

‘It's None of Their Damn Business’: Privacy and Disclosure Control in the U.S. Census, 1790-2020

The U.S. Census Bureau has implemented new methods for the 2020 census and other Bureau data products that represent profound changes to established Census Bureau privacy law and disclosure control precedents. We argue elsewhere that the new approach has the potential to severely undermine the utility of census data.¹ To understand the significance of the change and the rationale underlying it, we need to understand its historical context. Accordingly, this paper describes the history of the Census Bureau’s approach to privacy and disclosure control since 1790 and assesses public responses to Census disclosure risks since 1940.

In response to concerns about privacy and government intrusion, census officials have repeatedly made promises of confidentiality. We argue that those promises have been ineffectual because privacy and confidentiality are not the same thing. We define privacy as individuals’ control over the transfer of information about themselves to others. Confidentiality, by contrast, is the promise by the U.S. government to prevent disclosure of personal information to the public. When critics say, “it's none of your damn business,” census officials respond with “we will keep it a secret from outsiders.” We argue that from the outset the critics of the census have been mainly concerned about government prying and respondent burden; the confidentiality promises to keep personal information within the government do not address those concerns.

¹ Steven Ruggles, Catherine Fitch, Diana Magnuson, and Jonathan Schroeder. 2019. “Differential Privacy and Census Data: Implications for Social and Economic Research.” AEA Papers and Proceedings 109: 403-408, Steven Ruggles and David Van Riper, “The Role of Chance in the Census Bureau Database Reconstruction Experiment.” Population Research and Policy Review. <https://doi.org/10.1007/s11113-021-09674-3>; David Van Riper, Tracy Kugler, and Steven Ruggles. 2020. “Disclosure Avoidance in the Census Bureau’s 2010 Demonstration Data Product.” In Josep Domingo-Ferrer and Krishnamurty Muralidhar, eds., Privacy in Statistical Databases. Berlin and Heidelberg: Springer Verlag, pp. 353-369.)

The Open Census 1790-1840

The congressional debate over the content of the 1790 Census reflected concerns about government prying and respondent burden that have echoed over the past two centuries. James Madison, the chief designer of the first census, had originally proposed two census schedules. The first schedule focused on basic demographic questions: name of household head, white men 16+, white men under 16, white women, slaves, and “all other persons” (free blacks). The second proposed schedule focused on occupational questions, “specifying the number of persons employed in different professions and arts,” including merchants, mechanics, and manufacturers.² Occupational data was necessary, Madison believed, because it provided “an opportunity for marking the progress of society and the growth of every interest.”³ Writing to then secretary of state Thomas Jefferson that the information in the occupational schedule was needed both for policy formation and for social science, Madison argued that repeating the questions every decade resulted in “a curious and instructive assemblage of facts.”⁴

The issue was hotly debated.⁵ Representative John Page of Virginia worried that people would think the occupation questions were included merely for the “gratification of idle

² “Census,” Jan. 25, Jan. 26, 1790, in *The Papers of James Madison*, vol. XIII: 20 January 1790–31 March 1791, ed. Charles F. Hobson and Robert A. Rutland (Charlottesville, 1981), 8–9, 16; “Letter to Thomas Jefferson,” Feb. 14, 1790, *ibid.*, 30; “Census of the Union,” Jan. 25, 1790, in *The Debates and Proceedings in the Congress of the United States*, vol. I: Comprising (with Volume II) the Period from March 3, 1789, to March 3, 1791, Inclusive (Washington, 1834), 1077–78; “Census of the Union,” Feb. 2, 1790, *ibid.*, 1106–9.

³ https://press-pubs.uchicago.edu/founders/documents/a1_2_3s19.html

⁴ <https://founders.archives.gov/documents/Jefferson/01-16-02-0102> “Letter to Thomas Jefferson,” February 14, 1790, Charles F. Hobson and Robert A. Rutland (Charlottesville, 1981), 30.

⁵ “Census,” Jan. 25, Jan. 26, 1790, in *The Papers of James Madison*, vol. XIII: 20 January 1790–31 March 1791, ed. Charles F. Hobson and Robert A. Rutland (Charlottesville, 1981), 8–9, 16; “Letter to Thomas Jefferson,” Feb. 14, 1790, *ibid.*, 30; “Census of the Union,” Jan. 25, 1790, in *The Debates and Proceedings in the Congress of the United States*, vol. I: Comprising (with Volume II) the Period from March 3, 1789, to March 3, 1791, Inclusive (Washington, 1834), 1077–78; “Census of the Union,” Feb. 2, 1790, *ibid.*, 1106–9.

curiosity.”⁶ Senator Samuel Livermore of New Hampshire felt that such a scheme would potentially “excit[e] the jealousy of the people” and furthermore, citizens would fear its use for taxation and refuse to answer the census.⁷ Senator William Maclay of Pennsylvania for his part, objected to the whole lengthy schedule because of the extra expense and the burden on respondents.⁸ In the end, the occupational questions were thrown out by the Senate. As Thomas Jefferson wrote in a letter to George Washington, Congress considered them a “waste of trouble and supplying materials for idle people to make a book.”⁹

The core concerns in the debate over the 1790 census recurred again and again over the next 23 censuses. Those in favor of expanding the census argued that the information was needed for “adapt[ing] the public measures to the particular circumstances of the community” and “marking the progress of the society.”¹⁰ Critics countered that additional questions by the government too intrusive and too expensive. There was particular concern that the public suspected that the information would be used against them, especially for taxation. For example, the *Aurora*

⁶ The Debates and Proceedings in the Congress of the United States, First congress, First Session, volume 1, p. 1145. <https://digital.library.unt.edu/ar./67531/metadc29465/m1/574/?q=census>.

⁷ The Debates and Proceedings in the Congress of the United States, First Congress, First Session, Volume 1, p. 1145. <https://digital.library.unt.edu/ar./67531/metadc29465/m1/574/?q=census>.

⁸ Edgar S. Maclay, ed., *The Journal of William Maclay: United States Senator from Pennsylvania, 1789-1791* (New York: D. Appleton, 1890): 194-95, 197-98. Quote from Senator William Maclay on the “lengthy schedule,” February 12th entry, p. 193. <https://memory.loc.gov/cgi-bin/ampage?collId=llmj&fileName=001/llmj001.db&recNum=204&itemLink=r%3Fammem%2Fhlaw%3A%40filed%28DOCID%2B%40lit%28mj0014%29%29%230010008&linkText=1>.

⁹ “Census,” Jan. 25, Jan. 26, 1790, in *The Papers of James Madison*, vol. XIII: 20 January 1790–31 March 1791, ed. Charles F. Hobson and Robert A. Rutland (Charlottesville, 1981), 8–9, 16; “Letter to Thomas Jefferson,” Feb. 14, 1790, *ibid.*, 30; “Census of the Union,” Jan. 25, 1790, in *The Debates and Proceedings in the Congress of the United States*, vol. I: Comprising (with Volume II) the Period from March 3, 1789, to March 3, 1791, Inclusive (Washington, 1834), 1077–78; “Census of the Union,” Feb. 2, 1790, *ibid.*, 1106–9. 5 Gunnar Thorvaldsen, *Censuses and Census Takers: A Global History* (New York, Routledge, 2018). <https://founders.archives.gov/documents/Jefferson/01-16-02-0102> “Letter to Thomas Jefferson,” February 14, 1790, Charles F. Hobson and Robert A. Rutland (Charlottesville, 1981), 30.

¹⁰ “Census,” *Congressional Register*, III, 167-168, January 25, 1790, <https://founders.archives.gov/documents/Madison/01-13-02-0009>.

General Adviser published in Philadelphia in November 1790, suggested that smaller and poorer families must have “tempted many to conceal” their numbers, for fear of taxation.

The belief that some Americans “understated to the deputy marshals the number of persons in their families” was held by “the officials of the Government” as well as Secretary of State Thomas Jefferson. In July of 1791 President Washington wrote in a letter to Gouverneur Morris regarding the disappointing 3.9 million total, “that the real number will greatly exceed the official return; because, from religious scruples, some would not give in their lists; from an apprehension that it was intended as the foundation of a tax, others concealed or diminished theirs...”¹¹ It was reported by a couple of assistant marshals that they encountered refusals by heads of households “to Render an Account of his family pursuant to the directions of the aforesaid Act.”¹² Reports of a “prodigious deal of trouble” in obtaining information from respondents by one assistant marshal are inconclusive as to the nature of the problem.¹³

Over the next five decades, advocates for more detailed data kept pressing their case.¹⁴ In 1800, Thomas Jefferson, in a memorial for the American Philosophical Society, proposed additional questions on occupations, detailed age, and birthplace and citizenship.¹⁵ The president of the Connecticut Academy of Arts and Sciences Timothy Dwight also pressed for data on age groups, occupations, and marital status. In 1830, Congressman Charles F. Mercer “was in favor of

¹¹ Washington to Morris, July 28, 1791, <https://founders.archives.gov/documents/Washington/05-08-02-0261>.

¹² George Washington, November 1, 1791, <https://founders.archives.gov/?q=census&s=1111311113&sa=&r=229&sr=>.

¹³ William M. Fliss, “An Administrative and Political History of the Early Federal Census, 1790-1810,” (Master’s Thesis, University of Wisconsin-Milwaukee, 2000): 87. George Washington, November 1, 1791, <https://founders.archives.gov/?q=census&s=1111311113&sa=&r=229&sr=>.

¹⁴ Diana L. Magnuson, “The Making of a Modern Census: The United States Census of Population, 1790–1940,” 24-31.

