

Date of Reference for Age and Birth Date used by Respondents of Census 2000

FINAL REPORT

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

Nathan Carter
Sarah Brady

Decennial Statistical
Studies Division

U S C E N S U S B U R E A U

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EXECUTIVE SUMMARY

This evaluation examines how well respondents answered the Census as of Census Day, April 1, 2000. One way to do this is to look at how respondents answered the age and date of birth question. The way respondents answer this question can be influenced by whether or not they are using Census Day as their date of reference.

The analysis done in this report shows that the true Census moment or 'average' date of reference for Census 2000 was April 20. This is substantially better than May 5, which was the result from doing the same analysis in the 1990 Census. The change to the wording of the age question may have reduced respondents misreporting their age. Also the time frame for questionnaire delivery and completion of Nonresponse Followup was earlier in Census 2000 compared to the 1990 Census.

A state's return rate seems to be correlated with the date of reference for that state. As the return rate increases, the date of reference for the state is closer to April 1, 2000. A higher return rate in a state means more respondents are returning their questionnaire through the mail. It is also very likely that these respondents will not be part of Nonresponse Followup and they are enumerated closer to April 1, thus less likely to misreport their age. If the return rate is low, that would mean a higher percentage of people are being enumerated in Nonresponse Followup. Nonresponse Followup takes place at a later date, so the respondents enumerated in Nonresponse Followup seem to have a great propensity to use a date other than Census Day to report their age.

The analysis also shows that 89.8 percent of persons had their reported age consistent with their calculated age. There were 1.8 percent that under reported their age by one year and 6.0 percent that over reported their age by one year. These people may have potentially misreported their age due to using some date other than April 1, 2000 as the date of reference when reporting their age. The remaining 2.4 percent misreported their age by more than one year, which means the misreporting can only be attributed to simple reporting error.

There were two situations where we suspected respondents may have had problems reporting age correctly; the date of check-in of the form with the person's data was before the person's birthday and both were before April 1, and the date of check-in of the form with the person's data was after the person's birthday and both were after April 1. In the first situation, 10.3 percent of the persons in this category under reported their age. In the second situation, 40.1 percent of the persons in this category over reported their age. These percentages are higher than any percent observed in any of the other situations for that type of misreporting. This means that the time at which a person is responding to the census does affect how he or she reports age.

There were 80.4 percent of households that had every person in them with the age correctly reported. This compares to 89.8 percent of persons with age correctly reported.

The Census moment or ‘average’ date of reference moved from May 5 in 1990 to April 20 in 2000. This improvement may be due to the change in questionnaire design and in the enumeration time frame. The 2010 Census questionnaire should stress that the respondents are to provide their age as of Census Day, April 1, as in Census 2000. This will help respondents not misreport age. Also a compressed Census enumeration time frame may aid respondents to correctly report age.

Respondents enumerated by personal visit tended to over report age. Enumerators should have this problem explained to them and training should stress the importance of Census Day as the reference date. Enumerators should know that respondents need to hear April 1, 2010, so they can correctly provide their information.

The problems that are observed in age reporting have revealed problems with respondents referencing April 1 when providing age date. This is somewhat trivial because age can be calculated from date of birth. There are other issues that are sensitive to the April 1 reference day, such as Residency Rules, that cannot be corrected.

1. BACKGROUND

The goal of this evaluation was to see how well respondents answered the Census as of Census Day, April 1, 2000. One way to do this is to look at how respondents answered the age and date of birth question. The way respondents answer these questions can be influenced by whether or not they are using Census Day as their date of reference.

1.1 The 1990 Census

The 1990 Census questionnaire asked for the age and year of birth for each person in the household. No instruction was given for the respondent to answer the question in reference to Census Day, April 1, 1990. Appendix A contains an image of the age and year of birth question on the 1990 Census questionnaire. Some discrepancy resulted between the reported age and the actual age calculated from the year of birth. The Census Bureau staff examined this discrepancy using the following method:

April 1, 1990 is the 91st day of the year (containing 365 days). For most birth years about 24.7 percent of respondents should have had a birthday before April 1st, assuming birthdays are equally distributed throughout the year. In such cases the person's age added to the year of birth always equals "1990". For the other 75.3 percent of respondents the person's age added to their year of birth will always add up to "1989". In 1990, 34.3 percent of the respondents' age added to their birth year, equaled 1990. This number was not consistent with 24.7 percent that was expected from looking at April 1, 1990. What day would be consistent with the 34.3 percent observed in the 1990 Census? The answer was May 5, 1990, which is 34.3 percent of a 365 day year. The connection was made that this would represent the true 1990 Census Moment (Spencer, 1997).

The time at which the enumeration took place may have affected responses to the age question. The time frame for the 1990 Census questionnaires delivery was approximately on March 23, 1990. Nonresponse Followup took place from April 26, 1990 through July 30, 1990.

1.2 Census 2000

The Census 2000 questionnaire was modified significantly from the form used in 1990. The format of the form is the most significant change. The wording of the age question changed, so that it specifically states that the respondent should report age as of April 1, 2000. This change was designed to reduce the discrepancy between the reported age and the actual age. Also, instead of just asking the respondent to provide a year of birth, the entire date of birth is requested. Appendix B contains the age and date of birth question from the 2000 Census questionnaire.

The timing of the questionnaire delivery in Census 2000 was earlier than in the 1990 Census. The delivery of the Census 2000 questionnaires took place from March 13, 2000 to March 15, 2000. The time frame for Nonresponse Followup enumeration was from April 27, 2000 to June 26, 2000.

2. METHODOLOGY

The methodology section is divided into three sections. The first will discuss the file used and the creation of the universe for this evaluation. The second section will discuss how the statistics for this evaluation were calculated. The third will discuss the final mail return rate.

2.1 Discussion of the Source File and the Universe Creation

The data file used for this analysis was the Hundred Percent Census Unedited File (HCUF). This file includes some housing units that were later removed during the housing unit unduplication process. A total of 1,392,686 housing units in the United States and Puerto Rico were removed during this process and were not included in this analysis. As a result, the persons from these housing units are not included in this analysis. In addition, persons enumerated in Special Place/Group Quarters are not included in this analysis.

The HCUF was used so analysis could be done on data solely provided by the respondent prior to the editing and imputation process. This means that this file includes items that are blank or invalid, making it necessary to remove persons from the analysis if any of the following conditions were met.

