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“Equally Available to Anyone”: The Invention of Public Use Microdata at the U.S. Census Bureau

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ABSTRACT

This research note explores the creation of the first census microdata sample at the U.S. Census Bureau in the early 1960s. This sample and its successors have had a profound impact on demographic research over the past six decades. The invention of microdata was a product of close communication and collaboration between the research community and Census Bureau staff. In particular, interactions at the Population Association of America played a central role in the development of microdata. Drawing on historical evidence from the National Archives—including Census Bureau internal memoranda, technical advisory committee minutes and correspondence, academic association minutes, as well as a variety of secondary and primary source materials gathered from public and private collections—our research uncovers the history of the people and motivations behind the development of U.S. Census microdata.

KEYWORDS Microdata • Census • Population Association of America

The Invention of Microdata

Until the mid-twentieth century, population statistics were available only in aggregated form, disseminated in printed books of statistical tables. These data described the characteristics of administrative units (such as states, counties, or municipalities) or statistical units defined by a statistical agency (such as census tracts). In 1962, the U.S. Census Bureau released the first microdata file. Instead of describing demographic characteristics of *places*, the new data format described the characteristics of individual *people*. Moreover, instead of producing printed books, the Census Bureau published the microdata file in machine-readable format—computer tapes or punch cards—designed for further processing by computers or tabulating machines.

The Census Bureau developed the first census microdata as a product of the 1960 U.S. census (U.S. Census Bureau [undated]). The expansion of social science research in the late 1950s and early 1960s led to increasing demand for special tabulations designed to answer specific research questions. In 1959, Conrad Taeuber, Census Bureau Assistant Director for Demographic Fields, noted the “growing volume of requests for special tabulations,” citing the “significant increase in the number of users of census data and also in the demands which the users place on these data” (Taeuber 1959a: 1). Users reimbursed the Census Bureau for making special tabulations, but the costs were prohibitive for many university researchers (Fabricant 1965; Krause 2013).

To help meet the demand for customized tabulations, the Census Bureau drew a 1-in-1000 extract of the basic data tapes they had used to create tabulations for the published census volumes. To preserve confidentiality, the Census Bureau removed names, addresses, and other potentially identifying information. In 1962, the Census Bureau released the data on 7 IBM tapes or 11 Univac tapes for a charge of \$1,500 (Brunsman 1963; Duncan and Shelton 1978; Hauser 1960). Very few research centers had access to computers, so the Census Bureau also made a 1-in-10,000 version

available on 18,000 punch cards that investigators could analyze using older unit record machines (Mason, Taeuber and Winsborough 1976; U.S. Census Bureau [undated]).

The 1960 public use sample revolutionized analysis of the American population and led to an outpouring of new census-based research. As sociologist and statistician Otis Dudley Duncan put it,

The importance of this innovation can hardly be overestimated. We have known for a long time that certain essential social indicators are available in principle from the Federal statistical system. Yet all too often efforts to put information into an appropriate form are frustrated by the inadequacy of the published summary tables for the purpose at hand. With access to the unit records, the social scientist may specify in detail how variables are to be manipulated so as to produce an optimal estimate of the magnitude desired (Duncan 1978: 5097).

Researchers Mason, Taeuber, and Winsborough (1976) concurred, explaining that the 1960 census microdata sample was a “development of profound significance to social research” because it gave the research community “freedom to retabulate or manipulate without the constraints imposed by a fixed set of printed volumes” (Mason, Taeuber and Winsborough 1976: 3). The new sample allowed researchers to make tabulations tailored to their specific research questions. For example, suppose one wants to study the relationship of teen marriage to high school drop-out rates. The U.S. census never published a table on marital status by school enrollment by age, so that topic cannot be investigated by researchers using the aggregated census data. With microdata, however, researchers can analyze any combination of characteristics.

The new microdata format enabled construction of customized variables based on multiple records. The 1960 census file was organized into a hierarchical format: individuals are nested into families, and families are nested in households. Within families, the relationships between individuals are known. This structure makes it easy to develop new measures that combine characteristics of more than one person. For example, by comparing a husband’s race with that of his wife, one can measure racial intermarriage. Investigators can develop a limitless number of

customized measures that combine characteristics from multiple persons, such as the number of own children attending school, age differences of siblings, or co-residence of kin.