¹⁵ Diana L. Magnuson, “The Making of a Modern Census: The United States Census of Population, 1790–1940” (Ph.D. diss., University of Minnesota, 1995): 15-17. *Ninth Census*, 18 January 1870, 41st Congress, 2d session, House Report 3, 436, pp. 35-36.

giving a still greater extent to the subjects required to be enumerated and returned by the marshals...”¹⁶ President John Quincy Adams used his fourth annual message to congress as an opportunity to smooth the way for expanding the age categories on the 1830 census; “the result would exhibit comparative tables of longevity highly interesting to the country.”¹⁷ Martin Van Buren also used his presidential annual message to suggest “extending” the census: “In recommending to Congress the adoption of the necessary provisions at this session for taking the next census or enumeration of the inhabitants of the United States, the suggestion presents itself whether the scope of the measure might not be usefully extended by causing it to embrace authentic statistical returns of the great interests specially intrusted to or necessarily affected by the legislation of Congress.”¹⁸ Although the advocates for census expansion didn’t get everything they asked for, the number of questions on the population schedule expanded from six in 1790 to 80 in 1840.

There were no promises of confidentiality of the population schedule before 1850. The 1790 Census Act specified that upon completing their enumeration of a district, each Assistant Marshall shall “cause a correct copy” of the census returns “to be set up at two of the most public places” in his district, “there to remain for the inspection of all concerned.”¹⁹ The idea was that copies of the census returns posted in the local post office or tavern would enable members of the

¹⁶ Magnuson, “The Making of a Modern Census: The United States Census of Population, 1790–1940,” 18. “Fourth census,” *The Debates and Proceedings in the Congress of the United States*, January 18, 1820, 16th Congress, 1st session, p. 922.

¹⁷ Magnuson, “The Making of a Modern Census: The United States Census of Population, 1790–1940,” 20. John Quincy Adams, “Fourth Annual Message to Congress,” December 2, 1828, <https://www.presidency.ucsb.edu/documents/fourth-annual-message-2>.

¹⁸ Martin Van Buren, “Second Annual Message to Congress,” December 3, 1838, <https://www.presidency.ucsb.edu/documents/second-annual-message-4>.

¹⁹ https://www.census.gov/history/pdf/1790_Census_Act.pdf. See also Carroll D. Wright and William C. Hunt, *The History and Growth of the United States Census* (Washington, D.C.: Government Printing Office, 1900): 1790, p. 14; 1800, p. 18; 1810, p. 21; 1820, p. 136; 1830, p. 30 and p. 141; 1840, p. 146. A History of Privacy Protections,” <https://www.census.gov/library/visualizations/2019/comm/history-privacy-protection.html>. Eckler, *The Bureau of the Census*, 165.

public to spot errors or omissions in the enumeration. The length of time for public inspection was not specified, “but must be presumed a reasonable time...within which all the inhabitants recorded in the schedule may have had a sufficient opportunity for the inspection thus offered them...”²⁰

Confidentiality promises first emerged not because of the questions on the population schedule, but rather, with the questions on the census of manufactures. In 1810, James Madison—by then the President—finally got the separate manufacturing schedule he had first proposed in 1790.²¹ Assistant marshals encountered resistance to providing information about business operations because a “rumor circulated” in advance of the canvass that “the information was required for tax purposes.”²² In 1820 the census of manufactures was compromised by the “reluctance of certain manufacturers to supply data.”²³ Some assistant marshals recorded respondent objections “directly on the schedules” and “in other cases the deputy marshals noted that the proprietors were either fearful of taxation or angry at the invasion of their privacy.”²⁴ For example, assistant Marshal Abijah Smith in Maine wrote at the end of his returns: “The answers given to Questions No. 9 and 13, were not to me perfectly satisfactory. Thro [sic] fear of an increase of Taxes, or from some other cause, they could not be prevailed upon to make their answers more definite.”²⁵ John Langdon, also an assistant marshal in Maine, observed that, “This part of my duty

²⁰ Wright and Hunt, *The History and Growth of the United States Census* (Washington, 1900), 136.

²¹ Wright and Hunt, *The History and Growth of the United States Census* (Washington, 1900), 23.

²² Meyer H. Fishbein, “The Censuses of Manufactures, 1810-1890,” Reference Information Paper No. 50 (National Archives and Records Service General Services Administration: Washington, 1973), 3. See for example, Population Schedules, 1810, North Carolina, Vol. 5, p. 147. <https://www.census.gov/history/pdf/manufactures1810-1890.pdf>.

²³ Meyer H. Fishbein, “The Censuses of Manufactures, 1810-1890,” Reference Information Paper No. 50 (National Archives and Records Service General Services Administration: Washington, 1973), 11. See, for example, 1820 manufacturing schedules, Rhode Island document 69, New Jersey document 169, Pennsylvania document 562, and Virginia document 152, NA, RG 29. <https://www.census.gov/history/pdf/manufactures1810-1890.pdf>

²⁴ Meyer H. Fishbein, “The Censuses of Manufactures, 1810-1890,” Reference Information Paper No. 50 (National Archives and Records Service General Services Administration: Washington, 1973), 11. See, for example, 1820 manufacturing schedules, Rhode Island document 69, New Jersey document 169, Pennsylvania document 562, and Virginia document 152, NA, RG 29. <https://www.census.gov/history/pdf/manufactures1810-1890.pdf>

²⁵ 1820 Census of Manufacture, FamilySearch, Maine, record-image 141.

was attended with some difficulty as the Individuals generally suspected it was preparatory to Taxation.”²⁶ In Massachusetts, several manufacturers refused to provide information for unspecified reasons.²⁷

No census of manufacturing was attempted in 1830. Manufacturing questions at the census of 1840 were part of a “Schedule of Mines, Agriculture, Commerce, Manufactures, etc.”²⁸ There were 79 agricultural questions, including questions on Beeswax and Silk Cocoons. Virginian John Hampden Pleasants complained about the agricultural census in a letter to the editor reprinted in several newspapers: “Is this Federal prying into the domestic economy of the People a precursor to *direct taxes*? Is nothing to escape its inquisition or its tax gatherers? Are even our hens and chickens to be listed, and an authenticated *expose* forwarded to Washington?”²⁹ Concern about the link between the census and taxation was thus explicitly and publicly stated.

For the first time in 1840, the Census Office responded to concerns about government intrusion with guarantees of confidentiality. The 1840 instructions to U.S. Marshals for collecting “all such information in relation to mines, agriculture, commerce, manufactures, and schools” noted that “Objections, it has been suggested, may possibly arise on the part of some person to give the statistical information required by the act, upon the ground of disinclination to expose their private affairs.”³⁰ And for the first time, the instructions made a promise of disclosure control, noting that in the published tables, “no name is inserted—the figures stand opposite no man’s

²⁶ 1820 Census of Manufacture, FamilySearch, Main3, record-image 84.

²⁷ 1820 Census of Manufacture, FamilySearch, Massachusetts, record-image 142, 144 and 205.

²⁸ Wright and Hunt, *The History and Growth of the U.S. Census*, p. 304.

²⁹ John Hampden Pleasants letter to the editor, *Richmond Whig*, July 17, 1840. Six years after this was written, Pleasants was killed in a duel over his abolitionist views. <http://ead.lib.virginia.edu/vivaxtf/view?docId=lva/vi01251.xml>; Anna Waddlelove, “Richmond History: Duel in Richmond,” *Richmond Times-Dispatch*, May 9, 2011. https://www.richmond.com/discover-richmond/article_52952210-cc16-5a52-8053-d092a57f85e8.html. Wright and Hunt, *The History and Growth of the United States Census* (Washington, 1900), 38.

³⁰ Wright and Hunt, *The History and Growth of the United States Census* (Washington, 1900), 145.

name.”³¹ Assistant marshals were instructed to “consider all communications made to him in the performance of this duty, relative to the business of the people, as strictly confidential.”³² This new confidentiality policy applied only to the schedule covering mines, manufacturing, commerce, and agriculture; the 80 questions of describing the characteristics of the population were still publicly posted in prominent places to allow the public to make corrections.

Limits on the gratification of curiosity, 1840-1950

The 1790 directive to post the manuscript population schedules in a public place for “the inspection of all concerned,” to facilitate verifying and correcting returns was discontinued in 1850, and instead a copy of the returns was deposited with their respective county clerk.³³ This change may have partly reflected a major redesign of the census population schedule. Instead of recording summary statistics for each household, the 1850 census collected information on each individual. These included potentially sensitive questions on value of property, birthplace, literacy, detailed occupation, criminal conviction, and disabilities.

Prohibition of Confidentiality Breaches, 1850-1900

For the first time, the 1850 enumeration instructions admonished that personal information was to be kept confidential. Marshals were specifically directed in a circular “to consider the facts intrusted [sic] to them as if obtained exclusively for the use of the Government, and not to be used in any way to the gratification of curiosity, the exposure of any man’s business or pursuits, or for the private emolument of the marshal or assistants.”³⁴ The Census Office had received information

³¹ Wright and Hunt, *The History and Growth of the United States Census* (Washington, 1900), 145.

³² Wright and Hunt, *The History and Growth of the United States Census* (Washington, 1900), 145.

³³ Frederick G. Bohme and David M. Pemberton, “Privacy and Confidentiality in the U.S. Censuses: A History,” paper presented at the American Statistical Association, August 18-22, 1991 (Atlanta, Georgia): p. 3.

