

Chapter 6

Census Coverage Differentials by Sex



Abstract Males and females often play different roles in society at different ages and these can impact family situations and living arrangements related to the likelihood of being missed in the Census. In this Chapter, examination of differences in Census coverage by sex show that males generally have Census net undercount rates while females have net overcounts. Since 1940, the net undercount rates of both males and females have improved a lot but the differential between males and females has not narrowed.

6.1 Introduction

This Chapter focuses on Census coverage for males and females including coverage rates for subgroups defined by age, race, Hispanic Origin, and tenure. In addition to looking at the net undercounts and overcounts of males and females, omissions rates by sex are also examined.

The initial analysis shown in this Chapter relies heavily on Demographic Analysis (DA) estimates. I believe the strengths of DA methodology make it a particularly good technique for discussing Census coverage by age for at least four reasons. First, DA data on age are more detailed than that from Dual-Systems Estimates (DSE). Data are available by single year of age from DA but only for large age/sex groups from DSE. Second, DA estimates have been produced since 1940, so there is more historical data. Third, in the decade prior to the 2010 Census, staff at the Census Bureau investigated several issues related to the production of DA estimates (Robinson 2010; Bhaskar et al. 2010; Devine et al. 2010). The increased input, review, and examination enhance the reliability of the 2010 DA estimates. Fourth, DSE estimates greatly underestimate the net undercount for young children (O'Hare et al. 2016) so that data series cannot be used to examine differential undercounts for the whole age spectrum.

Both methods for measuring Census accuracy (DA and DSE) show males had lower coverage rates than females. In the 2010 Census, the DA method shows a net undercount rate of 0.8% for males compared to a 1.1% net overcount for females. In the 2010 Census, the DSE method also shows adult males typically had net under-

counts while adult females typically had net overcounts. This result is not surprising. Simpson and Middleton (1997) identify adult males as being among the groups most difficult to enumerate in Censuses.

6.2 Undercounts by Sex and Age

As readers will see, in terms of Census coverage, sex matters at some ages but not very much at other ages. Figure 6.1 shows net undercount rates in the 2010 Census for males and females by five-year age groups. In general, there are no differences by sex for the youngest or the very oldest age groups, but there are very noticeable differences among adults from their mid-20s to mid-70s. Females in this age range have better coverage than males. The biggest gaps between males and females are in the 25–45-year old age range, and the gaps seen between age 45 and 65 are somewhat smaller. The biggest single year difference is age 31 where there is a 4.8% net undercount for males and a 0.2% net overcount for females.

Data from DSE are shown in Table 6.1. For age 18–49, there were statistically significant net undercount rates for males but small net overcount rates for females. For the population age 50 and over, there were net overcounts for both groups but the net overcount for males (0.3%) is much smaller than that for females (2.4%).

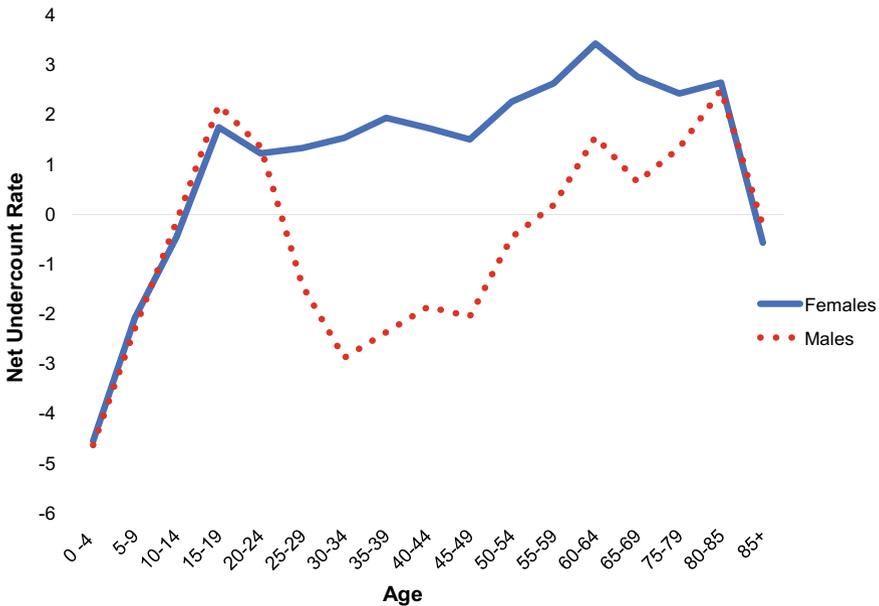


Fig. 6.1 2010 census net undercount rates for males and females by five-year age groups. *Source* U.S. Census Bureau, May 2012 DA Relesae