- Age, month, day or year of birth was left blank,
- Month or day of birth was an invalid value,
- Age reported by respondents was greater than 115, or
- Age calculated from date of birth is less than 0 or greater than 115

The cases where the first bullet apply, meaning the respondent left one or more of the parts of the date of birth or the age question blank, were removed from the data file first. The cases where the last three bullets apply, meaning the respondent provided some information that was considered to be invalid, were removed from the data file during a subsequent step. Table 1 contains a breakdown of persons on the HCUF, with the duplicates removed, by whether or not they were included in the analysis and the reason for exclusion. In Table 1, cases with blanks are labeled as Blank Data and the cases with invalid data are labeled as Invalid Data.

Table 1. Results from Performing Edits on the HCUF with Duplicates Removed on the Housing Unit Population

	Number	Percent
Total	271,541,738	100.0
Included in the Analysis	252,490,497	93.0
Blank Data	18,196,157	6.7
Invalid Data	855,084	0.3

As shown in Table 1, 93.0 percent of housing unit persons on the HCUF were included in further analysis. This also means that 7.0 percent of housing unit persons were not included in the analysis. This breaks down to 6.7 percentage points being excluded from the analysis because of some data being blank and 0.3 percentage points were excluded because some data are invalid values. The 252,490,497 persons, 93.0 percent, is the base universe for the results section.

2.2 Discussion of the Calculated Statistics

A calculated age was computed as of April 1, 2000 from the date of birth provided by the respondent. A person's age was considered to have been misreported if the age reported for that person differed from the age calculated from date of birth.

The methodology for computing the Census moment has been modified from what was used in 1990. As stated in the previous section, the Census 2000 questionnaire asked for respondents to provide the entire date of birth. This allows for a distribution of the number of persons born on each day throughout the year with valid data to be calculated. Therefore, the assumption that was made for the 1990 Census analysis, that dates of births are equally distributed through the year, is not necessary.

A person's age added to his or her date of birth would show whether that person's age had incremented for that year or not, or in other words the person's age implies having had a birthday. For example, if a person was born on March 25, 1975 and the age was reported as 25, then the sum of the year of birth and age would be 2000. On the other hand, had the age been reported as 24, then the sum would be 1999. The sum of 2000 shows the age having been incremented for the year of 2000, while 1999 shows that the age has not yet been incremented. This sum was done for every person included in the analysis.

If every person's age was correctly reported, the proportion of sums that equaled 2000 would be equal to the proportion of persons who have a birthday between January 1 and April 1. If the proportion is different it indicates that some date other than April 1, 2000 was used as a reference date. If the proportion that is observed is matched to a distribution of dates of birth throughout the year, the day corresponding to the percentage would indicate the 'average' date of reference.

2.3 Discussion of Final Mail Return Rates

Final mail return rate was used in the analysis. It is a measure of respondent cooperation in mailback areas. It refers to the number of occupied housing units with corresponding non-blank questionnaires checked in through the end of the year (December 31, 2000) over the number of occupied housing units. The calculation of these rates is restricted to housing units that are in one of the mailback Type of Enumeration Areas (TEAs) - Mailout/Mailback (TEA 1), Update/Leave (TEA 2), Military (TEA 6), Urban Update/Leave (TEA 7), or Mailout/Mailback converted to Update/Leave (TEA 9).

To be included in the final return rate denominator, an address must be an occupied housing unit, in a mailback TEA, and not a Census Undeliverable As Addressed (UAA) questionnaire. A Census UAA is a questionnaire in the Mailout/Mailback universe that was never successfully delivered to an address, either by the U.S. Postal Service or by Census Bureau employees. Deleted addresses in update/leave and urban update/leave also were excluded from the mail return rate denominator. Additionally, any address included in the denominator must have been added to the Decennial Master Address File (DMAF) through an operation that occurred prior to Nonresponse Followup. The March 2001 Master Address File (MAF) extract was used to determine whether an address was added in one of the pre-Nonresponse Followup operations.

In order to be included in the final return rate numerator, an address must be in the denominator and have a non-blank mail return data capture. Those non-blank questionnaires include actual mail return questionnaires, Be Counted Forms, Internet returns, and responses via Telephone Questionnaire Assistance or Coverage Edit Followup. The existence of a data capture is determined using information from the Decennial Response File - Stage 2 (U.S. Bureau of the Census, 2002).

3. LIMITATIONS

In data collection, it is impossible to know if the data provided by respondents were correctly reported. For this analysis this issue is important with respect to discrepancies between age and date of birth. It is important to note that there is an assumption being made throughout this report, that date of birth is correctly reported. Therefore, all reported discrepancies are attributed to the respondent failing to correctly report their age.

4. RESULTS

The results of this analysis are presented in three parts. In Section 4.1, the analysis computing the Census moment or ‘average’ date of reference is presented. In Section 4.2, additional analysis of age misreporting at the Person Level is presented. In Section 4.3, additional analysis of age misreporting at the Household Level is presented.

4.1 What is the Census Moment or ‘Average’ Date of Reference?

The methodology section describes the process used to calculate the Census moment or the ‘average’ date of reference. The concept of a date of reference refers to whatever date the respondent is referring to when he or she is answering the age question. The questionnaire asks the respondents to use April 1, 2000 as the date of reference for the age question.

To calculate the Census Moment or ‘average’ date of reference, the initial step is to sum the year of birth and the age reported by the respondent. As stated in the methodology section, the expected values from calculating this sum are 2000 and 1999. A sum of 2000 would mean that

the person's age had been incremented for the year, while 1999 would mean that the person's age has not yet changed for the year. Table 2 summarizes the result from summing of age and year of birth.