³⁴ Wright and Hunt, *The History and Growth of the United States Census* (Washington, 1900), 150.

that “in some cases unnecessary exposure” had been made by assistant marshals “with reference to the business and pursuits, and other facts relating to individuals, merely to gratify curiosity.”³⁵

The general instructions to assistant marshals repeated this guidance in 1860 and noted that in 1850 “Cause for offense was given by one or two indiscreet assistants...by the liberty exercised in the unnecessary exposure of facts relating to the business and pursuits of individuals...to persons who desired it for private advantage or pecuniary profit, or to newspapers.”³⁶ The language of expected confidentiality on the part of canvassers was strengthened in 1870: “No graver offense can be committed by assistant marshals than to divulge information acquired in the discharge of their duty. All disclosures should be treated as strictly confidential, with the exception hereafter to be noted in the case of the mortality schedule. Information will be solicited of any breach of confidence on the part of assistant marshals. The department is determined to protect the citizen of all his rights in the present census.”³⁷ Congressman (later president) James A. Garfield advocated at the 1870 census for a statutory penalty for census data disclosure because “the citizen is not adequately protected from the danger, or rather the apprehension, that his private affairs, the secrets of his family and his business, will be disclosed to his neighbors” or “made the quarry of bookmakers or pamphleteers.”³⁸

In 1880 the census made it a misdemeanor with a penalty up to \$500 for “communicat[ing], without the authority of the Superintendent of Census, to any unauthorized person any statistics of property or business included in his return...”³⁹ An entire section with the heading, “PENALTY FOR DISCLOSING INFORMATION,” was included in the 1890 instructions to enumerators:

³⁵ Wright and Hunt, *The History and Growth of the United States Census* (Washington, 1900), 150.

³⁶ Eighth U.S. Census, General Instructions, p. 12, <https://www.census.gov/history/pdf/1860instructions.pdf>.

³⁷ Wright and Hunt, *The History and Growth of the United States Census* (Washington, 1900), 156.

³⁸ “The Right to Privacy in Nineteenth Century America,” *Harvard Law Review*, volume 94, no. 8 (June 1981), p. 1905.

³⁹ Wright and Hunt, *The History and Growth of the United States Census* (Washington, 1900), 66.

“The intent of this provision is to make the answers to all the inquiries confidential, and to prevent disclosures of information which would operate to the personal detriment or disadvantage of the person supplying the same.”⁴⁰ This language was repeated in the Census Act of 1900.⁴¹

Data Sharing across Government Entities

Despite the increasing controls on disclosure of census information after 1850, census information was widely shared across government agencies and sometimes with non-governmental entities. In 1870 Superintendent of the Census Francis A. Walker criticized the practice of depositing a copy of the census returns with county offices on the grounds that this posed an intolerable threat to confidentiality. He wrote,

It is useless to attempt to maintain the confidential character of a census under such circumstances. The deposit of the returns at the county seat of every county constitutes a direct invitation to impertinent or malicious examination. No proper purpose can be served by this copy of the census returns. All the use to which it can be put must be improper and mischievous. At every step the work of the assistant marshal has been made more difficult by the fear that the information would be used with a view to taxation, or that matters strictly of family or personal interest would be divulged for impertinent and malicious criticism.⁴²

Access to population schedules by state and municipal governments was explicitly permitted (for a modest fee) beginning in 1890. “That upon request of any municipal government...the Superintendent of Census shall furnish such government with a copy of the names, with age, sex, birthplace, and color or race, of all persons enumerated within the territory in the jurisdiction of such municipality, and such copies shall be paid for by such municipal

⁴⁰ “PENALTY FOR DISCLOSING INFORMATION” is the heading.

https://www.census.gov/history/www/through_the_decades/census_instructions/1890_instructions.html.

⁴¹ Wright and Hunt, *The History and Growth of the United States Census* (Washington, 1900), 954. A. Ross Ecker, *The Bureau of the Census* (Praeger Publishers, 1972), p. 166.

⁴² Francis A. Walker, *Report of the Superintendent of the Ninth Census* (Department of the Interior, November 21, 1871), p. xxviii.

government...”⁴³ The 1910 census act extended access to population schedules at the “discretion” of the Director of the Census to include individuals seeking data “for genealogical or other purposes.”⁴⁴

Over subsequent decades, access was gradually tightened.⁴⁵ The Fourteenth Census Act (1920) specified that “Director of the Census [shall not] permit anyone other than the sworn employees of the Census Office to examine the individual reports.”⁴⁶ A decade later, the Census Bureau further clarified that the 1929 Census Act protected the information collected from being used “to the detriment of the person or persons to whom such information relates.”⁴⁷

The tension between public promises of confidentiality and intragovernmental expectations for access to census data accelerated when the United States entered the Great War in 1917. There was widespread opposition to American entry into the war, and resistance to conscription was not an insignificant problem. In 1910 President Taft issued the first presidential proclamation regarding the census and in it he promised that “There need be no fear that any disclosure will be made regarding any individual person or his affairs.”⁴⁸ Nevertheless, Census Director Samuel L. Rogers believed that “every branch of Government, including this Bureau, should assist...as far as possible, in securing a full registration.”⁴⁹ Thus the Department of Justice,

⁴³ 1890 Census Act, p. cxxxiv, <https://www.census.gov/history/pdf/1890censusact-102017.pdf>. 1900 Census Act, Wright and Hunt, *The History and Growth of the U.S. Census*, pp. 955-956. This permission to provide individual data at the discretion of the Superintendent/Director of the Census stood until Title 13, Section 8 was passed in 1976. Frederick G. Bohme and David M. Pemberton, “Privacy and Confidentiality in the U.S. Censuses: A History,” paper presented at the American Statistical Association, August 18-22, 1991 (Atlanta, Georgia): p. 6. A. Ross Eckler, *The Bureau of the Census* (Praeger Publishers, 1972), 165.

⁴⁴ Section 32 of the 1909 census act, p. 10. https://www.census.gov/history/pdf/1909_Census_Act.pdf.

⁴⁵ See Director’s Report under heading, “Furnishing of Census Statistics to Local Governments and Private Organizations and Individuals,” pp. 15-18, <https://www2.census.gov/prod2/decennial/documents/11522832p1881-1921ch6.pdf>.

⁴⁶ Section 25 of the Fourteenth Census Act, p. 13. <https://www.census.gov/history/pdf/censusact-mar1919.pdf>.

⁴⁷ Section 18 of the Fifteenth Census Act, p. 26. https://www.census.gov/history/pdf/1929_census_act.pdf

⁴⁸ <https://www.census.gov/history/img/proclamation1910-artifact.jpg>.

⁴⁹ Margo J. Anderson, *The American Census: A Social History* (Yale U Press, 2015 2e), 129.

in its effort to enforce compliance with the Selective Service Act (1917), requested and received information to investigate draft evasion and figures to estimate eligible numbers of draftees.⁵⁰ In peacetime in 1930, the Women's Bureau requested a list of names, addresses, occupations, and employment status of women in Rochester, New York. The Census Bureau referred the request to the Attorney General, who ruled against disclosing the requested information.⁵¹

The context of the Second World War again raised the issue of intragovernmental sharing of census information. The passage of the Second War Powers Act (1942) stated that the Secretary of Commerce, at the discretion of the President, was permitted to "make such special investigations and reports of census or statistical matters as may be needed in connection with the conduct of the war..."⁵² Thus census data could be (and was) used by any branch of the government for war purposes.⁵³ Census Director J.C. Capt was unflinchingly committed to providing census data as necessary to support the war effort.⁵⁴ Anderson and Selzer have described in detail examples of wartime disclosure and the broader historical context of "issues related to statistical confidentiality."⁵⁵

Three waves of census hysteria, 1940-2000

⁵⁰ Frederick G. Bohme and David M. Pemberton, "Privacy and Confidentiality in the U.S. Censuses: A History," paper presented at the American Statistical Association, August 18-22, 1991 (Atlanta, Georgia): pp. 10-11. Margo J. Anderson, *The American Census: A Social History* (Yale U Press, 2015 2e), 129-130.

⁵¹ Eckler, *The Bureau of the Census*, 168.

⁵² Section 1401 of the War Powers Act of 1942, "Title XIV: Utilization of Vital War Information," p. 186, <https://www.loc.gov/law/help/statutes-at-large/77th-congress/session-2/c77s2ch199.pdf>.

⁵³ Executive Order 9157, May 9, 1942, <https://margoanderson.org/govstat/secwpa.htm#Executive%20Order%20No%209157>. Margo Anderson, "War, Welfare, and the Census," chapter in *The American Census: A Social History* (Yale University Press, 2015 2e). Raymond Y. Okamura, "The Myth of Census Confidentiality," *The Amerasia Journal*, vol. 8, issue 2 (1981), 111-120.

⁵⁴ Margo J. Anderson, *The American Census: A Social History* (Yale U Press, 2015 2e), 129-130 and 192-196.

⁵⁵ William Seltzer and Margo Anderson, "Census Confidentiality Under the Second War Powers Act (1942-1947)," Population Association of America Annual Meeting, March 29-31, 2007, New York, NY. <https://www.census.gov/history/pdf/ConfidentialityMonograph.pdf>.

We identified little public concern about census privacy in the nineteenth century, just a few isolated newspaper cartoons and articles that poke fun at the intrusiveness of the census. Figure 1 shows a *The Saturday Evening Post* cartoon published in 1860 featuring invasive questions that appeared on census forms from 1850 to 1870.⁵⁶ In 1875, *The New York Times* described the census taker as “a busybody in other men’s matters” and “an impertinent spy” who “invades domestic privacy.”⁵⁷ “Forced, by reason of duty, into the privacy of people’s houses and domestic affairs” the 1880 enumerator was “browbeaten and snubbed and subjected to all manner of abuse...”⁵⁸



CENSUS MARSHAL.— “ I jist want to know how many of yez is deaf, dumb, blind, insane, and idiotic—likewise how many convicts there is in the family—what all your ages are, especially the old woman and the young ladies—and how many dollars the old gentleman is worth!”

Figure 1. *Saturday Evening Post*, August 18, 1860

To understand long-run trends public concern about privacy in the census, we turned to newspaper articles. We identified 453 articles in 31 newspapers that referred to census privacy or confidentiality. To obtain a reasonably comparable chronological series, we focused on 229

⁵⁶ “The Great Tribulation,” *Saturday Evening Post*, August 18, 1860.

