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Working Paper Series

The 2000 Census Undercount in Los Angles County

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THE 2000 CENSUS UNDERCOUNT IN LOS ANGELES COUNTY

By
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INTRODUCTION

The following is an analysis of the recently released estimates of the undercount of the population in the 2000 census.[1] The decennial census is the single most important data source for this nation, and is used for reapportionment of Congressional seats across states and redistricting of Congressional seats within states. Census data are also used for redistricting of other electoral districts, allocation of public funds, formulating and evaluating public policy, urban and regional planning, and marketing by private firms. Because of the critical importance of the decennial census, the Bureau of the Census's goal is to enumerate everyone, but this goal is impossible to achieve. Every census has had an undercount. While the Bureau of the Census improved its performance for 2000 relative to 1990, the enumeration was not complete. Equally important, the estimated undercount rate (the percent of a group missed by the census) varies dramatically across demographic counts, creating what is known as a differential undercount. The variation in the undercount rate by demographic group produces variation in the undercount rate by geographic areas, due in large part to differences in demographic composition. That spatial variation is very apparent in the following analysis of the data for Los Angeles County.

Key Findings:

- Los Angeles County has a disproportionate number of the undercounted population.
- The undercounted population is unevenly distributed within Los Angeles County across neighborhoods; the undercount rate varies across neighborhoods from -0.3% to 5.9%.
- Neighborhoods with the highest undercount rates tend to be poor and predominantly minority, and have a relatively large number of children.

Given that public funds for services are allocated for the Los Angeles region based on decennial census population counts, using revised counts is important to ensure funding for programs and services for disadvantaged neighborhoods and populations.[2]

[1] The findings are based on data released by the Census Bureau based on one adjustment method (A.C.E.), which may be subject to errors and an overestimate of the undercount rate. Nonetheless, even with a lower estimate of the undercount rate, a differential undercount by demographic group still exists. These differential undercounts are likely to produce the same systematic differences across neighborhoods.

[2] Federal programs that allocate funds based on census counts include Medicaid, Community Development Block Grants from the Department of Housing and Urban Development, and Title I Basic, Concentration, and Targeted Grants from the Department of Education.

BACKGROUND OF UNDERCOUNT

The decennial census is the single most important effort to collect data on the nation's population. The census also has a long history of undercounting the population in general, and minority and other special population groups in particular. The estimated percent of the population missed declined steadily between 1940 and 1980, with a slight increase in 1990:

- In 1940: 5.4 percent
- In 1980: 1.2 percent
- In 1990: 1.6 percent

For the 2000 Census, estimates show an undercount rate decrease:

- In 2000: 0.12 percent to 1.14 percent, depending on method.[3]

For the 2000 Census, one estimate (based on the A.C.E., see description below) places the net undercount to be over 3 million persons.[4] Estimates for the 2000 census differential undercount indicate the undercount rate for minorities is several times higher than for non-Hispanic whites (NH whites).[5] Undercount rates also vary by regions, level of urbanization and home ownership.

DATA

Census Data Sources: The estimates of the undercount come from a data set released by the Bureau of the Census in pursuant to the order of the United States Court of Appeals for the Ninth Circuit in *Carter v. Department of Commerce*, 307 F.3d 1084. The adjusted estimates are not official Census 2000 counts. According to the Bureau of the Census, "These numbers are estimates of the population based on a statistical adjustment method, utilizing sampling and modeling, applied to the official Census 2000 figures. These

[3] U.S. Bureau of the Census, "Preliminary Estimates Show Improvement in Census 2000 Coverage," press release, CB01-CN.03, February 14, 2001, Washington, D.C. The estimated undercount rate is based on data from the 2000 Accuracy and Coverage Evaluation survey of 314,000 housing units.

[4] A Ninth U.S. Circuit federal appeals court ruling supported an Oregon lawsuit that used the Freedom of Information Act as a background. Congressional Democrats, minorities and big-city mayors were also pressing for the release of the numbers. After the ruling, several census stakeholder organizations urged the Justice Department not to appeal the decision, noting the "clear and consistent judicial guidance that FOIA does not shield adjusted census numbers from public scrutiny. Further, "public release of the A.C.E.-adjusted data would give local governments, community planners, and researchers a deeper understanding of Census 2000 results, and advance debate over the most effective ways to improve accuracy and quality in the 2010 census." (A copy of the letter is available at www.census2000.org.) The Ninth Circuit's ruling and public release of the data do not compel any official use of the adjusted numbers. However, state and local governments may use adjusted census data for their own redistricting or program purposes."