Table 2. Results From the Sum of Year of Birth and Age

Sum of Year of Birth and Age	Number	Percent
Total	252,490,497	-
1999	171,056,027	70.1
2000	73,109,542	29.9
Some Other Sum*	8,324,928	-

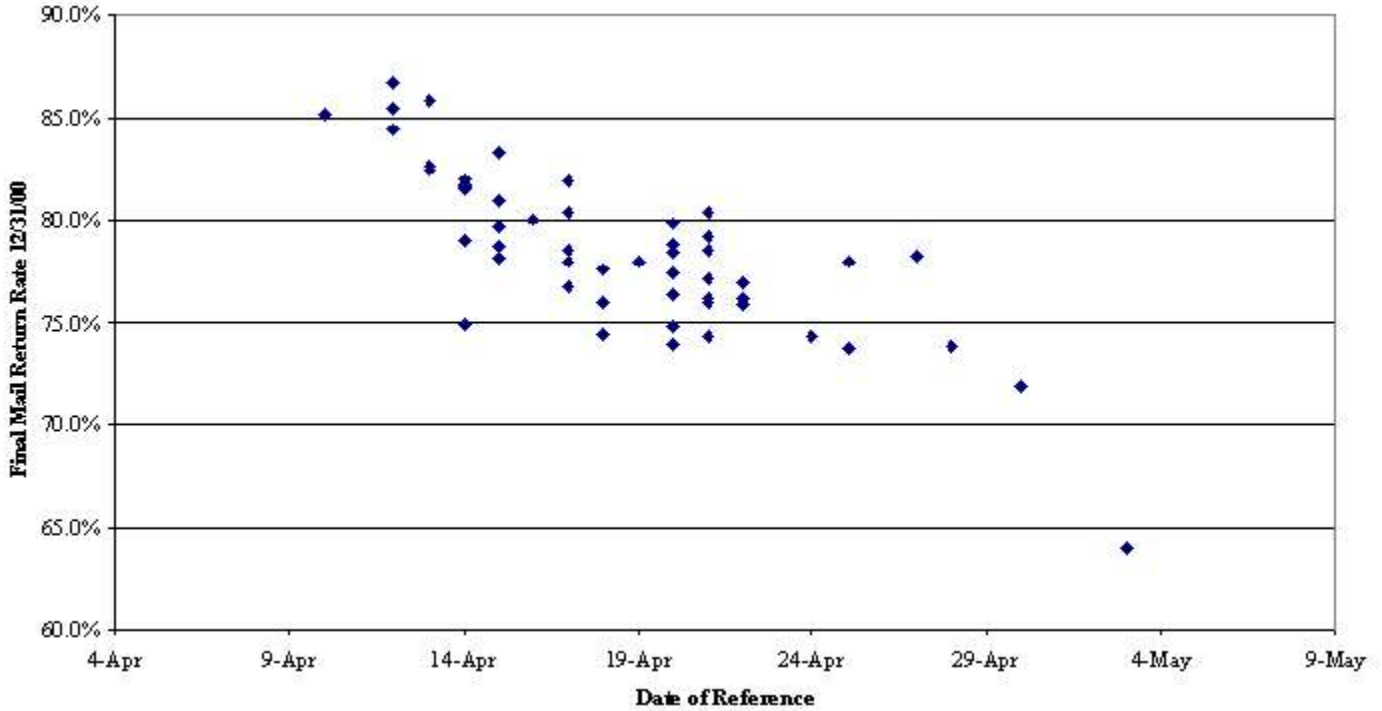
* This category is not included in the calculation of the percents.

As shown in Table 2, there were 8,324,928 persons that had a sum with a value other than 2000 or 1999. These persons could not be included in the calculation of the Census moment or 'average' date of reference. Of the remaining people, 29.9 percent of them had an observed sum of 2000. These are persons whose age had incremented for the year, meaning their age reflected having had a birthday. The remaining 70.1 percent had an observed sum of 1999.

The final step in calculating the Census moment or 'average' date of reference is to compare the 29.9 percent from the previous step to the distribution date of birth. This distribution can be found in Appendix C. The percent 29.9 falls between two days, April 19, with a proportion of 29.8, and April 20, with a proportion of 30.0. The 29.9 percent for the sum of 2000 corresponds to April 20. This is quite a big difference from May 5, which was observed in 1990. There are a couple of reasons why this change may have occurred. The first is the change to the questionnaire so that respondents were asked to report age as of April 1, 2000. The second reason would be the earlier dates for the delivery of mail questionnaires and the completion of Nonresponse Followup in 2000 compared to 1990. In addition, there is a considerable difference in the Census moment or 'average' date of reference for households that responded to the census by self enumeration versus by an enumerator completed return. The Census moment or 'average' date of reference for self enumeration returns was April 12, while it was May 18 for enumerator completed returns (see Appendix E).

If the date on which a respondent is completing his or her form affects how he or she reports age, then at the state level, the return rate would be related to the states' date of reference. Most mail response happens early in the Census, and most often precluded the housing unit from being enumerated in Nonresponse Followup, which would have the respondent's enumeration at a date, after April 1, 2000. This means that the expected effect would be that as the return rate increases the date of reference for the state would be earlier in the year. Figure 1 is a scatter plot of the return rate as of December 31, 2000 for each state and Puerto Rico versus the corresponding date of reference for that state and Puerto Rico. The data for Figure 1 are located in Appendix D.

Figure 1. Scatter Plot of Final Mail Return Rates (as of 12/31/00) Versus Date of Reference for Fifty States, the District of Columbia and Puerto Rico



As shown in Figure 1, there is a clear relationship, as the final mail return rate increases as the date of reference moves earlier in the year. So states with higher final mail return rates have dates of reference that are closer to April 1, which should be the date of reference when reporting age. Note that no state (including Puerto Rico) had a reference day before April 10.

4.2 What Analysis was done on Age Misreporting at the Person Level?

The Census 2000 questionnaire asked for respondents to provide a complete date of birth. This allowed for analysis that was not possible with the 1990 Census data. Using date of birth, an age can be calculated to compare with the age reported by the respondents. As stated previously, the assumption made is that date of birth is always correctly reported. This means that if there is a discrepancy between the reported age and the calculated age, it is due to the respondent misreporting age. Table 3 gives the results of the comparison of the calculated age to the age reported.

Table 3. Outcome of Reporting Age as Compared to Calculated Age

	Number	Percent
Total	252,490,497	100.0
Under Reported Age by More than One Year	2,949,505	1.2
Under Reported Age by One Year	4,601,172	1.8
Reported and Calculated Age are Consistent	226,762,801	89.8
Over Reported Age by One Year	15,227,068	6.0
Over Reported Age by More than One Year	2,949,951	1.2

As shown in Table 3, 89.8 percent of persons had their reported age consistent with calculated age, 3.0 percent of persons under reported their age, and 7.2 percent over reported their age. These rates are different for self enumeration returns versus enumerator completed returns. For example, self enumeration returns had a rate of 92.7 percent for reported and calculated age as consistent, while enumerator completed returns had a rate of 80.6 percent (see Appendix F). In addition, enumerator completed returns were three times more likely to over report age as compared to self enumeration returns, 14.9 percent compared to 4.8 percent respectively.