⁵⁷ “Trials of the Census Taker,” *The New York Times*, July 19, 1875

⁵⁸ “The Census Takers’ Pay,” *Arkansas Gazette*, August 18, 1880, volume 62, issue 107.

articles in four major newspapers that are digitally searchable back to 1881: *The Los Angeles Times*, *The Minneapolis-Star Tribune*, *The New York Times* and *The Washington Post*. Each of these 229 articles identifies a concern about privacy or confidentiality of the census by a member of the public, legislator, or some other entity.⁵⁹ We classified these public concerns into four categories: 1) disclosure of census information to someone outside of government; 2) improper use by the government (e.g., enforce laws about taxes, a military draft, or immigration); 3) government invasion of privacy, or “Big Brother”; 4) concerns about differential privacy, the Census Bureau’s disclosure avoidance system.

The number of articles in each category surrounding each census appears in Figure 2. Only four articles pertain to the period before 1940. There were three major waves of interest in census privacy, in 1940, 1970, and 2000. The great majority of articles were concerned about privacy, usually expressed as government intrusion. Only five of the 229 articles mentioned a risk of disclosure of census information to anyone outside of government. Four of these concerns were reported in 1940; the fifth expressed concern that the 2020 census could be vulnerable to hackers because the Census Bureau inadequate data security infrastructure.⁶⁰ A few newspaper accounts scattered across the period from 1940 to 2020 expressed concern about misuse of the census data by other branches of government, such as the IRS.⁶¹

⁵⁹ *Los Angeles Times*, *Minneapolis-Star Tribune*, *New York Times*, *Washington Post*.

⁶⁰ <https://www.washingtonpost.com/news/powerpost/paloma/the-cybersecurity-202/2019/05/01/the-cybersecurity-202-the-census-is-vulnerable-to-digital-attack-but-congress-may-be-dropping-the-ball/5cc8f289a7a0a46cfe152bc9/>

⁶¹ Toni Anthony, “Praise, Pan ‘70 Census,” *Chicago Daily Defender*, February 17, 1970, p. 4. “Census and Privacy,” *Christian Science Monitor*, January 17, 1969. *Christian Science Monitor*, “Census bill seeks wider access,” September 6, 1977. *Christian Science Monitor*, “Censuses’ most invasive question isn’t about toilets,” May 9, 2000. *Chicago Tribune*, “Some ‘weird’ views: Many Americans doubt census confidentiality,” October 19, 1978. *Los Angeles Times*, “Groups take aim at census worries,” August 15, 2019. “In the Nation: the president’s view on census controversy,” *New York Times*, March 7, 1940.

Articles about privacy and disclosure in the 2020 census focused two main themes. The Trump administration had attempted to add a question on citizenship to the census at the last moment, and this generated fears that the information might be used improperly by government agencies such as Immigration and Customs Enforcement. The second concern in 2020 was about the Census Bureau’s a new approach to disclosure avoidance, and they reflected the Census Bureau assertion that the tabular data ordinarily published by the census could be attacked by outsiders to reveal protected census responses. Because these concerns were generated exclusively by the Census Bureau and do not reflect public opinion, we have represented them with a dotted bar in Figure 2. If we omit articles about differential privacy, 2020 does not show exceptional concern with census privacy, despite the uproar about the citizenship question.

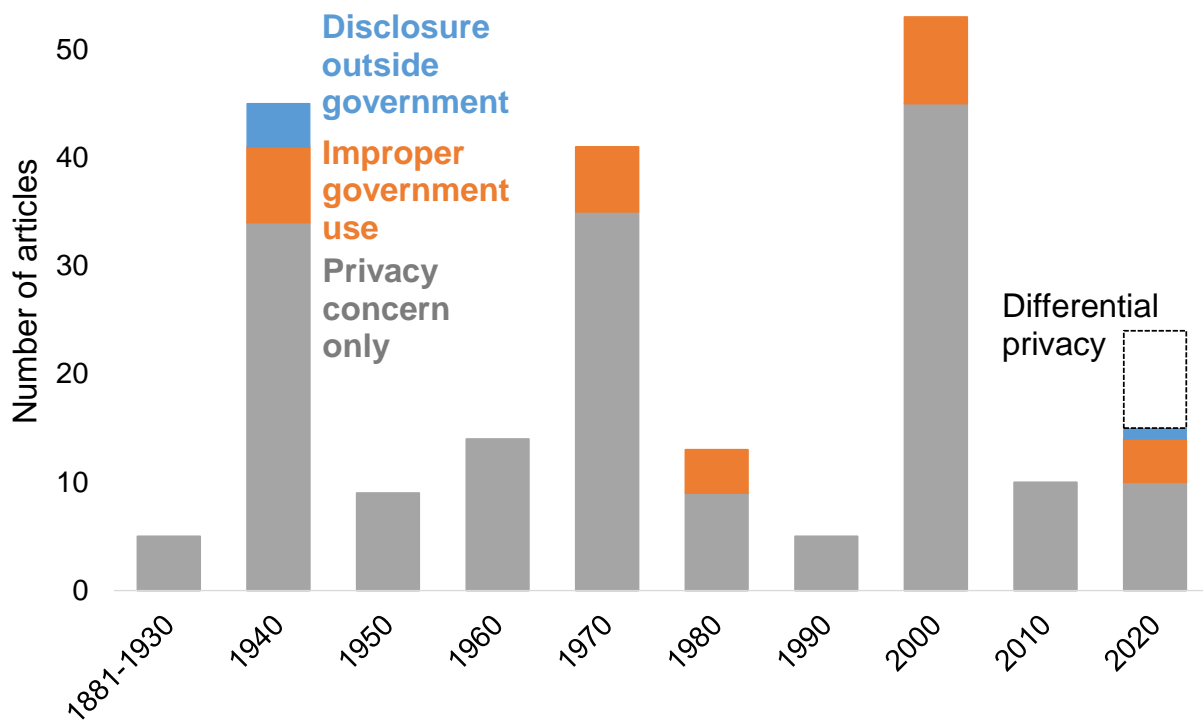


Figure 2. Articles discussing census privacy, by type of concern expressed: LA Times, Minneapolis Star & Tribune, NY Times, Washington Post, 1870-2020

1940: All the Privacy of a Goldfish

The first wave of census hysteria occurred in 1940. The number of population and housing questions more than doubled from 30 in 1930 to 65 in 1940. For the first time, the census included a question on “Amount of money wages or salary received (including commissions).”⁶² Even “pickpockets, burglars, and bandits” of Bridewell Prison in New York “considered this a violation of their right to privacy.”⁶³ The *Minneapolis-Star Ledger* captured the sense of invasion of privacy attributed to many Americans in the cartoon, “All the Privacy of a Goldfish.”⁶⁴ Unlike the similar 1860 cartoon “The Great Tribulation,” the 1940 cartoon included questions that were not actually on the census form.

Figure 3. Minneapolis Star Ledger, February 25, 1940.

Text: 1940 U.S. Census.
 Are you living with your wife?
 How many wives have you had and if so why?
 How much money do you owe?
 How much have you got?
 How much did you make last year?
 What did you do with it?



⁶² https://www2.census.gov/library/publications/2002/dec/pol_02-ma.pdf, 59 and 62-63.

⁶³ “Bridewell Inmates Resent Census ‘Income’ Query,” *The Chicago Defender (National Edition)*, April 27, 1940, p. 15.

⁶⁴ “All the Privacy of a Goldfish,” *Minneapolis-Star Ledger*, February 25, 1940. Some cartoons gave a more positive reaction to the new questions. The housing census asked a new question on “principal refrigeration equipment” and a New Yorker cartoon depicted a woman directing the salesman to “be sure to deliver the new refrigerator in time for the census.” “And be sure to deliver it in time for the census,” *New Yorker*, March 30, 1940. A New York Times cartoon suggested that Americans were happy to crowd into a picture and answer all kinds of questions from mortgage status to unemployment. “An Intimate Portrait of a Famous Family,” *New York Times*, March 3, 1940.

Senator Charles W. Tobey (R-NH) led a charge to eliminate the income question from the census. “I protested just as soon as the terrible violation of privacy came to my eyes ... It isn't necessary in a Republic such as ours, that every citizen should live in a goldfish bowl ... There are just some things that are none of the public's business. If the Government keeps on encroaching on the rights of its citizens, we'll be no better off than our fellow human beings who live under despotic forms of government.”⁶⁵ Tobey used inflammatory language to characterize the income question as “inquisitorial” and pushed for removal of the question on the schedule.⁶⁶ “You might as well ask questions about the use of contraceptives or about relations between husbands and wives.”⁶⁷ When his approach to foment “rebellion” failed he then urged concerned citizens to refuse to answer the “snooping” questions.⁶⁸ Though President Roosevelt branded Tobey’s efforts as a “revolt,” he offered a “concession” to those who had privacy concerns about the income question. The Census Bureau “devised” a plan “by which persons who are unwilling to tell census enumerators the amount of their salaries, can forward the information anonymously to Washington.”⁶⁹ Under this plan, those who refused to disclose their income directly to the enumerator were given a confidential form and an envelope addressed to the Census Director that they could complete in private. Only 200,000 respondents took this option, and another 1.5 million did not answer the income question at all.⁷⁰

⁶⁵ “Census: Are Questions on Income Legal?” *The Christian Science Monitor*, February 28, 1940, p. 3.

⁶⁶ “Census Called Inquisitorial,” *Los Angeles Times*, March 17, 1940, p. 7.

⁶⁷ “Predict Erasure of Income Query in Census Prying,” *Chicago Daily Tribune*, March 2, 1940, p. 6.

⁶⁸ “Senator Toby of New Hampshire is working up a revolt against the census-takers. The liberty-loving Americans should refuse to be a statistic.” *New Yorker*, March 16, 1940, p. 65. “Revolt on Census Advised by Tobey,” *New York Times*, March 10, 1940, p. 1. “Warns Snoopers Have Secret Tax and War Motives,” *Chicago Daily Tribune*, March 10, 1940, p. 25.