[5] These rates are based on the midpoints for the range for the undercount rate for each group.

estimates utilized the results of the Accuracy and Coverage Evaluation (A.C.E.), a sample survey intended to measure net over- and undercounts in the census results."

The socioeconomic data come from SF3 (Summary File 3), which contains tabulated data from the long form (sample) questionnaire. The long form went to about one in six households, and contains information on demographic, social and economic characteristics of the population, and on physical characteristics of housing units. The statistics used in this analysis are at the tract level and are weighted to represent the entire enumerated population. The socioeconomic statistics are not adjusted for the undercount.

Racial/Ethnic Classification: The analysis uses the following classifications based on Race and Ethnicity information provided in 2000 Census data:

- Non-Hispanic Whites include Whites that did not indicate Hispanic origin.
- African Americans includes people who identified themselves as Black regardless of Hispanic Origin. Also, persons who indicated they were White and Black in the 2000 Census are classified as African American. This allocation follows the guidelines provided by the Office of Management and Budget and the Department of Justice.
- Latinos include Whites of Hispanic origin and Others of Hispanic origin.
- Asian/Pacific Islanders include Asians and Native Hawaiians and Other Pacific Islanders, regardless of Hispanic Origin. Also, multi-race individuals who indicated they were Asian and Native Hawaiians or Other Pacific Islander in the 2000 Census are classified as Asian/Pacific Islanders.
- Others include those who identified themselves as Others of Non-Hispanic Origin and American Indians. Also, persons who indicated they were two or more races in the 2000 Census and are not included in the above categories are classified as Other. Others are incorporated into the aggregate population totals, but are not included in analysis of specific racial/ethnic groups due to the small population in most areas.

***Supplemental Data Sources*:** The educational data come from the California Department of Education, which reports on the Academic Performance Index (API) for every school in California. The 2001 API Base summarizes a school's performance on the 2001 STAR. It is on a scale of 200 to 1000, and is based on the performance of individual pupils on Stanford 9 (all content areas) as measured through national percentile rankings (NPRs) and on the CST ELA as measured through performance levels. We assign an API Base score to all census tracts with an elementary school located within its boundaries. When more than one elementary school is located in the same tract, we use the weighted mean API Base score (weighted by the number of students who took the 2001 STAR in each school).

Data on jobs come from the American Business Information (ABI) data set. This set consists of employment data aggregated to the census tract for the entire nation. Separate estimates are available for total employment and total business establishments, which are further divided into specific sectors and industrial classifications. Our data come from the 2000 release. Known limitations to the data include underreporting of seasonal, agricultural, and public sector jobs.

GEOGRAPHIC DISTRIBUTION

The undercount rate for Los Angeles County (1.76 percent of the county's adjusted population) is higher than the undercount rate for California (1.48 percent of the state's adjusted population), which is higher than the rate for the nation (1.14 percent). Relative to its share of the total population, Los Angeles County has a disproportionate number of the undercounted population in California. Table 1 provides the relevant statistics for California and Los Angeles, and Figure 1 maps the undercount rate by county.

Table 1. Undercount Rates, California & Los Angeles County, 2000

	California	Los Angeles County
Adjusted Count		
Total Adjusted Population	34,380,660	9,690,231
Total Undercount	509,012	170,893
Percent Undercount	1.48	1.76
Total Adjusted Under 18	9,393,832	2,711,057
Total Undercount	144,003	43,081
Percent Undercount	1.53	1.59
Undercount Percentage		
Total Population	1.48	1.76
Total Under 18	1.53	1.59
Race/Ethnicity		
Non-Hispanic White	0.57	0.50
Black/African-American	2.73	2.85
Latino	2.66	2.60
Asian/Pacific Islander	1.06	1.06
Other	1.90	1.85

Within Los Angeles County, the undercount rate varies by communities and neighborhoods. Places with a high undercount include Vernon (3.19), Cudahy (2.96), and Hawthorne (2.86). (See Appendix A.) Places with a low undercount include Rolling Hills (-.11), Palos Verdes Estates (-.07) and Westlake Village (-.06) There are also large disparities by neighborhoods. For this analysis, we use census tracts as a proxy for neighborhoods. Census tracts contain about 4,000 – 5,000 people. The Bureau of the Census defines census tracts as "a relatively homogenous area with respect to population characteristics, economic status and living conditions." The undercount rate by tracts ranges from –0.3% to 5.9%. Figure 2 graphs variation in the undercount rates by clusters of tracts. Each cluster contains about one-tenth of the total population, and the clusters are arranged in ascending order by the average undercount rate. Figure 3 maps the overall undercount rate by tracts for the urbanized areas of Los Angeles counties, and Figure 4 maps the undercount rate by tracts for the same region for children (0-17 years old).