This evaluation is concerned with the date of reference affecting the reporting of age. The concept behind this is that persons responding to the census before April 1, 2000 might have a tendency to under report their age by a year. For example, a person with the birthday of March 25, 1975 who is filling out the Census 2000 questionnaire on March 20, 2000 might report his or her age as 24 rather than 25, which would have been the correct age as of April 1, 2000. On the other hand those persons responding to the Census after April 1, 2000 would have a tendency to over report their age by a year. For example, a person with a birthday of May 20, 1975 who is being interviewed during Nonresponse Followup on May 25, 2000 might report his or her age as 25 rather than 24, which would have been the correct age as of April 1, 2000. This theory doesn't explain why some people misreported their age by more than a year. The only explanation for the 2.4 percent of persons who had an age misreported by more than a year is simple reporting error. The 5,899,456 such cases will not be included in the next table.

The date at which a respondent is answering the Census may influence how age is reported. The closest proxy for the date at which a respondent answers the census is the date at which the questionnaire is checked in. This means that there are really three dates to consider: the date of birth, the date of check in, and April 1, 2000. The following are the six possible ways to order these three dates within a year:

- Birthday/Check In/April 1
- Check In/Birthday/April 1
- Birthday/April 1/Check In
- Check In/April 1/Birthday
- April 1/Birthday/Check In
- April 1/Check In/Birthday

Only in two of these possible situations, we expected respondents may have had difficulty in reporting age correctly. They are Check In/Birthday/April 1 and April 1/Birthday/Check In. In the first case, respondents would have provided their age before they had a birthday and April 1. This means the respondents may have reported age without having incremented it for the year, but age should have been incremented if reported as of April 1, 2000. In the second case, the respondents would have provided their age after both April 1 and their birthday. This means the respondents may have reported age having incremented it for the year, but age should not have been incremented if reported as of April 1, 2000. In all the other cases, we expected that respondents should not have difficulty in reporting age. Table 4 gives the outcome of age reporting broken down by each of the different date orders.

Table 4. Outcome of Reporting Age as Compared to Calculated Age by Each Date Order

		Age Reported			
		Total	Under by One Year	Correctly	Over by One year
Total	#	246,591,041	4,601,172	226,762,801	15,227,068
	%	100.0	1.9	92.0	6.2
Birthday/Check In/April 1	#	34,298,599	1,095,163	33,003,120	200,316
	%	100.0	3.2	96.2	0.6
Check In/Birthday/April 1	#	4,221,921	433,386	3,758,746	29,789
	%	100.0	10.3	89.0	0.7
Birthday/April 1/Check In	#	22,902,535	1,119,952	21,542,610	239,973
	%	100.0	4.9	94.1	1.0
Check In/April 1/Birthday	#	116,725,492	1,021,466	110,231,015	5,473,011
	%	100.0	0.9	94.4	4.7
April 1/Birthday/Check In	#	10,694,363	117,760	6,285,046	4,291,557
	%	100.0	1.1	58.8	40.1
April 1/Check In/Birthday	#	57,748,131	813,445	51,942,264	4,992,422
	%	100.0	1.4	89.9	8.6

Looking at Table 4, there are a few trends worth noting. In the two situations where we expected respondents may have had difficulty in reporting age correctly, there are anomalies in the percent of persons misreporting age.

- In the Check In/Birthday/April 1 category 10.3 percent of persons under reported their age by a year, which is the trend that was expected. It is also higher than what was observed for the other situations.
- In the April 1/Birthday/Check In category, 40.1 percent of persons over reported their age. This is much higher than what was observed for the other situations. Some of these people were enumerated during Nonresponse Followup. If the enumerators did not emphasize that age should be reported as of April 1, 2000, it may explain why this particular category is so high.

The first three categories all have the birthday happening before April 1, while the last three have the birthday happening after April 1.

- Another trend that can be observed in Table 4 is the misreporting of age for categories with the birthday occurring before April 1. These categories are more likely to under report age. In addition, the remaining three categories have birthday occurring after April 1 and are more likely to over report age.

Appendix G has additional information with the Table 4 broken down into self enumeration returns and enumerator completed returns.

4.3 What Analysis was done on Age Misreporting at the Household Level?

The census is usually responded to by one person at each housing unit and all of the persons on each form are enumerated at the same time. This would mean that misreporting of age should be grouped because of these reasons. The next table will examine misreporting of age at the household level. To be categorized as Age Under Reported in Table 5, at least one person had to have his or her age under reported but no one had their age over reported. To be categorized as Age Over Reported in Table 5, at least one person had to have his or her age over reported but no one had their age under reported. To be categorized as Age Under and Over Reported in Table 5, at least one person had to have his or her age under reported and at least one person had to have his or her age over reported. To be categorized as Age Correctly Reported in Table 5, every person in the household had to have his or her age correctly report.

	Number	Percent
Total	99,724,760	100.0
Under Reported Age	5,487,486	5.5
Age Correctly Reported	80,144,563	80.4
Over Reported Age	12,717,132	12.8
Both Over and Under	1,375,579	1.4

From Table 5, 80.4 percent of households had every person’s age correctly reported. This also means that 19.6 percent of households had at least one person’s age misreported. This breaks down to 5.5 percent of households had at least one person with his or her age under reported, 12.8 percent that had at least one person with his or her age over reported, and 1.4 percent with at least one person with under reported age and also at least one person with over reported age. By way of reminder, from Table 3, 89.8 percent of persons had his or her age correctly reported, and 10.2 percent had his or her age incorrectly reported. The results differ greatly for self enumeration returns versus enumerator completed returns. For example, self enumeration returns had a household rate of correct reported age of 85.3 percent, while enumerator completed returns had a lower rate of 63.1 percent (see Appendix H).

5. CONCLUSIONS

The goal of this evaluation was to see how well respondents answered the Census as of Census Day, April 1, 2000. One way to do this is to look at how respondents answered the age and date of birth question. The way respondents answer this question can be influenced by whether or not they are using Census Day as their date of reference.