⁶⁹ “Roosevelt Grants Census Sop, Brands Toby Move as ‘Revolt’,” *The Christian Science Monitor*, March 15, 1940, p. 1. “Hopkins to allow Private Answer to Snoop Quiz,” *Chicago Daily Tribune*, March 15, 1940, p. 3. “Census Income Questions Can Be Answered Secretly,” *Minneapolis Star Tribune*, March 15, 1940.

⁷⁰ Jenkins (version on IPUMS website) pp. 18, 37. Percent nonresponses from IPUMS; Jenkins reports a non-response rate of 2%.

The issue of privacy was the featured lead item in the *New Yorker's* "Talk of the Town" column. The column opens: "BEYOND any doubt we are living in the great era of question-asking, the heyday of official curiosity. On April 2nd, the census takers, covering the land like locusts, are going to want to know more about us than they ever did before—more about our house, more about our income, more about where we were on the night of January 16th. We have been reading that a lot of statesmen are dismayed by this prospect, seeing their constituents' privacy ruthlessly violated [this of course is a reference to Senator Tobey]. It is our opinion that this is largely waste motion ... We don't think the census-taker is going to have any special trouble getting the facts out of people..."⁷¹

1970: The National Data Center and Big Brother

The second wave of census hysteria began in the 1960s and was fueled by concerns about "Big Brother."⁷² The context surrounding this wave of hysteria was the recommendation by the Committee on the Preservation and Use of Economic Data to the Social Science Research Council, to create a national data center. The idea behind the Data Center was to make data from different federal sources interoperable, preserve it, and make it accessible to researchers under strict disclosure guidelines.⁷³ The Lyndon Johnson Administration supported the idea and it appeared things were moving in the direction for the formation of the Data Center.⁷⁴ Then, abruptly, there was a backlash.

⁷¹ "Talk of the Town," March 16, 1940, *The New Yorker*.

⁷² <https://www.britannica.com/topic/Big-Brother-fictional-character>.

⁷³ Richard Ruggles, et al., *Report of the Committee on the Preservation and Use of Economic Data* (1965). <https://archive.org/details/ReportOfTheCommitteeOnThePreservationAndUseOfEconomicData1965>.

⁷⁴ Rebecca S. Kraus, "Statistical Deja Vu: The National Data Center Proposal of 1965 and Its Descendants," Volume 5, Number 1 (2013) *Journal of Privacy and Confidentiality*, pp. 1-37.

Congressman Cornelius Gallagher (D-NJ) led the charge, accusing the authors of the proposal of trying to create computerized dossiers on every American.⁷⁵ In a hearing before a subcommittee of the Committee on Government Operations, Gallagher in his opening statement said, “The presence of these records in Government files is frightening enough, but the thought of them neatly bundled together into one compact package is appalling. We cannot be certain that such dossiers would always be used by benevolent people for benevolent purposes.”⁷⁶ *The Atlantic* published an article by Arthur Miller, a civil procedure scholar, who wrote that the Data Center “Poses a grave threat to individual freedom and privacy. With its insatiable appetite for information, its inability to forget anything that has been put into it, a central computer might become the heart of a government surveillance system that would lay bare our finances, our associations, or our mental and physical health to government inquisitors or even to casual observers.”⁷⁷

The press picked up Gallagher’s concerns and hundreds of articles appeared in newspapers and magazines across the country.⁷⁸ Gallagher was quoted as saying, “People worry about who has the button on nuclear weapons. We’ve got to start worrying about who has the button on the computer.”⁷⁹ The *New York Times* ran a story with the headline, “Professor Warns of Robot Snooper: Tells Senators Data Bank Could Destroy Privacy.” A University of Michigan

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<https://news.google.com/newspapers?id=ZGogAAAIBAJ&sjid=3GYFAAAAIBAJ&pg=933,5465131&dq=data-center&hl=en>.

⁷⁶ Cornelius E. Gallagher, “The Computer and Invasion of Privacy,” Hearing before a subcommittee of the Committee on Government Operations, House of Representatives, 89th Congress, 2d session, July 26-28, 1966 (Washington, GPO, 1966), p. 3, <https://archive.org/details/U.S.House1966TheComputerAndInvasionOfPrivacy>.

⁷⁷ Arthur R. Miller, “The National Data Center and Personal Privacy,” *The Atlantic* (November 1967) [unknown page numbers, text taken from Big Brother 7 PPT]

⁷⁸ Rebecca Kraus, “Statistical Deja Vu: The National Data Center Proposal of 1965 and Its Descendants,” *Journal of Privacy and Confidentiality* 5 (2013), 13-17.

⁷⁹ George Lardner, Jr., “Center for Data on Everybody Recommended: No Secrets Barred,” *The Washington Post*, June 13, 1966, p. A3.

law professor reportedly warned that “a computerized national data bank could become a monstrous ‘Big Brother’ with an insatiable appetite for snooping.”⁸⁰ The “all-seeing eye” was a “hallmark of totalitarianism.”⁸¹ Witnesses at the hearings on the proposal for the National Data Center reportedly “assailed the plan” as a “threat to individual liberty,” and a “harbinger of Big Brother, and a mechanized suffocation of the American dream.”⁸² Gallagher wrote that “More than ever before, man has the horrendous potential for creating his own version of hell—a computerized, dehumanized, unidimensional society, inhibited by no law or moral consideration in the exercise of its enormous power over all individuals.”⁸³

Why this wave of panic in the 1960s? Partly it was the fear of the computer—the “electronic brain,” which in science fiction often proved to have malevolent intent.⁸⁴ Some fears, however, were founded in reality. For example, FBI Director J. Edgar Hoover’s abuses of power had been coming to light. It was an open secret that the FBI maintained files on millions of Americans that were sometimes used to intimidate and blackmail.⁸⁵ The leap from “the electric brain” to “dossiers on every American” did not seem so far-fetched in this context.

By 1970, when the furor over the National Data Center and Big Brother seemed to be dying down, it was revived by Republican Congressman Jackson Betts (OH). For 19 years, Betts was an obscure figure in the House of Representatives. Then, he stumbled on an issue: the

⁸⁰ “Professor Warns of Robot Snooper: Tells Senators Data Bank Could Destroy Privacy,” *New York Times*, March 15, 1967, p. 36.

⁸¹ Vance Packard, “Don’t Tell It To the Computer,” *The New York Times Magazine*, January 8, 1967, p. 44. [found this one in Big Brother 7 PPT]

⁸² George Lardner, Jr., “Data Center Hearing Warned on Privacy,” *The Washington Post*, July 27, 1966, p. A1.

⁸³ Cornelius E. Gallagher, “The Computer and Invasion of Privacy,” p. 113 [we have the pdf on the drive, does not identify from where this is taken. Does not appear to be from the House Hearings, even though the title is the same.]

⁸⁴ *Magnus, Robot Fighter Metal Mob, Volume 1* (1964): p. 191.

<https://books.google.com/books?id=gygCDAAAQBAJ&pg=PA191&lpg=PA191&dq=you+are+within+Malev-6&source=bl&ots=EiyTlfqCMN&sig=ACfU3U0kJNjEmGLaofexMi0so4y5eKKQHA&hl=en&sa=X&ved=2ahUKEwiIhZ6avovpAhVIb60KHYYhFDucQ6AEwAnoECA8QAQ#v=onepage&q=you%20are%20within%20Malev-6&f=false>

⁸⁵ Rhodri Jeffreys-Jones, “Anachronism as Myth and Reality,” chapter in *The FBI: A History* (Yale University Press, 2007), 149-174. Tim Weiner, *Enemies: A History of the FBI* (New York: Random House, 2012).

“intrusive” questions contained in the 1970 census. Betts got an enormous amount of press coverage on the issue, but not much traction.⁸⁶ In the end, even Cornelius Gallagher—the congressman from New Jersey who had led the charge against the National Data Center in the mid-1960s, turned on Betts, and affirmed the “government’s need to know.”⁸⁷

2000: “It’s None of their Damn Business”

The third wave of census hysteria emerged from the convergence of the rise of talk radio and several Republican politicians raising concerns about the census and privacy.⁸⁸ The context of this wave lies in the decision of the Federal Communication Commission to dispense with the Fairness Doctrine in 1985, opening up the airwaves to “ideologically based programming.”⁸⁹ Talk radio “got louder” between the censuses of 1990 and 2000.⁹⁰ Right-wing radio hosts were free to fill drive-time with diatribes about government intrusion represented by the census long

⁸⁶ Paul Valentine, “Fear of Prying Rises: Census Bureau Faces Battle on Questions,” *Los Angeles Times*, November 11, 1968. *New York Times*, “Curb on curiosity in census is sought,” June 25, 1967. *New York Times*, “Plea to cut queries in census rejected, October 25, 1967. *Washington Post*, “Census Questions that ‘Pry’ Attacked,” October 25, 1967. *Washington Post*, Will ‘70 Census Be Too Personal?: Inside the Economy Census Questions Provocative,” February 8, 1969. “Census Privacy,” *Chicago Tribune*, March 9, 1969.

⁸⁷ “Quiet ‘Country Congressman’ Makes Citylike Noise Over ‘70 Census,” *New York Times*, April 1, 1969, p. 36.

⁸⁸ Jeffrey M. Berry and Sarah Sobieraj, “Understanding the Rise of Talk Radio, *Political Science and Politics*, Vol. 44, No. 4 (October 2011), 762-767. Paul Matzko, “Talk Radio is Turning Millions of Americans Into Conservatives,” <https://www.cato.org/commentary/talk-radio-turning-millions-americans-conservatives> [?] “One of the events that paved the way for the success of political talk radio was the Federal Communication Commission’s decision in 1985 that the Fairness Doctrine was no longer needed, a decision that was unsuccessfully challenged by Congress and subsequently upheld by a federal Appeals Court in 1989. Adopted in 1949, the Fairness Doctrine had stipulated that broadcasters must provide reasonable balance when airing controversial opinions. With the end of the Fairness Doctrine, broadcasters were free to air ideologically biased programming.” David C. Barker, *Rushed to Judgement* (Columbia University Press, 2002), 16.