Social scientists quickly realized that the new data format enabled new methods, especially individual-level multivariate analysis (Neuroth 2023). In a statement before the Subcommittee on Economic Statistics of the Joint Committee, economist Richard Ruggles argued “The ability of social scientists to obtain highly disaggregated data permits them to use techniques of analysis which are inherently much more powerful and can separate out the structural changes of the system from the changes in behavior of individual units” (Ruggles 1967: 25). Thus, investigators could move beyond the simple three-way or four-way tables provided by aggregate census data and control for many characteristics simultaneously using regression-based techniques. Beyond individual-level analysis, microdata enabled multi-level analyses controlling for individual, family, and community level-variables simultaneously.

How did this revolutionary innovation come about? This research note explores the people and motivations behind the first microdata sample. Two broad themes emerge from our research. First, the creation and development of machine-readable U.S. census microdata occurred in a dynamic context of technological invention, expansion, and dissemination. The pressures of post-war American economic expansion on the federal government and its citizens demanded access to data to analyze the present and future impact of these changes (Anderson 2015: 209-223). Second, the relationship between Census Bureau leadership and users of census data in academic disciplines was dynamic, mutually supportive, and actively nurtured. Census Advisory committees were formed within several major academic organizations to coordinate communication around census issues. In fact, the idea of microdata “apparently was first suggested at a Census Advisory Committee meeting” (Duncan and Shelton 1978: 142).

Historical Context

In 1850, the Census Office began collecting individual-level data for the first time and greatly expanded the topical coverage of the census. The reformatting and expansion of the 1850 census created a data tabulation bottleneck that continued to worsen with succeeding decennial censuses (Ruggles and Magnuson 2020). The solution to this bottleneck was the electrical punch card tabulation system developed ahead of the 1890 enumeration by census employee Herman Hollerith. From 1890 through 1950, census staff used punch cards and a series of increasingly efficient tabulating machines to process census returns.

Despite the gains in efficiency, the punch card system produced its own set of bottlenecks that beginning in the 1940s drove the Census Bureau to fund development of electronic devices to address their data processing needs. Key innovations included the first commercial digital computers for tabulation, the use of magnetic tape for data storage instead of punch cards, and optical mark recognition for data capture. The Bureau collaborated with the National Bureau of Standards to design and build an optical sensing system “that used a photoelectric cell to read marks directly onto magnetic tape” (Ruggles and Magnuson 2020: 38). The Census Bureau implemented these innovations for the 1960 Census, making it the first fully electronic census. The advent of electronic data storage and processing made it a simple task to extract and disseminate a sample of individual-level data.

Beginning with the 1840 census, census administrators had consulted statistical experts during the developmental stage leading up to the decennial census (Magnuson 1995). Census administrators heeded this advice to varying degrees across the decades but by the 1950s, the broader social science community was playing an active consulting role as census staff were developing population and housing products. The Census Bureau solicited and acted upon the expertise of a broad swath of social scientists. Ahead of the 1960 census, the Bureau relied upon

newly formed advisory groups as well as long-standing permanent advisory committees for “advice and assistance” in the development of the population and housing census (U.S. Census Bureau 1966: 295-300).

The social science community thus played a significant role in promoting the development of publicly accessible census data products in the twentieth century. The second half of the twentieth century demanded more, and more flexible, data to address some of the most pressing social and economic concerns of the day (Taeuber 1971). Social scientists along with the local, state, and federal governing entities were trying to understand the parameters of these issues and offer attainable solutions. Annual academic conferences like the Population Association of American (PAA) and the American Statistical Association (ASA) were natural hubs of information and idea exchanges between Bureau staff and academic researchers.

There were especially close ties between the PAA and the Census Bureau during the decade leading up to the first microdata sample. Philip Hauser, who was President of the PAA in 1950-1951 and had served as Deputy Director of the Census Bureau, remarked that at midcentury “a disproportionate number of the [PAA] members was from the Bureau of the Census.” (PAA History Committee 1988: 28). Figure 1 shows the percentage of PAA Presidents with Census Bureau ties, based on biographical information collected by the PAA History Committee. The involvement of PAA presidents with the Census Bureau peaked between 1949 and 1961; in that period, seven PAA presidents had worked at the Census Bureau and three others had served on a Census Bureau Advisory Committee. The evidence produced by the PAA History Committee shows that many demographers of this era moved back and forth between the Census Bureau and the academy, partly because the Bureau provided internal access to data not available in published tabulations.