Figure 1. The Undercount in California

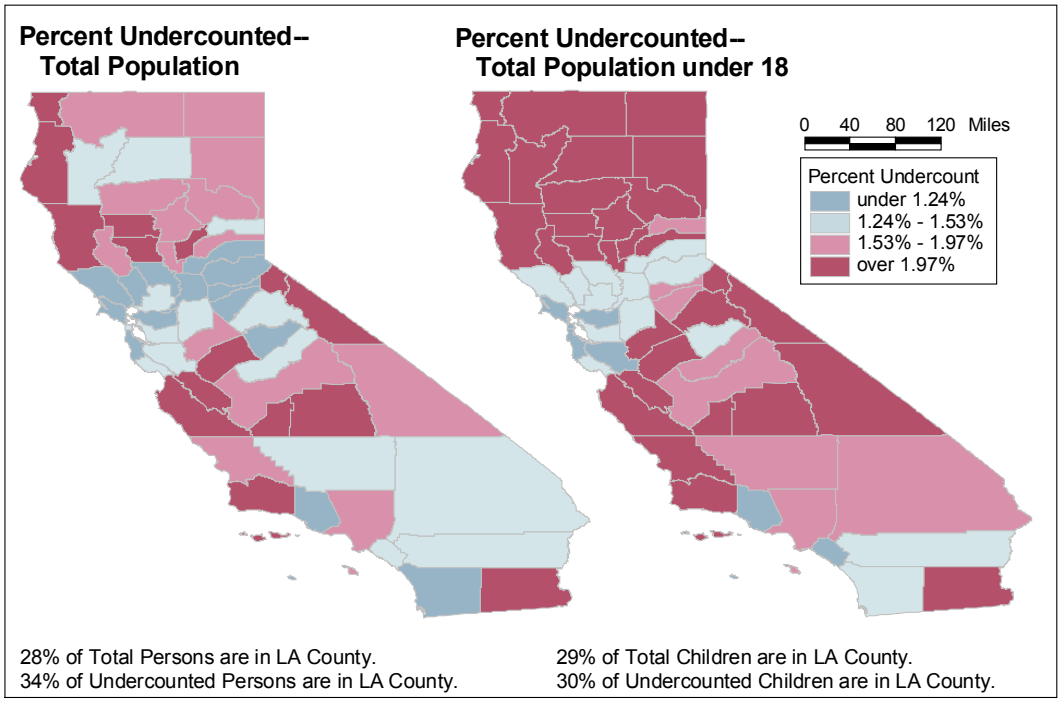


Figure 2. Variation in the Undercount Rate in Los Angeles County, 2000