⁸⁹ Jeffrey M. Berry and Sarah Sobieraj, “Understanding the Rise of Talk Radio, *Political Science and Politics*, Vol. 44, No. 4 (October 2011), 763. Paul Matzko, “Talk Radio is Turning Millions of Americans Into Conservatives,” <https://www.cato.org/commentary/talk-radio-turning-millions-americans-conservatives>. David C. Barker, *Rushed to Judgement* (Columbia University Press, 2002), 16.

⁹⁰ *Congressional Record*, Volume 146, Part 3 (2000), 4269. [<https://www.govinfo.gov/content/pkg/CRECB-2000-pt3/pdf/CRECB-2000-pt3-Pg4265.pdf>]. David C. Barker, *Rushed to Judgement* (Columbia University Press, 2002), 24. https://en.wikipedia.org/wiki/List_of_most-listened-to_radio_programs.

form.⁹¹ Before the census was even underway in April 2000, “From newspapers to television, and from talk radio to congressional offices, everyone was talking about privacy and the perceived intrusive nature of the long form questionnaire.”⁹²

Senator Chuck Hagel (R-NE), Senate Majority Leader Trent Lott (R-MS), and governor and presidential candidate George Bush (R-TX) were vocal in their objections to the census long form on privacy grounds.⁹³ Hagel said, “Just fill out what you need to fill out, and [not] anything you don’t feel comfortable with.”⁹⁴ Lott’s “advice to his fellow Americans” was, if they “feel their privacy is being invaded by [some] questions, they can choose not to answer.”⁹⁵ On the presidential campaign trail Bush said he was not sure he would want to fill out the long form.⁹⁶ Hagel, Lott, and Bush did not cite a risk of public disclosure; rather, in Hagel’s words, “I don’t know why the government needs all that information ... It’s none of their damn business.”⁹⁷ In Congressional testimony on April 3, 2000, Carolyn Boshier Maloney (D-NY) rebuked the men, “What is really amazing with this newfound concern about the census is that, over 2 years ago,

⁹¹ *Congressional Record*, Volume 146, Part 3 (2000), 4269. [<https://www.govinfo.gov/content/pkg/CRECB-2000-pt3/pdf/CRECB-2000-pt3-Pg4265.pdf>]. C. Richard Hofstetter, David Barker, James T. Smith, Gina M. Zari, Thomas A. Ingrassia, “Information, Misinformation, and Political Talk Radio,” *Political Research Quarterly*, Vol. 52, No. 2 (June 1999), 353-369. David C. Barker, “Talk Radio, Persuasion, and American Political Behavior,” chapter in *Rushed to Judgement* (Columbia University Press, 2002), 14-29.

⁹² “The American Community Survey—A Replacement for the Census Long Form?” Hearing Before the Subcommittee on the Census of the Committee on Government Reform, House of Representatives, 106 Congress, 2d Session, July 20, 2000, Serial No. 106-246 [<https://www.loc.gov/law/find/hearings/pdf/00088786221.pdf>]. *The Washington Post*, “Census Bashing,” March 31, 2000, A28. D’Vera Cohn, “Early Signs of Census Avoidance; Noncompliance Tantalizing to Breaking Law, Director Says,” *Washington Post*, April 2, 2000, A8.

⁹³ D’Vera Cohn, “Census Flap Intensifies; Director Pleads for Compliance,” *Washington Post*, March 31, 2000, A1. “Census Bashing,” *Washington Post*, March 31, 2000, A28. “Census Nonsense,” *The Christian Science Monitor*, April 4, 2000, p. 10. William Casey, “Answer This Question; How Did the Census Become Our Whipping Boy?” *Washington Post*, April 9, 2000, B5. Jessica Reaves, “Isn’t it Time to Make Peace With Your Friendly Census Bureau?” *Time* (April 13, 2000).

⁹⁴ *The Washington Post*, “Census Bashing,” March 31, 2000, A28.

⁹⁵ *Congressional Record*, Volume 146, Part 3 (2000), 4270. *The Washington Post*, “Census Bashing,” March 31, 2000, A28.

⁹⁶ *Congressional Record*, Volume 146, Part 3 (2000), 4270.

⁹⁷ Mark Wegner, “Privacy concerns embroil 2000 census,” *Government Executive*, March 29, 2000, [<https://www.govexec.com/federal-news/2000/03/privacy-concerns-embroil-2000-census/2081/>].

really 3 years ago also, the content of the long and short forms and while it was being finalized, every single Member of the House of Representatives and the United States Senate received a detailed list of the questions to be asked, including a description of the need for asking it, along with the specific legal requirement supporting it.”⁹⁸

There were several studies of census privacy from 1980 to 2000, some of them funded by the Census Bureau. Surveys suggested there was no clear trend in the percentage of people who thought that “the census is an invasion of privacy.” Multiple studies looked at the impact of both privacy concerns and confidentiality guarantees on response rates.⁹⁹ They found that neither factor had a substantial effect. Surprisingly, there is no apparent uptick in concern around 2000, despite all the noise generated from the right.

Our analysis of newspapers found that in all three waves of concern about census privacy, the overwhelming concern was about government intrusiveness. There was a scattering of concern that the government might do something nefarious with the information. Concern about disclosure of census responses to someone outside the Census Bureau was exceedingly rare; we identified just four articles that expressed such fears, all of them from the period around the 1940 census.¹⁰⁰

⁹⁸ *Congressional Record*, Volume 146, Part 3 (2000), 4265. [<https://www.govinfo.gov/content/pkg/CRECB-2000-pt3/pdf/CRECB-2000-pt3-Pg4265.pdf>]

⁹⁹ Elizabeth Martin, “Changes in Public Opinion During the Census,” *Research Report Series (Survey Methodology #2007-6)*, U.S. Census Bureau (January 30, 2007). Elizabeth Martin, “Privacy Concerns and the Census Long Form: Some Evidence from Census 2000,” *Research Report Series (Survey Methodology #2006-10)*, U.S. Census Bureau (December 21, 2006). Thomas S. Mayer, “Privacy and Confidentiality Research and the U.S. Census Bureau Recommendations Based on a Review of the Literature,” *Research Report Series (Survey Methodology #2002-01)*, U.S. Census Bureau (February 7, 2002). Mark Wegner, “Privacy concerns embroil 2000 census,” March 29, 2000, <https://www.govexec.com/federal-news/2000/03/privacy-concerns-embroil-2000-census/2081/>

¹⁰⁰ “Salary question in census draws New England protest,” *Christian Science Monitor*, February 3, 1940, p. 11. “Attack Continues on Census Questions,” *Los Angeles Times*, April 2, 1940, p. 1. Arthur Krock, “In the Nation; the basis of reluctance on the census,” *New York Times*, February 23, 1940, p. 13. “In The Nation: the basis of reluctance on the census,” *New York Times*, February 23, 1940. “Letter to the Times: Census problem discussed,” *New York Times*, March 1, 1940.

Disclosure Control for Census Publications, 1960-2020

Between 1850 and 1900, concerns about breaches of confidentiality focused mainly on the conduct of temporarily employed decennial canvassers. After the Census Office became a permanent agency in 1902, the newly formed Bureau of the Census expanded its oversight for disclosures beyond canvassers to include official publications. Section 25 of the 1909 Census Act specified that the information collected “shall be used only for the statistical purposes for which it is supplied.” Concern with disclosure in census publications was “particularly great” with the industrial census, “where a single large unit may dominate the total for a small population.”¹⁰¹ The law specified that “No publication shall be made by the Census Office whereby the data furnished by any particular establishment can be identified.”¹⁰² The 1929 census law was the first to extend the promise to individuals, specifying that “No publication shall be made by the Census Office whereby the data furnished by any particular establishment *or individual* can be identified” [emphasis added].¹⁰³

Virtually the same language appears in Title 13, which was adopted in 1954 and has governed the censuses taken since 1960. The statute requires that no officer or employee of the Census Bureau may “make any publication whereby the data furnished by any particular establishment or individual can be identified.”¹⁰⁴ In 2002, the Confidential Information Protection

¹⁰¹ A. Ross Ecker, *The Bureau of the Census* (Praeger Publishers, 1972), p. 166.

¹⁰² Section 25 of the 1909 Census Act, p. 9. https://www.census.gov/history/pdf/1909_Census_Act.pdf.

¹⁰³ Section 11 of the 1929 Census Act, p. 25.. https://www.census.gov/history/pdf/1929_census_act.pdf.

¹⁰⁴ Title 13 United States Code § 9, Public Law 87-813. This website has a current version (but the earliest posted version is 1994). <https://www.govinfo.gov/content/pkg/USCODE-1994-title13/pdf/USCODE-1994-title13.pdf>. In 1962 Title 13 was amended to make it explicit that census returns could not be shared with other branches of government and could not be subpoenaed in legal proceedings: “No department, bureau, agency, officer, or employee of the Government, except the Secretary in carrying out the purposes of this title, shall require, for any reason, copies of census reports which have been retained by any such establishment or individual. Copies of census reports which have been so retained shall be immune from legal process, and shall not, without the consent of the individual or establishment concerned, be admitted as evidence or used for any purpose in any action, suit, or other judicial or administrative proceeding.” According to Bohme and Pemberton, “The long-standing permission to furnish individual data as described above to governors of states and territories and to courts of record as well was not removed from the census law (Title 13, Section 8) until 1976. Frederick G. Bohme and David M. Pemberton,

and Statistical Efficiency Act (CIPSEA) explicitly defined the concept of identifiable data: it is prohibited to publish “any representation of information that permits the identity of the respondent to whom the information applies to be reasonably inferred by either direct or indirect means”⁵ U.S.C. §502 (4), Public Law 107–347).¹⁰⁵

Until the early 1960s, census data were disseminated exclusively through printed volumes. This format imposed practical limits on the amount of detail presented and limited threats to confidentiality. In 1962, the Census Bureau released the first electronic publication of census data, providing individual-level records (or microdata) drawn from the 1960 “long form” census, a detailed survey filled out by one in four households. The documentation explained that the data were compliant with census privacy law:

The one-in-a-thousand sample makes available reels of magnetic tape or sets of punchcards containing the separate records of the characteristics of a 0.1 percent sample of the population of the United States as recorded in the 1960 census. The names of the respondents and certain more detailed items on place of residence are not revealed. Therefore, it has been determined that making records available in this form does not violate the provision of confidentiality under which the census was conducted.¹⁰⁶

The release of individual-level information was not seen as a violation of Title 13 because the Bureau did not reveal the identity of individuals. In addition to removing names and addresses, the Census Bureau suppressed geographic detail below the state level and top-coded income to prevent the identification of high-income persons. Only one of every 1000 persons was included in the sample, and there was no way for an outsider to determine whether any particular individual was represented.