The analysis done in this report shows that the true Census moment or 'average' date of reference for Census 2000 was April 20. This is substantially better than May 5, which was the result from doing the same analysis in the 1990 Census. The change to the wording of the age question may have reduced respondents misreporting their age. Also the time frame for questionnaire delivery and completion of Nonresponse Followup was earlier in Census 2000 compared to the 1990 Census.

As previously stated, a state's return rate seems to be correlated with the date of reference for that state. As the return rate increases, the date of reference for the state is closer to April 1, 2000. A higher return rate in a state means more respondents are returning their questionnaire through the mail. It is also very likely that these respondents will not be part of Nonresponse Followup and they are enumerated closer to April 1, thus less likely to misreport their age. If the return rate is low, that would mean a higher percentage of people are being enumerated in Nonresponse Followup. Nonresponse Followup takes place at a later date, so the respondents enumerated in Nonresponse Followup seem to have a great propensity to use a date other than Census Day to report their age.

The analysis shows that 89.8 percent of persons had their reported age consistent with calculated age. There were 1.8 percent that under reported their age by one year and 6.0 percent that over reported their age by one year. These people may have potentially misreported their age due to using some date other than April 1, 2000 as the date of reference when reporting their age. The remaining 2.4 percent misreported their age by more than one year, which means the misreporting can only be attributed to simple reporting error.

There were two situations where we suspected respondents may have had problems reporting age correctly: Check In/Birthday/April 1 and April 1/Birthday/Check In. In the first situation, 10.3 percent of the persons in this category under reported their age. In the second situation, 40.1 percent of persons in this category over reported their age. These percentages are higher than any percent observed in any of the other situations for that type of misreporting. This means that the time at which a person is responding to the census does affect how he or she reports age.

There were 80.4 percent of households that had every person in them with the age correctly reported. This compares to 89.8 percent of persons with age correctly reported.

6. RECOMMENDATIONS

The Census moment or ‘average’ date of reference moved from May 5 in 1990 to April 20 in 2000. This improvement may be due to the change in questionnaire design and in the enumeration time frame. Therefore, the 2010 Census questionnaire should stress to respondents that they are to provide their age as of Census Day, April 1, 2010. This will help respondents not misreport age. In addition, a compressed Census enumeration time frame may also aid respondents in correctly report age.

As seen in this evaluation, respondents enumerated by personal visit tended to over report age. Therefore, enumerators should have this problem explained to them and training should stress the importance of Census Day as the reference date. Enumerators should also know that respondents need to hear April 1, 2010, so they can correctly provide their information.

The problems that are observed in age reporting have revealed problems with respondents referencing April 1 when providing age date. These problems can be corrected because age can be calculated from date of birth. However, there are other issues that are sensitive to the April 1 reference day, such as Residency Rules, that cannot be corrected.

References

Spencer, Gregory. *What Was The “True” Census Moment of the April 1, 1990 Census and the March 2, 1996 National Content Survey?*, memorandum for The Record, January 27, 1997.

U.S. Bureau of the Census, 2002, *Census 2000 Response and Return Rates - National and State by Form Type*, DSSD Census 2000 Procedures and Operations Memorandum Series L-10, Bureau of the Census, February 12, 2002.

Appendix A

The 1990 Census Questionnaire Age and Year of Birth Question

5. Age and year of birth	a. Age	b. Year of birth
a. Print each person's age at last birthday. Fill in the matching circle below each box.	<input type="text"/>	1
b. Print each person's year of birth and fill the matching circle below each box.	0 ○ 0 ○ 0 ○ 1 ○ 1 ○ 1 ○ 2 ○ 2 ○ 3 ○ 3 ○ 4 ○ 4 ○ 5 ○ 5 ○ 6 ○ 6 ○ 7 ○ 7 ○ 8 ○ 8 ○ 9 ○ 9 ○	1 ● 8 ○ 0 ○ 0 ○ 9 ○ 1 ○ 1 ○ 2 ○ 2 ○ 3 ○ 3 ○ 4 ○ 4 ○ 5 ○ 5 ○ 6 ○ 6 ○ 7 ○ 7 ○ 8 ○ 8 ○ 9 ○ 9 ○

Appendix B

The 2000 Census Questionnaire Age and Date of Birth Question

6. What is Person 1's age and what is Person 1's date of birth?

Age on April 1, 2000

Print numbers in boxes.

Month	Day	Year of birth
<input type="text"/> <input type="text"/>	<input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>

Appendix C

Percent and Cumulative Percent of Date of Birth for the Population of 244,165,569