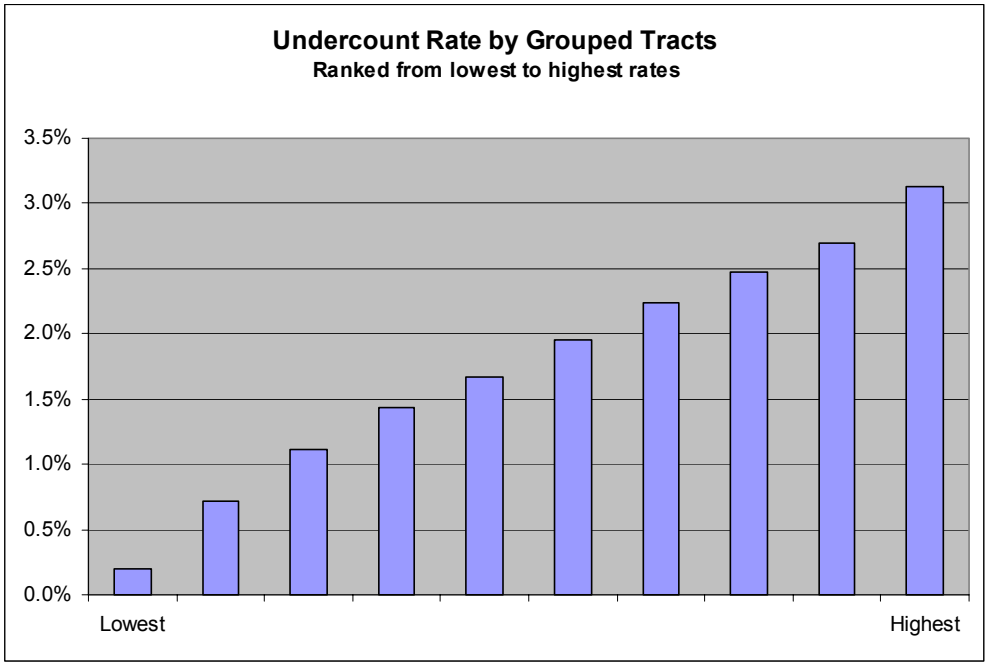


Figure 3. Percent Undercount in Los Angeles County, Total Population

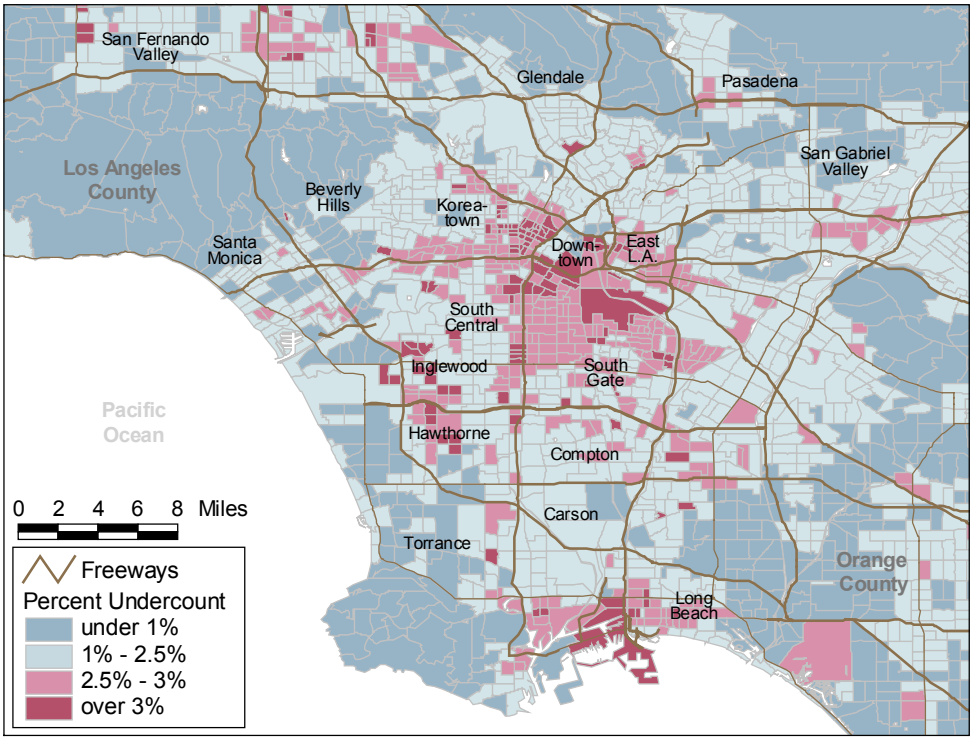
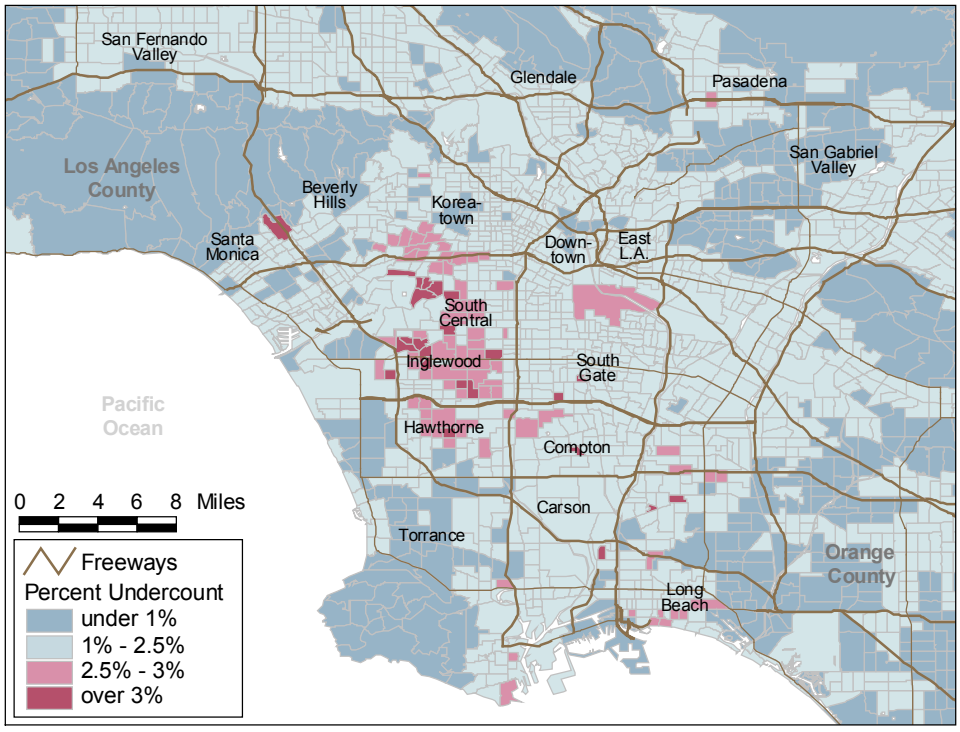