“Privacy and Confidentiality in the U.S. Censuses: A History,” paper presented at the American Statistical Association, August 18-22, 1991 (Atlanta, Georgia): p. 6.

¹⁰⁵ The Foundations for Evidence-Based Policymaking Act of 2018 reiterated the interpretation that the law is designed to protect respondent identities. 44 U.S.C. §3561 (7)

¹⁰⁶ U.S. Census Bureau. 1962. Census of population and housing, 1960 public use sample: one-in-one-thousand sample. Washington, D.C.: U.S. Government Printing Office: 2.

In the mid-1960s the Census Bureau also began distributing summary tapes containing tabular data. These tapes included tables that the Census Bureau had prepared as an intermediate step in creating the 1960 census publications, providing more detail than was available in the published data.¹⁰⁷ To protect confidentiality, the Census Bureau suppressed the data for geographic units with a very small population count.¹⁰⁸

The basic methods of privacy protection in Census Bureau data products remained essentially similar until 1980 for both microdata and tabular files, although the details varied by year. Public Use Microdata Samples (PUMS) were protected by (a) stripping off names and other identifying information, (b) providing only a sample of the original data, (c) suppressing detailed geographic information, (d) top-coding continuous variables such as income, and (e) collapsing some very detailed categories such as place of birth.¹⁰⁹ The tabular information was protected by suppressing the data in places with very small populations or with few members of particular subgroups.¹¹⁰

In 1990, there was a major innovation, as described in the Census Bureau's *Monograph on Confidentiality and Privacy*:

The data from [a sample of] households were swapped with data from other households that had identical characteristics on a certain set of key variables but were from different geographic locations. Which households were swapped was not public information. ... All tables were produced from this altered file.¹¹¹

¹⁰⁷ U.S. Census Bureau 1964. U.S. Census of Population: 1960. Availability of Published and Unpublished Data. Washington: Bureau of the Census. U.S. Census Bureau 1967a. Data Access Descriptions. Census Tabulations Available of Computer Tape Series, CT1. December 1967. Washington: Bureau of the Census. U.S. Census Bureau. 1967b. Small-Area Data Activities. Vol 2, no. 1 (September 1967). Washington: Bureau of the Census.

¹⁰⁸ Courtland, Sherry. 1985. "Census Confidentiality: Then and Now." *Government Information Quarterly* 2(4): 407-418.

¹⁰⁹ Federal Committee on Statistical Methodology. 2005. Report on Statistical Disclosure Limitation Methodology. Statistical Policy Working Paper 22.

¹¹⁰ McKenna, L. 2018. Disclosure Avoidance Techniques Used for the 1970 through 2010 Decennial Censuses of Population and Housing. U.S. Census Bureau Working Paper. <https://www2.census.gov/ces/wp/2018/CES-WP-18-47.pdf>

¹¹¹ U.S. Census Bureau. 2001. A Monograph on Confidentiality and Privacy in the U.S. Census. <https://www.census.gov/history/pdf/ConfidentialityMonograph.pdf>

The point of swapping is to introduce uncertainty. Swapping ensures that the information provided by a respondent cannot be confidently linked to a particular identified individual. “Because of data swapping, users should not assume that tables with cells having a value of one or two reveal information about specific individuals.”¹¹²

For the long-form sample questionnaire, the 1990 census employed an additional confidentiality measure: blanking and imputation. For one household in each block group, some specific values were blanked out and imputed with values “donated” from similar individuals. The imputed data were used to produce both the tabulations of long-form data and the 1990 PUMS, providing an additional layer of protection against disclosure.

Leading up to Census 2000, some Census Bureau analysts became concerned about potential disclosure risks, especially for microdata.¹¹³ They argued that increasing availability of digital data—such as voter registration lists and commercial databases—together with declining costs of computing, had increased the risks of re-identification. In a re-identification attack, an external dataset that identifies particular individuals is matched to the census microdata file. Although the use of sampling, swapping, and imputation made it impossible to identify anyone’s census responses with certainty, the Census Bureau nevertheless wanted to further strengthen privacy protections. Accordingly, the Census Bureau proposed to create microdata samples with far less detail than had been available in previous census years. For example, instead of the 298 specific countries of birth identified in the 1990 census, the Bureau proposed to provide information on only the major continent of birth.¹¹⁴

¹¹² U.S. Census Bureau. 2003. 2000 Census of Population and Housing. Census 2000 Summary File 1. Washington: Bureau of the Census: 8-3.

¹¹³ Zayatz, Laura, et al. 1999. Disclosure Limitation Practices and Research at the U.S. Census Bureau, U.S. Bureau of the Census.

¹¹⁴ Robbin, Alice. 2001. “The Loss of Personal Privacy and its Consequences for Social Research.” *Journal of Government Information*, 28(5), 493-527., Ruggles, Steven et al. 2000. “The Public Use Microdata Samples of the U.S. Census: Research Applications and Privacy Issues.” A report of the Task Force on Census 2000, Minnesota

After extensive feedback from the user community, the Census Bureau modified its plans.

¹¹⁵ All variable categories representing fewer than 10,000 persons in the general population were combined into larger categories. The swapping procedure was modified to focus on cases with the highest risks of disclosure, especially persons or households that were unique within a small area. In addition, the Census Bureau used a perturbation procedure to randomly modify some ages.¹¹⁶

Similar procedures were subsequently used for the ACS, which replaced the long form of the census after 2000. Guided by on empirical re-identification experiments, the Census Bureau has continued to refine disclosure controls to further reduce the risk of re-identification. These include altering the swapping routine, better identifying households that could pose a re-identification risk, and slightly increasing the percentage of households that are swapped.¹¹⁷

The Census Bureau disclosure control strategy from 1970 to 2010 focused on ensuring that the identity of respondents—such as their name, address, or Social Security number—cannot be inferred from census publications. The Census Bureau implemented targeted strategies to prevent re-identification attacks so that an outside adversary cannot positively identify which person provided a particular response. The protections in place during this period—sampling, swapping,

Population Center and Inter-University Consortium for Political and Social Research Census 2000 Advisory Committee. <http://users.hist.umn.edu/~ruggles/Articles/2000PUMSReport.pdf>; Ruggles, Steven. 2000. “A Data User’s Perspective on Confidentiality.” *Of Significance: A Topical Journal of the Association of Public Data Users* 2: 1-5.

¹¹⁵ Robbin, Alice. 2001. “The Loss of Personal Privacy and its Consequences for Social Research.” *Journal of Government Information*, 28(5), 493-527.

¹¹⁶ Unfortunately, the age perturbation was poorly executed, and the ages of persons aged 65 and older were badly skewed in both the Census 2000 microdata and the early ACS microdata Alexander, J. Trent, Michael Davern and Betsey Stevenson. 2010. “Inaccurate Age and Sex Data in the Census PUMS Files: Evidence and Implications.” *Public Opinion Quarterly* 74 (3): 551–569, Cleveland, Lara, Robert McCaa, Steven Ruggles, and Matthew Sobek. 2012. “When Excessive Perturbation Goes Wrong and Why: IPUMS-International Relies Instead on Sampling, Suppression, Swapping, and Other Minimally Harmful Methods to Protect Privacy of Census Microdata.” In Josep Domingo-Ferrer and I. Tinnirello, eds., *Privacy in Statistical Databases*. Berlin and Heidelberg: Springer Verlag, pp. 179-187). The Census Bureau released new files in 2009 and 2010 that correct the skew, but the methods used were not disclosed.

¹¹⁷ Lauger, Amy, Billy Wisniewski, and Laura McKenna. 2014. *Disclosure Avoidance Techniques at the U.S. Census Bureau: Current Practices and Research*. Research Report Series, Disclosure Avoidance #2014-02. U.S. Census Bureau.

suppression of geographic information and extreme values, imputation, and perturbation—worked extremely well to meet this standard. Indeed, *there is not a single documented case of anyone outside the Census Bureau revealing the responses of a particular identified person using data from the decennial census.*¹¹⁸

Differential Privacy

At the September 2017 meeting of the Census Scientific Advisory Committee, the Census Bureau announced “differentially private” approach to disclosure control.¹¹⁹ The new approach “marks a sea change for the way that official statistics are produced and published.”¹²⁰ Differential privacy is not an algorithm or a procedure for disclosure control. Rather, differential privacy is simply a mathematical definition. Among computer scientists, having a formal definition of “privacy” is highly appealing, even if that definition does not match commonly used or legal definitions of privacy.