Table 6.1 2010 census net undercount rates from census coverage measurement by age and sex

Age	Males	Females
18–29	-1.2	0.3
30–49	-3.6	0.4
50 +	0.3	2.4

Source U.S. Census Bureau (2012b), Table 12

A negative sign reflects a net undercount. The signs here are reversed from the source report in order to keep directionality consistent within this publication

Figures in **BOLD** are statistically significantly different from zero

Table 6.2 Census coverage for males and females by race in the 2010 census

	Males	Females
Total	-0.8	1.1
Black Alone	-4.6	-0.1
Non-Black Alone	-0.3	1.1

Source U.S. Census Bureau, Demographic Analysis tables released May 2012

To some extent these figures may reflect the position of males and females in broader society. For example, it is more acceptable for males and females in their 20s to remain living in their parents’ home, so they are apt to have a stable housing situation at that stage in their lives. As they move into their 30s and 40s, it becomes less acceptable to remain living in their parents’ home (particularly for males) so their housing situations are more likely to be unstable. Also, many females in their 20s, 30s and 40s, are likely to be responsible for taking care of children on a daily basis which makes stable housing more important. A stable housing situation is associated with a higher likelihood of being counted in the Census (Martin 2007).

6.3 Undercount by Sex and Race

The overall Census coverage figures for males and females mask big differences by race. These differences are first examined using DA data then using data from DSE. Recall that in DA, the only race group that can be identified for all ages is Black and the residual category is called Non-Black.

Table 6.2 shows that based on data from DA, there was a net undercount of 4.6% for Black Alone males compared to a small net undercount (0.1%) for Black Alone females resulting in a 4.5 percentage point gap. For the Non-Black Alone males there was a net undercount of 0.3% compared to a net overcount of 1.1 for females in this population, so the gap is 1.4 percentage points. In other words, males have lower coverage rates than females in both groups, but the differential is much larger for Blacks Alone than for Non-Blacks Alone.

Table 6.3 2010 Census net undercount rates by sex, race, and age

		Age 18–29	Age 30–49	Age 50+
Non-Hispanic White Alone	Males	1.5	-2.1	0.6
	Females	1.1	0.7	2.2
Black Alone or in Combination	Males	-5.9	-10.0	-2.8
	Females	0.4	0.2	3.1
American Indian/Alaskan Native Alone or in Combination	Males	-1.9	3.1	1.5
	Females	-2.6	0.4	4.6
Asian Alone or in Combination	Males	-1.2	-2.2	1.1
	Females	0.8	0.0	1.0
Native Hawaiian and Pacific Islanders Alone or in Combination	Males	-8.0	2.0	-0.4
	Females	1.9	-1.2	-1.4
Hispanic	Males	-5.2	-5.1	0.7
	Females	-2.1	-0.2	3.6

Source U.S. Census Bureau (2012a), Table C

A negative sign reflects a net undercount. The signs here are reversed from the source report in order to keep directionality consistent within this publication

Figures in **BOLD** are statistically significantly different than zero

In the Black Alone population, the biggest difference in coverage rates between males and females is for the population in their 30s and 40s. The biggest single year difference is age 29 where there is an 8.6% net undercount for males and a 0.7% overcount for females (data not shown here).

Table 6.3 shows Census coverage for males and females by age in six different race/Hispanic groups based on DSE. In almost every comparison in Table 6.3, females have better coverage rates than males. In a few cases the differences are extreme. For example, for Blacks Alone or in Combination age 30–49, the net undercount rate for males was 10% compared to a slight net overcount (0.2%) for females in this age range. This comparison highlights the very precarious position of Black males in their 30s and 40s in terms of being missed in the Census.

Table 6.3 also highlights the difference sex makes in the 18–49-year-old category compared to age 50 and over. For the population age 50 and over most groups experience a net overcount and for those groups that did experience a net undercount it is lower than that for age 18–49.