Date	Percent	Cumulative Percent	Date	Percent	Cumulative Percent
Jan. 1	0.32	0.32	Feb. 15	0.28	12.59
Jan. 2	0.26	0.58	Feb. 16	0.27	12.86
Jan. 3	0.27	0.85	Feb. 17	0.28	13.14
Jan. 4	0.27	1.11	Feb. 18	0.28	13.41
Jan. 5	0.27	1.39	Feb. 19	0.27	13.68
Jan. 6	0.28	1.66	Feb. 20	0.27	13.96
Jan. 7	0.27	1.93	Feb. 21	0.27	14.22
Jan. 8	0.27	2.20	Feb. 22	0.28	14.51
Jan. 9	0.26	2.46	Feb. 23	0.27	14.78
Jan. 10	0.28	2.74	Feb. 24	0.27	15.05
Jan. 11	0.27	3.01	Feb. 25	0.27	15.32
Jan. 12	0.27	3.28	Feb. 26	0.27	15.59
Jan. 13	0.27	3.55	Feb. 27	0.27	15.86
Jan. 14	0.27	3.82	Feb. 28	0.28	16.15
Jan. 15	0.28	4.10	Feb. 29	0.07	16.21
Jan. 16	0.27	4.37	Mar. 1	0.28	16.50
Jan. 17	0.27	4.64	Mar. 2	0.28	16.77
Jan. 18	0.27	4.91	Mar. 3	0.29	17.07
Jan. 19	0.27	5.18	Mar. 4	0.28	17.34
Jan. 20	0.28	5.46	Mar. 5	0.28	17.62
Jan. 21	0.27	5.73	Mar. 6	0.27	17.89
Jan. 22	0.26	6.00	Mar. 7	0.27	18.17
Jan. 23	0.27	6.26	Mar. 8	0.27	18.44
Jan. 24	0.27	6.53	Mar. 9	0.27	18.71
Jan. 25	0.27	6.80	Mar. 10	0.28	19.00
Jan. 26	0.27	7.07	Mar. 11	0.27	19.27
Jan. 27	0.27	7.34	Mar. 12	0.28	19.55
Jan. 28	0.27	7.61	Mar. 13	0.27	19.82
Jan. 29	0.27	7.88	Mar. 14	0.27	20.09
Jan. 30	0.26	8.14	Mar. 15	0.29	20.37
Jan. 31	0.26	8.40	Mar. 16	0.27	20.65
Feb. 1	0.28	8.68	Mar. 17	0.28	20.93
Feb. 2	0.30	8.98	Mar. 18	0.27	21.20
Feb. 3	0.27	9.25	Mar. 19	0.27	21.47
Feb. 4	0.28	9.53	Mar. 20	0.27	21.74
Feb. 5	0.28	9.80	Mar. 21	0.28	22.02
Feb. 6	0.27	10.08	Mar. 22	0.26	22.28
Feb. 7	0.28	10.35	Mar. 23	0.27	22.56
Feb. 8	0.28	10.63	Mar. 24	0.27	22.82
Feb. 9	0.27	10.90	Mar. 25	0.27	23.10
Feb. 10	0.28	11.18	Mar. 26	0.26	23.36
Feb. 11	0.27	11.46	Mar. 27	0.27	23.63
Feb. 12	0.28	11.74	Mar. 28	0.27	23.89
Feb. 13	0.27	12.00	Mar. 29	0.26	24.16
Feb. 14	0.30	12.31	Mar. 30	0.26	24.42

Date	Percent	Cumulative Percent	Date	Percent	Cumulative Percent
Mar. 31	0.26	24.68	May 20	0.27	37.96
Apr. 1	0.28	24.96	May 21	0.26	38.22
Apr. 2	0.27	25.24	May 22	0.26	38.49
Apr. 3	0.27	25.50	May 23	0.26	38.75
Apr. 4	0.28	25.78	May 24	0.26	39.01
Apr. 5	0.27	26.05	May 25	0.27	39.27
Apr. 6	0.27	26.32	May 26	0.26	39.53
Apr. 7	0.27	26.59	May 27	0.26	39.79
Apr. 8	0.27	26.85	May 28	0.26	40.06
Apr. 9	0.26	27.12	May 29	0.26	40.32
Apr. 10	0.27	27.39	May 30	0.26	40.57
Apr. 11	0.26	27.65	May 31	0.25	40.82
Apr. 12	0.27	27.92	Jun. 1	0.28	41.10
Apr. 13	0.26	28.18	Jun. 2	0.27	41.37
Apr. 14	0.27	28.45	Jun. 3	0.27	41.64
Apr. 15	0.28	28.72	Jun. 4	0.27	41.91
Apr. 16	0.27	28.99	Jun. 5	0.27	42.17
Apr. 17	0.26	29.26	Jun. 6	0.28	42.46
Apr. 18	0.26	29.52	Jun. 7	0.27	42.72
Apr. 19	0.26	29.78	Jun. 8	0.26	42.99
Apr. 20	0.27	30.04	Jun. 9	0.27	43.25
Apr. 21	0.26	30.31	Jun. 10	0.28	43.53
Apr. 22	0.26	30.57	Jun. 11	0.26	43.80
Apr. 23	0.26	30.83	Jun. 12	0.27	44.07
Apr. 24	0.26	31.09	Jun. 13	0.26	44.33
Apr. 25	0.26	31.35	Jun. 14	0.27	44.60
Apr. 26	0.26	31.61	Jun. 15	0.28	44.88
Apr. 27	0.26	31.87	Jun. 16	0.27	45.15
Apr. 28	0.26	32.13	Jun. 17	0.27	45.42
Apr. 29	0.26	32.39	Jun. 18	0.27	45.69
Apr. 30	0.26	32.65	Jun. 19	0.27	45.96
May 1	0.28	32.92	Jun. 20	0.27	46.23
May 2	0.26	33.19	Jun. 21	0.27	46.50
May 3	0.26	33.45	Jun. 22	0.27	46.77
May 4	0.26	33.71	Jun. 23	0.27	47.04
May 5	0.29	34.00	Jun. 24	0.28	47.31
May 6	0.26	34.26	Jun. 25	0.27	47.58
May 7	0.26	34.52	Jun. 26	0.27	47.85
May 8	0.26	34.79	Jun. 27	0.27	48.12
May 9	0.26	35.05	Jun. 28	0.27	48.39
May 10	0.28	35.32	Jun. 29	0.27	48.66
May 11	0.26	35.58	Jun. 30	0.27	48.93
May 12	0.27	35.85	Jul. 1	0.29	49.23
May 13	0.26	36.11	Jul. 2	0.28	49.50
May 14	0.26	36.37	Jul. 3	0.27	49.77
May 15	0.28	36.65	Jul. 4	0.27	50.04
May 16	0.26	36.91	Jul. 5	0.26	50.30
May 17	0.26	37.17	Jul. 6	0.27	50.58
May 18	0.26	37.43	Jul. 7	0.30	50.88
May 19	0.26	37.69	Jul. 8	0.28	51.16