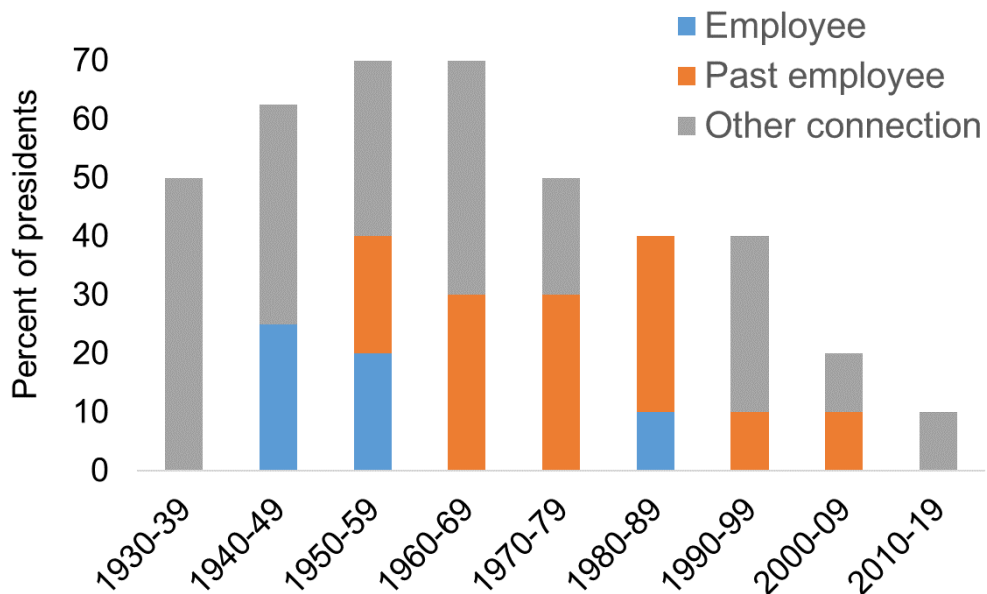


Fig. 1 Involvement of PAA presidents with the Census Bureau, by decade. Based on biographical summaries and oral histories collected by the PAA History Committee (1973-2024). "Other connection" means service on a Census Bureau Advisory Committee or authorship of a Census Monograph.

At the May 1956 annual PAA meeting, held in Ann Arbor at the Department of Sociology, University of Michigan, there were seven sessions of papers and discussions, in addition to other annual meeting business. *Population Index* recorded the subjects of the sessions, paper abstracts, and "Discussants' Remarks." Among the 16 quoted discussant remarks at the May 1956 meeting was this suggestive comment: "The results of the 1960 Census would be made more useful to researchers and other consumers if a method were devised for obtaining duplicate cards for particular population groups or areas. The researcher could then use his own tabulating equipment and could 'explore' his data at minimum cost" (*Population Index* 1956: 181). This suggestion—by an unnamed discussant at the 1956 PAA meeting—is the earliest proposal we have uncovered for the creation of a public-use microdata sample of census data.

The “Report of the Committee on the 1960 Census” appeared in the October 1957 issue of *Population Index*. The committee created working groups for particular subject areas and the report indicated that there was strong cooperation between the Bureau and the committee, and “particularly valuable” was the appointment of Bureau staff to serve as liaisons with each working group.¹ The report made clear that the “principal criterion observed by the several work groups and by the Committee was the use of census data for scientific research in demography and closely related disciplines” (Duncan 1957: 293).

In December 1957, economist Sherman J. Maisel reviewed a census monograph in the *American Economic Review* and discerned that “this work may play a still more significant role if it leads the Census to re-examine the present inadequate methods of making data available for research purposes. The author is forced to apologize on the average of every five or six pages because the census data cannot really be used to test adequately the theories presented” (Maisel 1957: 1077). Within the monograph the author wrote that, “an attack on the problem via census data can be made only with the aid of bold assumptions and catch-as-catch-can techniques.” The Census Bureau only published data in “highly aggregated groups of families.”

A. Ross Eckler, Assistant Director of the Census, internally distributed the review to Bureau executive staff. Replying to Eckler, Taeuber scrawled across the bottom of the memo that the solution to the limitations of the published census data was “that we give him punch cards” (Eckler 1957). Bureau leadership and the broader social science community recognized the potential power of individual-level census data to understand and analyze contemporary social and economic problems.