Figure 4. Percent Undercount in Los Angeles County, Children



NEIGHBORHOOD CHARACTERISTICS BY LEVEL OF UNDERCOUNT

The undercount rate varies with the socioeconomic characteristics of neighborhoods. Table 2 presents profiles of neighborhood groups by the undercount rates (under 1%, 1%-2.5%, 2.5%-3%, and over 3%). In general, neighborhoods with the highest undercount rates tend to be poor and predominantly minority, and have a relatively large number of children. The last row contains estimates of the per-person cost associated with the undercount. Although the estimates are rough approximations, they nonetheless indicate that Angelinos living in the most vulnerable neighborhoods are the most likely to be undercounted, thus face a risk of receiving less than a fair share of public resources.

Table 2. Characteristics by Level of Undercount, Los Angeles County, 2000

	Level of Undercount			
	Under 1%	1% - 2.5%	2.5% - 3%	over 3%
# Tracts	512	1,058	363	121
Adjusted Count				
Total Adjusted Population	2,123,799	5,220,079	1,804,949	541,404
Total Undercount	10,613	93,336	49,174	17,770
Percent Undercount	0.50	1.79	2.72	3.28
Total Adjusted Under 18	491,659	1,422,116	610,412	186,870
Total Undercount	3,357	22,461	12,848	4,415
Percent Undercount	0.68	1.58	2.10	2.36
Population Characteristics				
Percent in Poverty	5.8	16.5	30.3	37.8
Percent Less Than High School Education	10.1	30.1	53.0	58.9
Percent Limited English Proficiency	5.0	15.0	27.2	32.9
Percent Foreign Born	23.8	36.4	46.5	50.3
Percent Unemployed	4.9	8.2	12.0	13.1
Percent Home Ownership	76.2	45.7	23.7	10.7
Age Groups				
Children 0-4 Years	5.5	7.3	10.1	11.1
Children 5-9 Years	6.7	8.2	10.7	10.9
Elderly over 64 Years	14.0	9.8	6.0	4.5
Race/Ethnicity				
Non-Hispanic White	62.0	28.5	9.1	5.4
Black/African-American	3.5	10.5	14.0	18.3
Latino	14.2	44.2	68.2	68.5
Asian/Pacific Islander	18.1	13.9	6.3	5.5
Other	2.3	2.9	2.4	2.3
Neighborhood Characteristics				
Jobs Per Square Mile	610	660	3178	4440
Academic Performance Index 2001 (Base)	777	624	528	520
Undercount Percentage				
Total Population Percent Undercount	0.50	1.79	2.72	3.28
Race/Ethnic Percent Undercount				
Non-Hispanic White	0.04	0.80	1.24	1.16
Black/African-American	1.72	2.67	3.29	3.61
Latino	1.77	2.40	2.93	3.51
Asian/Pacific Islander	0.76	1.15	1.44	1.53
Other	0.90	1.87	2.56	2.93
Estimated Cost of Undercount				
Cost Per 1,000 Persons	$ 7,496	$ 26,820	$ 40,866	$ 49,233