Date	Percent	Cumulative Percent	Date	Percent	Cumulative Percent
Jul. 9	0.28	51.43	Aug. 28	0.29	65.61
Jul. 10	0.28	51.72	Aug. 29	0.28	65.89
Jul. 11	0.28	51.99	Aug. 30	0.28	66.16
Jul. 12	0.28	52.27	Aug. 31	0.28	66.44
Jul. 13	0.27	52.55	Sep. 1	0.29	66.73
Jul. 14	0.29	52.83	Sep. 2	0.28	67.01
Jul. 15	0.29	53.13	Sep. 3	0.28	67.29
Jul. 16	0.28	53.41	Sep. 4	0.28	67.57
Jul. 17	0.29	53.69	Sep. 5	0.28	67.85
Jul. 18	0.28	53.97	Sep. 6	0.28	68.13
Jul. 19	0.28	54.25	Sep. 7	0.28	68.41
Jul. 20	0.28	54.53	Sep. 8	0.29	68.69
Jul. 21	0.28	54.81	Sep. 9	0.31	69.00
Jul. 22	0.28	55.09	Sep. 10	0.30	69.29
Jul. 23	0.28	55.37	Sep. 11	0.28	69.58
Jul. 24	0.28	55.65	Sep. 12	0.29	69.87
Jul. 25	0.28	55.93	Sep. 13	0.29	70.16
Jul. 26	0.28	56.21	Sep. 14	0.29	70.45
Jul. 27	0.29	56.50	Sep. 15	0.30	70.75
Jul. 28	0.28	56.78	Sep. 16	0.30	71.05
Jul. 29	0.28	57.06	Sep. 17	0.30	71.34
Jul. 30	0.27	57.33	Sep. 18	0.29	71.64
Jul. 31	0.28	57.61	Sep. 19	0.29	71.93
Aug. 1	0.29	57.90	Sep. 20	0.29	72.23
Aug. 2	0.28	58.18	Sep. 21	0.30	72.52
Aug. 3	0.28	58.46	Sep. 22	0.29	72.81
Aug. 4	0.28	58.75	Sep. 23	0.30	73.11
Aug. 5	0.29	59.03	Sep. 24	0.29	73.41
Aug. 6	0.28	59.32	Sep. 25	0.29	73.70
Aug. 7	0.28	59.60	Sep. 26	0.29	73.99
Aug. 8	0.30	59.90	Sep. 27	0.29	74.28
Aug. 9	0.28	60.19	Sep. 28	0.29	74.57
Aug. 10	0.29	60.48	Sep. 29	0.29	74.86
Aug. 11	0.28	60.76	Sep. 30	0.28	75.15
Aug. 12	0.29	61.05	Oct. 1	0.30	75.44
Aug. 13	0.28	61.33	Oct. 2	0.29	75.73
Aug. 14	0.29	61.61	Oct. 3	0.29	76.02
Aug. 15	0.30	61.91	Oct. 4	0.29	76.31
Aug. 16	0.29	62.20	Oct. 5	0.29	76.59
Aug. 17	0.28	62.49	Oct. 6	0.28	76.87
Aug. 18	0.29	62.77	Oct. 7	0.28	77.15
Aug. 19	0.28	63.06	Oct. 8	0.28	77.43
Aug. 20	0.29	63.34	Oct. 9	0.28	77.71
Aug. 21	0.28	63.62	Oct. 10	0.31	78.02
Aug. 22	0.28	63.90	Oct. 11	0.27	78.29
Aug. 23	0.28	64.19	Oct. 12	0.28	78.57
Aug. 24	0.28	64.47	Oct. 13	0.27	78.84
Aug. 25	0.28	64.75	Oct. 14	0.28	79.12
Aug. 26	0.28	65.04	Oct. 15	0.29	79.41
Aug. 27	0.28	65.32	Oct. 16	0.27	79.68

Date	Percent	Cumulative Percent	Date	Percent	Cumulative Percent
Oct. 17	0.27	79.95	Nov. 24	0.26	90.14
Oct. 18	0.27	80.22	Nov. 25	0.26	90.40
Oct. 19	0.27	80.49	Nov. 26	0.26	90.66
Oct. 20	0.28	80.77	Nov. 27	0.26	90.92
Oct. 21	0.27	81.04	Nov. 28	0.26	91.17
Oct. 22	0.27	81.30	Nov. 29	0.26	91.43
Oct. 23	0.27	81.57	Nov. 30	0.26	91.69
Oct. 24	0.27	81.84	Dec. 1	0.27	91.97
Oct. 25	0.27	82.11	Dec. 2	0.27	92.24
Oct. 26	0.27	82.38	Dec. 3	0.27	92.50
Oct. 27	0.27	82.65	Dec. 4	0.27	92.77
Oct. 28	0.27	82.92	Dec. 5	0.27	93.03
Oct. 29	0.26	83.18	Dec. 6	0.26	93.30
Oct. 30	0.27	83.45	Dec. 7	0.27	93.56
Oct. 31	0.26	83.71	Dec. 8	0.27	93.83
Nov. 1	0.27	83.98	Dec. 9	0.26	94.10
Nov. 2	0.27	84.25	Dec. 10	0.28	94.37
Nov. 3	0.27	84.52	Dec. 11	0.26	94.63
Nov. 4	0.27	84.79	Dec. 12	0.29	94.92
Nov. 5	0.27	85.06	Dec. 13	0.26	95.18
Nov. 6	0.26	85.32	Dec. 14	0.27	95.45
Nov. 7	0.27	85.59	Dec. 15	0.28	95.73
Nov. 8	0.26	85.86	Dec. 16	0.27	96.00
Nov. 9	0.26	86.12	Dec. 17	0.27	96.27
Nov. 10	0.27	86.39	Dec. 18	0.27	96.55
Nov. 11	0.28	86.67	Dec. 19	0.27	96.82
Nov. 12	0.27	86.94	Dec. 20	0.27	97.09
Nov. 13	0.26	87.20	Dec. 21	0.26	97.36
Nov. 14	0.27	87.47	Dec. 22	0.26	97.62
Nov. 15	0.27	87.75	Dec. 23	0.26	97.87
Nov. 16	0.27	88.01	Dec. 24	0.25	98.13
Nov. 17	0.27	88.28	Dec. 25	0.25	98.37
Nov. 18	0.27	88.55	Dec. 26	0.25	98.62
Nov. 19	0.27	88.82	Dec. 27	0.27	98.89
Nov. 20	0.27	89.09	Dec. 28	0.28	99.17
Nov. 21	0.26	89.35	Dec. 29	0.28	99.45
Nov. 22	0.26	89.62	Dec. 30	0.27	99.72
Nov. 23	0.26	89.88	Dec. 31	0.28	100.00

