of data has not been fully verified. Hypothesis tests and other analyses are original to the author. Therefore, the quantitative results contained in this final JSA report may differ from later reports issued by Census Bureau Staff referring to the same site.

The exact location of the study area and the names of persons and addresses enumerated by the independent researchers and in the 1990 Decennial Census are Census confidential and cannot be revealed until the year 2062. The researchers who participated in this study were Special Sworn Employees (SSE) or staff of the Census Bureau.

To request copies of this report, contact Statistical Research Division, Room 3133-4, Bureau of the Census, Washington, D.C. 20033.

NOTE

See also the publication:

Duany, Jorge
1996 Counting the uncountable: undocumented immigrants and informal workers in Puerto Rico, Latino Studies Journal VII: 2 (Spring): 69-107