Table 6.4 2010 Census net undercount rates for males and females by age, sex, and tenure

	Population living in owner-occupied housing units		Population living in renter- occupied housing units	
	Males	Females	Males	Females
Age 18–29	1.7	1.6	–3.9	–0.9
Age 30–49	–2.6	0.5	–5.5	0.2
Age 50+	0.2	2.0	0.7	3.5

Source U.S. Census Bureau (2012a), Table A

A negative sign reflects a net undercount. The signs here are reversed from the source report in order to keep directionality consistent within this publication

Figures in **BOLD** are statistically significantly different from zero

Table 6.5 2010 census omission rates for male and females by age, sex, and tenure

Omissions rates	Population living in owner-occupied housing units		Population living in renter- occupied housing units	
	Males	Females	Males	Females
Age 18–29	5.9	5.7	12.5	9.2
Age 30–49	6.4	2.9	12.3	6.3
Age 50+	3.6	1.7	6.9	3.2

Source U.S. Census Bureau (2012a), Table A

6.4 Net Undercount and Omissions Rates for Males and Females by Age and Tenure

Table 6.4 provides net undercount rates for males and females by age and tenure. For the population living in owner-occupied housing units, females are covered better than males and the same is true for the population living in rental occupied housing units. The gap between males and females is smaller for the population living in owner-occupied housing than the population living in rental housing. The group with the highest net undercount rate is male renters age 30–49 where there is a net undercount rate of 5.5%. This group combines three characteristics (male, renter, and age 30–49) that are associated with poor coverage in the Census.

As stated earlier, DSE is the only method that provides omissions rates. Table 6.5 shows omissions rates by age, sex, and tenure from the 2010 Census. The age/sex patterns for omissions are like previously seen patterns for net undercounts. Males have higher omissions rates than females in every age group. The omissions rates for male renters age 18–29 are the highest at 12.5%.

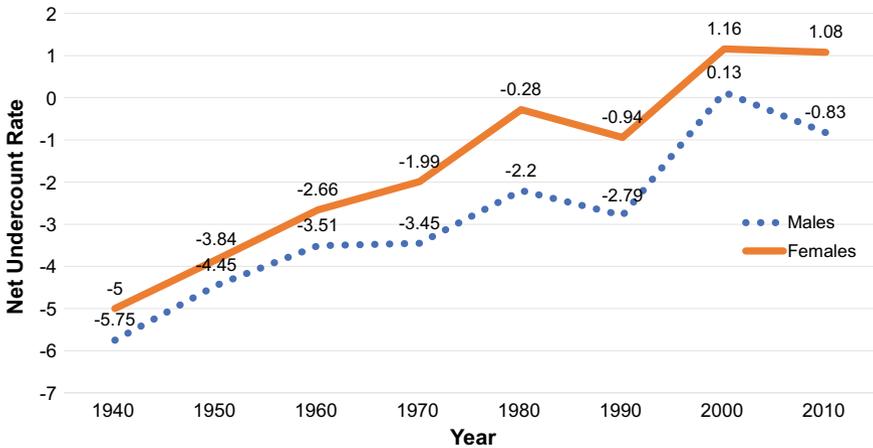


Fig. 6.2 Census net undercount rates for males and females: 1940–2010. *Source* 2010 Data from May 2012 DA Release. 1940–2000 from U.S. Census Bureau (2001), Table 4

6.5 Differential Census Coverage by Sex Over Time

Figure 6.2 shows net undercount rates for males and females from 1940 to 2010 based on Demographic Analysis. There are three key points shown in Fig. 6.2.

First, the coverage of females has been better than the coverage of males in every Census since 1940. Second, the coverage of both males and females has improved consistently since the 1940 Census. Both males and females experienced high net undercounts in the 1940 Census (5% or more), but in the 2010 Census there was 1.1% overcount for females compared to a 0.8% undercount for males.

Third, the difference in Census coverage between males and females has widened somewhat since 1940. In 1940, the difference between the coverage rate of males and females was less than one percentage point but in 2010 the difference was nearly two percentage points.

6.6 Sex and Sexual Orientation

I would be remiss if I did not say a word about sexual identity and sexual orientation in the context of the Census. The “sex” question was introduced in the first Census in 1790 and has been used ever since without generating much controversy. Yet as social norms about gender identity and sexual orientation have changed in recent decades, advocates began to press the Census Bureau for expanded questions and response options on sexual orientation and gender identity. The U.S. General Accountability

Office (2018, p. 5) identified “Lesbian gay bisexual transgender queer/questioning persons” as being hard-to-count.