Appendix D

State Return Rates as of December 31, 2000 and State Date of Reference

State Abbreviation	Percent Sums of YOB and Age Equal 2000	State Date of Reference	State Return Rate as of 12/31/00
AL	29.8	April 19, 2000	74.8%
AK	28.4	April 15, 2000	74.9%
AZ	30.3	April 22, 2000	76.2%
AR	29.5	April 19, 2000	77.6%
CA	31.7	April 27, 2000	78.2%
CO	28.8	April 16, 2000	80.0%
CT	30.0	April 19, 2000	79.8%
DE	30.1	April 20, 2000	77.1%
DC	32.5	April 29, 2000	71.9%
FL	30.5	April 23, 2000	76.9%
GA	29.9	April 20, 2000	77.4%
HI	31.3	April 24, 2000	73.7%
ID	28.4	April 15, 2000	82.0%
IL	30.1	April 21, 2000	79.2%
IN	28.6	April 15, 2000	80.9%
IA	27.8	April 12, 2000	85.4%
KS	28.4	April 15, 2000	81.5%
KY	29.2	April 17, 2000	77.9%
LA	29.9	April 22, 2000	73.9%
ME	28.7	April 15, 2000	78.1%
MD	30.0	April 20, 2000	78.8%
MA	30.1	April 20, 2000	78.5%
MI	28.6	April 15, 2000	83.3%
MN	28.0	April 12, 2000	85.8%
MS	30.2	April 22, 2000	76.2%
MO	28.3	April 14, 2000	81.7%
MT	28.1	April 13, 2000	82.4%
NE	27.8	April 12, 2000	84.8%
NV	30.9	April 24, 2000	74.3%
NH	28.5	April 15, 2000	79.6%
NJ	31.1	April 24, 2000	77.9%
NM	30.4	April 22, 2000	75.9%
NY	32.0	April 26, 2000	73.8%
NC	30.0	April 20, 2000	76.4%
ND	27.4	April 11, 2000	85.1%
OH	28.4	April 14, 2000	81.6%
OK	29.1	April 17, 2000	76.7%
OR	29.1	April 17, 2000	80.4%
PA	29.0	April 16, 2000	81.9%
RI	30.1	April 20, 2000	76.0%
SC	30.3	April 22, 2000	74.3%
SD	27.7	April 12, 2000	86.6%
TN	29.4	April 18, 2000	76.0%
TX	30.1	April 22, 2000	74.4%
UT	28.3	April 14, 2000	79.0%
VT	28.7	April 16, 2000	78.7%
VA	29.2	April 17, 2000	80.4%
WA	29.5	April 18, 2000	77.9%
WV	29.1	April 16, 2000	78.5%
WI	27.9	April 12, 2000	86.7%
WY	28.1	April 14, 2000	82.6%
PR	33.4	May 3, 2000	63.9%

Appendix E

Results From the Sum of Year of Birth and Age by Enumeration Type

Sum of Year of Birth and Age	Enumeration Type			
	Self		Enumerator	
	Number	Percent	Number	Percent
Total	192,176,346	-	60,314,151	-
1999	135,216,605	72.3	35,839,422	62.7
2000	51,746,493	27.7	21,363,049	37.3
Some Other Sum*	5,213,248	-	3,111,680	-

* This category is not included in the calculation of the percents

Appendix F

Outcome of Reporting Age as Compared to Calculated Age by Enumeration Type

	Enumeration Type			
	Self		Enumerator	
	Number	Percent	Number	Percent
Total	192,176,346	100.0	60,314,151	100.0
Under Reported Age by More than One Year	1,798,290	0.9	1,151,215	1.9
Under Reported Age by One Year	3,081,683	1.6	1,519,489	2.5
Reported and Calculated Age are Consistent	178,120,589	92.7	48,642,212	80.6
Over Reported Age by One Year	7,318,681	3.8	7,908,387	13.1
Over Reported Age by More than One Year	1,857,103	1.0	1,092,848	1.8

Appendix G

Outcome of Reporting Age as Compared to Calculated Age for Each Date Order by Enumeration Type

**Table G-1. Outcome of Reporting Age as Compared to Calculated Age
for Each Date Order for Person Enumerated by Self Response**

		Total	Age Reported		
			Under by One Year	Correctly	Over by One year
Total	#	188,520,953	3,081,683	178,120,589	7,318,681
	%	100.0	1.6	94.5	3.9
Birthday/Check In/April 1	#	33,279,063	1,048,376	32,039,387	191,300
	%	100.0	3.2	96.3	0.6
Check In/Birthday/April 1	#	4,110,403	418,357	3,663,352	28,694
	%	100.0	10.2	89.1	0.7
Birthday/April 1/Check In	#	9,425,493	348,838	9,006,020	70,635
	%	100.0	3.7	95.5	0.7
Check In/April 1/Birthday	#	113,335,331	979,767	107,134,717	5,220,847
	%	100.0	0.9	94.5	4.6
April 1/Birthday/Check In	#	1,271,514	9,929	1,056,127	205,458
	%	100.0	0.8	83.1	16.2
April 1/Check In/Birthday	#	27,099,149	276,416	25,220,986	1,601,747
	%	100.0	1.0	93.1	5.9

**Table G-2. Outcome of Reporting Age as Compared to Calculated Age
for Each Date Order for Person Enumerated by an Enumerator**

		Total	Age Reported		
			Under by One Year	Correctly	Over by One year
Total	#	58,070,088	1,519,489	48,642,213	7,908,387
	%	100.0	2.6	83.8	13.6
Birthday/Check In/April 1	#	1,019,536	46,787	963,733	9,016
	%	100.0	4.6	94.5	0.9
Check In/Birthday/April 1	#	111,518	15,029	95,394	1,095
	%	100.0	13.5	85.5	1.0
Birthday/April 1/Check In	#	13,477,042	771,114	12,536,590	169,338
	%	100.0	5.7	93.0	1.3
Check In/April 1/Birthday	#	3,390,161	41,699	3,096,298	252,164
	%	100.0	1.2	91.3	7.4
April 1/Birthday/Check In	#	9,422,849	107,831	5,228,919	4,086,099
	%	100.0	1.1	55.5	43.4
April 1/Check In/Birthday	#	30,648,982	537,029	26,721,278	3,390,675
	%	100.0	1.8	87.2	11.1

Appendix H

Outcome of Age Reporting at the Household Level by Enumeration Type

	Enumeration Type			
	Self		Enumerator	
	Number	Percent	Number	Percent
Total	77,527,835	100.0	22,196,925	100.0
Under Reported Age	3,863,874	5.0	1,623,612	7.3
Age Correctly Reported	66,146,082	85.3	13,998,481	63.1
Over Reported Age	6,877,856	8.9	5,839,276	26.3
Both Over and Under	640,023	0.8	735,556	3.3