Table 3 presents an alternative analysis of the undercount by areas. The neighborhoods are clustered by poverty rate (over 40%, 20-39%, and less than 20%). In general, poorer neighborhoods have higher undercount rates. These areas also tend to be predominantly minority and have a relatively large number of children. The last row contains estimates of the per-person cost associated with the undercount.[6]

Table 3. Characteristics by Level of Poverty, Los Angeles County, 2000

	Level of Poverty		
	High Poverty (>40%)	Poverty (20%-39%)	Non-Poor (<20%)
# Tracts	137	635	1,282
Adjusted Count			
Total Adjusted Population	576,563	3,144,777	5,968,891
Total Undercount	16,538	78,287	76,068
Percent Undercount	2.87	2.49	1.27
Total Adjusted Under 18	200,051	1,023,223	1,487,783
Total Undercount	4,321	20,215	18,545
Percent Undercount	2.16	1.98	1.25
Population Characteristics			
Percent in Poverty	46.4	31.3	12.0
Percent Less Than High School Educatic	63.1	53.7	22.7
Percent Limited English Proficiency	30.9	28.4	11.4
Percent Foreign Born	47.1	48.4	32.0
Percent Unemployed	17.5	12.3	6.8
Percent Home Ownership	15.6	24.5	55.1
Age Groups			
Children 0-4 Years	10.3	9.5	6.4
Children 5-9 Years	10.9	10.2	7.4
Elderly over 64 Years	5.4	7.0	11.6
Race/Ethnicity			
Non-Hispanic White	6.4	8.2	39.3
Black/African-American	17.9	14.5	8.2
Latino	65.9	66.1	35.3
Asian/Pacific Islander	7.6	9.2	15.4
Other	2.2	2.6	2.7
Neighborhood Characteristics			
Jobs Per Square Mile	5,397	1,521	591
Academic Performance Index 2001 (Bas	505	555	697
Undercount Percentage			
Total Population Percent Undercount	2.87	2.62	1.44
Race/Ethnic Percent Undercount			
Non-Hispanic White	0.78	0.99	0.46
Black/African-American	3.10	3.11	2.68
Latino	3.18	2.89	2.37
Asian/Pacific Islander	1.38	1.28	1.01
Other	2.68	2.34	1.67
Estimated Cost of Undercount			
Cost Per 1,000 Persons	$ 43,026	$ 37,341	$ 19,116

[6] Estimates based on a $1,500 cost per uncounted person reported in the Green Bay Press-Gazette, November 01, 2002. PricewaterhouseCoopers estimates the cost at $3,000 per uncounted person per decade, as reported by civilrights.org.

IMPLICATIONS

The undercount has a number of implications for public policies and programs. The geographic variation in the undercount rate means that not all electoral districts have equal representation. The districts with relatively high numbers of minorities and low-income residents tend to have more people than districts with the opposite set of characteristics; consequently, the political influence of the people in the former set of districts is diluted relative to the people in the latter set of districts. The undercount also distorts health and other statistics that use the census as a benchmark, thus generating an inaccurate picture of the problems facing the residents in neighborhoods with a high undercount rate. There is also a potential for a misallocation of public resources, with communities and neighborhoods with the greatest needs receiving less than a fair share.[7] The effects cannot be precisely quantified at this time, but the potential political and funding impacts on disadvantaged communities are sufficiently serious enough that more detailed analysis should be conducted. If the Bureau of the Census releases alternative estimates of the undercount by small geographic areas (based on methods other than the A.C.E.), another round of analysis should be conducted to determine the extent of disparity across communities and neighborhoods.[8] Finally, future policy research should focus on developing methods to eliminate any adverse effects of the differential undercount on public policies and programs.

[7] The precise amount is difficult to determine given the complexity of the allocation process. Federal and state funds are generally distributed first to cities and counties, and then to neighborhoods. If a city and county receives less because of a high undercount, then its neighborhoods also suffer. What is less understood, but nonetheless a real problem, is how funds are distributed to neighborhoods within a given city or county. For many programs, census data play a direct and indirect role in identifying neighborhoods in need and in distributing resources.

[8] The geographic disparities are likely to be independent of the overall level of the undercount. The spatial variation is driven by the differential undercount by demographic groups. Communities and neighborhoods differ by demographic composition because of income and racial residential segregation, which in turn generates geographic variation in the undercount rate. Even with an alternative lower estimate of the overall undercount rate, the differential undercount is likely to produce systematic differences across communities and neighborhoods similar to those reported in this analysis.