Implementations of differential privacy generally involve calculating cross-tabulations from “true” data and injecting noise drawn from a statistical distribution into the cells of the cross-tabulation. The Census Bureau’s new approach adds deliberate error to every population count the

¹¹⁸ In recent court testimony, the Census Bureau denied our assertion that there is no documented case of outsiders identifying the responses of a particular identified person (see Defendants’ Responses to Plaintiffs’ First Request for Admissions, no. 6). They do not, however, document any such case of disclosure. In their sole justification for the denial, the defendants cite McKenna (2019), “U.S. Census Bureau Reidentification Studies.” That citation is puzzling, since McKenna does not describe any reidentification attempts conducted outside the Census Bureau. Moreover, McKenna does not discuss any attempted reidentification of decennial census data. McKenna does describe an attempted attack on the American Community Survey, which concluded that just 0.005% of the population was vulnerable to identification. The great majority—78%—of the attempted identifications, however, were incorrect, and no identifications could be confirmed without access to the internal confidential data. McKenna’s discussion therefore supports the statement that there is not a single documented case of anyone outside the Census Bureau uncovering the responses of a particular identified person using either the Decennial Census or the American Community Survey.

¹¹⁹ U.S. Census Bureau. 2018a. “Statistical Safeguards.” Data Protection and Privacy Program, U.S. Census Bureau. https://www.census.gov/about/policies/privacy/statistical_safeguards.html

¹²⁰ Garfinkel, Simson L., John M. Abowd, and Sarah Powazek. 2018. “Issues Encountered Deploying Differential Privacy.” WPES’18 Proceedings of the 2018 Workshop on Privacy in the Electronic Society, p. 136. <https://dl.acm.org/citation.cfm?id=3268949>

agency produces for geographic units below the state level. The noise introduced into each cell is independent of the original value of the cell. Therefore, even if the noise is small relative to the average cell value, distortions in small cell values are often proportionally large. For example, the error introduced in the population of small towns can be proportionally large, sometimes exceeding 100% of the town's true population.

Post-processing for differentially private data also introduces systematic biases in respondent characteristics that can distort the relationships among variables. Simple random noise can produce logical inconsistencies, such as negative population counts or household counts that exceed population counts. If the data producer wishes to maintain logical consistency or preserve some noise-free counts, they must use a post-processing algorithm to adjust totals after noise injection, and this post-processing introduces additional types of error and systematic biases. In the Census Bureau demonstration datasets using differential privacy, such systematic biases are ubiquitous. Such errors and biases have the potential to significantly reduce the usability of census data for social, economic, and health research, and will compromise the integrity of basic demographic measures.¹²¹

¹²¹ To enable the research community to assess the consequences of differential privacy for the research and policy communities, the Census Bureau has released several demonstration datasets based on the application of differentially private algorithms to the 2010 Decennial census data. These datasets facilitate the direct comparison of published 2010 census statistics with statistics produced via the Bureau's differential private disclosure avoidance system. Van Riper, D., Kugler, T., and J. Schroeder. IPUMS NHGIS Privacy-Protected 2010 Census Demonstration Data [Database]. Minneapolis, MN: IPUMS. 2020. The Census Bureau also released the source code that had been used to implement differential privacy, enabling investigators to experiment on their own (2020 Census DAS Development Team. 2019. Disclosure Avoidance System for the 2020 Census, End-to-End Release. U.S. Census Bureau. <https://github.com/uscensusbureau/census2020-das-e2e>). Over the past three years, multiple investigators seized these opportunities to understand the impact of differential privacy on census accuracy and usability. There have been several workshops and meetings devoted to the topic, including IPUMS Differential Privacy Workshop (August 15-16, 2019), the Harvard Data Science Review Symposium (October 25, 2019), the Committee on National Statistics Workshop on 2020 Census Data Products: Data Needs and Privacy Considerations (December 11-12, 2019), and the 2020 Privacy in Statistical Databases conference (September 23-25, 2020). Additional work has appeared as working papers, as well as a few early publications (e.g., Santos-Lozada et al. 2020; Hauer and Santos-Lozada 2021; Winkler et al. 2021). The following discussion draws on insights of this research.

John Abowd, the Associate Director for Research and Methodology and chief architect of differential privacy in the Census Bureau, argues that it is not enough to protect respondent identities; “Re-identification risk is only one part of the Census Bureau’s statutory obligation to protect confidentiality. The statute also requires protection against exact attribute disclosure.”¹²² In Abowd’s view, under Title 13, it is illegal to disclose any census responses even if the identity of the respondent is concealed. This interpretation of Title 13 makes it impossible to publish reliable census statistics.

The Census Bureau has explained that the new disclosure rules are needed because of the threat of “database deconstruction.”¹²³ Database reconstruction is a process for inferring individual-level characteristics from tabular data. According to John Abowd, database reconstruction “is the death knell for public-use detailed tabulations and microdata sets.”¹²⁴ A recent analysis by Ruggles and Van Riper argues that the threat of database reconstruction has been grossly exaggerated by the Census Bureau, and that the reconstruction experiment was only slightly more accurate than can be produced by a random number generator.¹²⁵ Contrary to the statements of John Abowd and others at the Census Bureau, the so-called reconstruction experiment did not show any sort of violation of Title 13.

¹²² John Abowd tweet, “Re-identification risk is only one part of the Census Bureau’s statutory obligation to protect confidentiality. The statute also requires protection against exact attribute disclosure.” @john_abowd, 10:33am, April 7, 2019. Does he also say this here? John M. Abowd, “The U.S. Census Bureau Tries to be a Good Data Steward in the 21st Century,” ICML 2019 Invited Talk, https://www.youtube.com/watch?v=R_8riuhIw-4.

¹²³ Simson Garfinkel, John M. Abowd, and Christian Martindale, “Understanding Database Reconstruction Attacks on Public Data, *DigitalCollections@ILR* (January 1, 2018), <https://ecommons.cornell.edu/handle/1813/89104>.

¹²⁴ John M. Abowd, “Research Data Centers, Reproducible Science, and Confidentiality Protection: The Role of the 21st Century Statistical Agency,” (June 5, 2017). <https://www2.census.gov/cac/sac/meetings/2017-09/role-statistical-agency.pdf>. John M. Abowd, “Staring-Down the Database Reconstruction Theorem,” (July 30, 2018), <https://www.census.gov/content/dam/Census/newsroom/press-kits/2018/jsm/jsm-presentation-database-reconstruction.pdf>. John M. Abowd, “Staring Down the Database Reconstruction Theorem,” (February 16, 2019), <https://www2.census.gov/programs-surveys/decennial/2020/resources/presentations-publications/2019-02-16-abowd-db-reconstruction.pdf>.

¹²⁵ Steven Ruggles and David Van Riper. 2021. “The Role of Chance in the Census Bureau Database Reconstruction Experiment.” *Population Research and Policy Review*. <https://doi.org/10.1007/s11113-021-09674-3>

The Census Bureau claims to have “correctly” identified 16% of the population, and if that were true it could allow an outside attacker to infer somebody’s race or Hispanic ethnicity.¹²⁶ But an outside attacker would have no means of determining which of their guesses were correct, and the great majority of the identifications were incorrect, so everyone’s identity was protected. Implicitly, the Census Bureau is arguing that census publications are illegal even if they improve an outsider's chance of correctly guessing somebody’s characteristics. If that were true, it would be illegal to publish any census statistics. For example, the Census Bureau publishes the statistic that 94% of the population of Vermont identifies as non-Hispanic white.¹²⁷ That statistic provides an excellent chance of guessing someone's race if you know they are from Vermont.

If someone used database reconstruction to try to guess somebody’s identity, they would usually be wrong and would have no means of determining whether they were correct. As Acting Director of the Census Ron S. Jarmin noted in February 2019, “The accuracy of the data our researchers obtained from this study is limited, and confirmation of re-identified responses requires access to confidential internal Census Bureau information ... an external attacker has no means of confirming them.”

Conclusion

In response to the concerns about privacy and government overreach, Census officials began making promises of confidentiality in 1840. Those promises were expanded dramatically over the next two centuries, but probably had little impact on response rates. They were

¹²⁶ Ruggles Expert Report, footnote 2, p. 6. Ruggles Report, pp. 5-11. The 16% figure is also quoted in Ruggles Expert Report, p. 9 (is it this? —John Abowd, “Staring-Down the Database Reconstruction Theorem,” Presented at the Joint Statistical Meetings, Vancouver, BC, Canada, July 30, 2018.)

¹²⁷ <https://www.census.gov/quickfacts/fact/table/VT/AGE775219>.

irrelevant to privacy concerns because the public was not concerned about disclosure, but rather was concerned about government intrusiveness.

The three waves of hysteria about privacy in the 20th century also seem to have had little impact on census response rates. They probably did, however, contribute to the long-term reduction in the information collected by the census, especially through the increased use of sampling after 1940, and ultimately through the elimination of the census long form in 2010.

The recent radical reinterpretation of census law and precedent has taken confidentiality limits to an extreme that threatens the core utility of the census. There is no historical precedent and no demonstrated need for the introduction of deliberate error into every population statistic for geographic units below the state level. Differential privacy will do nothing to allay privacy concerns of the public; like previous confidentiality measures, it does nothing to reduce the public concern about the invasion of privacy by the government.

Despite the Census Bureau's rhetoric there is no evidence that the Census Bureau's implementation of differential privacy will reduce the risk of re-identification compared with traditional methods of disclosure control; it may actually make things worse¹²⁸ We do know that it will degrade the quality of census data, making it useless for many purposes. With respect to public cooperation with the census, reducing data quality may backfire, as it will erode public trust and degrade the rationale for producing the census in the first place. Even if disclosure control cannot address privacy concerns, it has now reached such an extreme that it threatens the core mission of the Census Bureau.

¹²⁸ Steven Ruggles, Lara Cleveland, and David Van Riper, "Risk Assessment Procedures for the 2020 U.S. Census." Presented at the UNECE Expert Meeting on Statistical Confidentiality, Poznan, December 3 2021. <https://statswiki.unece.org/display/confid/Your+Uploads?preview=/314934659/330368193/Ruggles+Cleveland+Van+Riper+Risk+Assessment.pdf>.