In 1990, advocates ran the first national campaign to press the Bureau to report data on same-sex couples (National LGBTQ Task Force 2017). In 2005, the Census Bureau responded by beginning to test and report on data on same-sex couples in response to the “relationship” question (U.S. Census Bureau 2018). Starting in 2013, all Census tables that have a line for “married couples” include same-sex couples.

As we approach the 2020 Census, including measures of sexual orientation and gender identity on the 2020 Census questionnaire has become a widely discussed topic (Wang 2017). Modifications to the “relationship” question on the 2020 Census questionnaire will allow respondents to explicitly identify themselves as the married or unmarried same-sex partner of the householder for the first time. Other questions on gender identity and sexual orientation remain in the testing phase for possible inclusion on future Censuses or American Community Survey questionnaires. For more information about his topic see www.queertheCensus.org.

6.7 Summary

Generally, males have higher net undercount rates and higher omissions rates than females. There is virtually no gap between males and females for children (under age 18) or for the population over age 70. For adults in the 20s, 30s and 40s, males typically have a much a higher net undercount rates and higher omissions rates that females.

The male-female gap in coverage is larger for the population living in rental housing units than those living in owner-occupied units. The coverage gap between males and females is particularly large in the Black population.

The net undercount rates of males and females have both improved since the 1940 Census, but the gap between males and females has grown a little wider in recent decades.

References

- Bhaskar, R., Scopilliti, M., Hollman, F., & Armstrong, D. (2010). *Plans for producing estimates of net international migration for the 2010 demographic analysis estimates*. Census Bureau Working Paper No. 90.
- Devine, J., Sink, L., DeSalvo, B., & Cortes R. (2010). *The use of vital statistics in the 2010 demographic analysis estimates*. Census Bureau Working Paper No. 88.
- Martin, E. (2007). Strength of attachment: Survey coverage of people with tenuous ties to residences. *Demography*, 44(2), 427–440.
- National LGBTQ Task Force. (2017). *LGBTQ census advocacy, 1990–2017*. Available at: <http://www.thetaskforce.org/wp-content/uploads/2017/05/LGBTQ-Census-Advocacy.pdf>.

- O'Hare, W. P., Robinson, J. G., West, K., & Mule, T. (2016). Comparing the U.S. decennial census coverage estimates for children from the demographic analysis and coverage measurement surveys. *Population Research and Policy Review*, 35(5), 685–704.
- Robinson, J. G., (2010). *Coverage of population in census 2000 based on demographic analysis: The history behind the numbers*. U.S. Census Bureau, Working Paper No. 91.
- Simpson, S., & Middleton, E. (1997). *Who is missed by a national census? A review of empirical results from Australia, Britain, Canada, and the USA*. UK: the Cathie Marsh Centre for Census and Survey Research, University of Manchester.
- U.S. Census Bureau. (2001) *Accuracy and coverage evaluation: Demographic analysis results*. DSSD 2000 Procedures and Operation Memorandum Series B-4* J. G. Robinson.
- U.S. Census Bureau. (2012a). *2010 Components of census coverage for race groups and Hispanic origin by age, sex, and tenure in the United States*. DSSD 2010 Census coverage Measurement Memorandum Series #2010-E-51, Table D. Washington, DC: U.S. Census Bureau.
- U.S. Census Bureau. (2012b). *2010 Census coverage measurement estimation report: Summary of estimates of coverage for persons in the United States*. DSSD 2010 Census Coverage Measurement Memorandum Series #2010-G-01. Washington, DC: U.S. Census Bureau.
- U.S. Census Bureau. (2018). *Frequently asked questions about same-sex couple households*. Available at: <https://www2.census.gov/topics/families/same-sex-couples/faq/sscplfactsheet-final.pdf>.
- U.S. General Accountability Office. (2018). *2020 Census: Actions needed to address challenges to enumerate hard-to-count groups*. Report to Congressional Requesters, GAO-18-599, Washington DC.
- Wang, H. L. (2017). *Collecting LGBT census data is “Essential” to Federal Agency, documents shows*. National Public Radio, June 20.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