APPENDIX A.

UNDERCOUNT FOR INCOPORATED PLACES IN LOS ANGELES COUNTY

City	Total Adjusted Population	Tota Undercount	Undercount Rate
Agoura Hills city	20,594	57	0.28
Alhambra city	87,158	1354	1.55
Arcadia city	53,421	367	0.69
Artesia city	16,599	219	1.32
Avalon city	3,207	80	2.49
Azusa city	45,618	906	1.99
Baldwin Park city	77,342	1505	1.95
Bell city	37,648	984	2.61
Bellflower city	74,413	1535	2.06
Bell Gardens city	45,333	1279	2.82
Beverly Hills city	34,134	350	1.03
Bradbury city	859	4	0.47
Burbank city	101,592	1276	1.26
Calabasas city	20,088	55	0.27
Carson city	91,070	1340	1.47
Cerritos city	51,840	352	0.68
Claremont city	34,171	173	0.51
Commerce city	12,851	283	2.20
Compton city	95,646	2153	2.25
Covina city	47,488	651	1.37
Cudahy city	24,946	738	2.96
Culver City city	39,321	505	1.28
Diamond Bar city	56,689	402	0.71
Downey city	109,169	1846	1.69
Duarte city	21,764	278	1.28
El Monte city	118,646	2681	2.26
El Segundo city	16,215	182	1.12
Gardena city	58,931	1185	2.01
Glendale city	197,425	2452	1.24
Glendora city	49,735	320	0.64
Hawaiian Gardens city	15,129	350	2.31
Hawthorne city	86,591	2479	2.86
Hermosa Beach city	18,803	237	1.26
Hidden Hills city	1,875	0	0.00
Huntington Park city	63,070	1722	2.73
Industry city	787	10	1.27
Inglewood city	115,657	3077	2.66
Irwindale city	1,474	28	1.90
La Canada Flintridge city	20,335	17	0.08
La Habra Heights city	5,719	7	0.12
Lakewood city	80,099	754	0.94
La Mirada city	47,116	333	0.71
Lancaster city	120,213	1495	1.24
La Puente city	41,888	825	1.97
La Verne city	31,839	201	0.63
Lawndale city	32,490	779	2.40
Lomita city	20,338	292	1.44
Long Beach city	470,717	9195	1.95
Los Angeles city	3,770,418	75598	2.01
Lynwood city	71,545	1700	2.38

APPENDIX A. UNDERCOUNT FOR INCOPORATED PLACES IN LOS ANGELES COUNTY (cont.)

City	Total Adjusted Population	Tota Undercount	Undercount Rate
Malibu city	12,726	151	1.19
Manhattan Beach city	34,086	234	0.69
Maywood city	28,883	800	2.77
Monrovia city	37,516	587	1.56
Montebello city	63,448	1298	2.05
Monterey Park city	60,863	812	1.33
Norwalk city	104,999	1701	1.62
Palmdale city	118,477	1807	1.53
Palos Verdes Estates city	13,331	-9	-0.07
Paramount city	56,695	1429	2.52
Pasadena city	136,237	2301	1.69
Pico Rivera city	64,597	1169	1.81
Pomona city	152,447	2974	1.95
Rancho Palos Verdes city	41,237	92	0.22
Redondo Beach city	64,011	750	1.17
Rolling Hills city	1,869	-2	-0.11
Rolling Hills Estates city	7,680	4	0.05
Rosemead city	54,355	850	1.56
San Dimas city	35,221	241	0.68
San Fernando city	24,084	520	2.16
San Gabriel city	40,363	559	1.38
San Marino city	12,968	23	0.18
Santa Clarita city	152,377	1289	0.85
Santa Fe Springs city	17,699	261	1.47
Santa Monica city	85,133	1049	1.23
Sierra Madre city	10,639	61	0.57
Signal Hill city	9,538	205	2.15
South El Monte city	21,661	517	2.39
South Gate city	98,651	2276	2.31
South Pasadena city	24,565	273	1.11
Temple City city	33,690	313	0.93
Torrance city	139,204	1258	0.90
Vernon city	94	3	3.19
Walnut city	30,225	221	0.73
West Covina city	106,550	1470	1.38
West Hollywood city	36,275	559	1.54
Westlake Village city	8,363	-5	-0.06
Whittier city	84,951	1271	1.50