¹ Census Bureau staff serving as liaisons to the PAA working groups included Howard G. Brunsman, Paul C. Glick, Henry D. Sheldon, Henry S. Shryock, Jr., and Conrad Taeuber. Taeuber (1948-49), Shryock (1955-56), and Glick (1966-67) all served as PAA presidents.

In her 1959 presidential address, PAA president Dorothy Swaine Thomas expressed concern that the 1960 Census—which for the first time stored individual-level data on magnetic tape rather than on punch cards—might actually impede demographic research. She reasoned that storage on tape was so expensive that the individual-level data would be quickly erased by Bureau staff, and it would then be impossible for demographers to obtain special tabulations from the Census Bureau. Accordingly, she pleaded with the Census Bureau to preserve the microdata in machine-readable form for later analysis, regardless of expense (Population Index 1959: 209-211).

Moving to Microdata

At the same PAA meeting where President Thomas advocated for preservation of microdata, other PAA members advocated for creation of a public use microdata sample. Former PAA president Ronald Freedman later recalled a key interaction with the Census Bureau. “An ad hoc subcommittee of the PAA was formed, consisting of Dudley Duncan, Dorothy Thomas, Frank Notestein, Phil Hauser, Con Taeuber and myself ... That committee decided that it would be a good idea if the Census Bureau had a one-in-a-thousand sample and Con told me later that that was the shove that produced the one-in-a-thousand sample of the 1960 census” (PAA History Committee 1989: 28).

In October 1959, six months after the PAA meeting, Taeuber distributed an internal Bureau memo, “Making available census reports for individual persons for research purposes” in which he communicated recommendations from a PAA subgroup, presumably the ad hoc committee described by Freedman. “It is proposed that we draw a simple random sample of moderate size (perhaps 10-20,000 households) from all households and publish the individual returns, without specific geographic identification by place, county, or State...in the form of tape, cards, or a printout.” Taeuber stressed that “It is essential to this proposal that these materials would be *equally*

available to anyone, and that any purchaser would be free to use them or subsamples of them as he saw fit.” [emphasis added] (Taeuber 1959b).

Four months later, in February 1960, the proposed sample had grown from 10-20,000 households in Taeuber’s original memorandum to “perhaps 35,000 households.” The information for each individual would be “in code form,” geographic information coded by size and four broad regions, and occupation by “about 26 broad groups.” It was further proposed that use of the data would obligate researchers “publish a standard credit to the Bureau” and clarify that the Bureau “assumed no responsibility for the tabulations or analysis” (Eckler 1960b).

Director of Census Robert W. Burgess circulated a memo in April 1960 to members of the Census Advisory Committee of the American Statistical Association, soliciting their views on a proposal to “develop a set of individual census returns which could be made available to research workers for their own use,” assuming legal counsel approved of the scheme (Burgess 1960). By dropping personal identifiers and suppressing detailed geographic information, the sample would meet the promises of confidentiality guaranteed by census law (Ruggles and Magnuson 2023). Attached to Burgess’ memo was another memo from Eckler, which noted that the Bureau had “long sought ways of making Census data available to research workers for analysis requiring tabulations not included in the published volumes” (Eckler 1960b). The summary of the May 1960 Meeting of the Population Association of America teased “there will probably be available on punch cards or magnetic tape a national sample of households and person, from which identifying information will have been deleted. This sample tabulation may be purchasable from the Census at nominal cost for local use.” (Osborn 1960: 202).

By August of 1960, the scale of the proposed sample had grown yet again. Eckler gave a talk at the meeting of the Associated University Bureau of Business and Economic Research in which he revealed “We are studying the possibility of making generally available a set of tapes (or

alternatively a deck of punch cards) containing information for a fairly large national sample of households, consisting of perhaps 60,000 units (about 1/10 of one percent of the total). All identifying information will be removed from the tape so as to eliminate the possibility of disclosure of personal information. Such a set of tapes or cards could be used by specialized organizations to make additional tabulations on subjects of a special interest to them” (Eckler 1960a). The sample would provide researchers access to “raw materials” that would enable them “to make tabulations which they cannot fully specify in advance.”

By late 1960, the plans for the first microdata sample began to crystallize. The Population Technical Advisory Committee and ASA Census Advisory Committee had both “favorably reviewed” the proposal (Taeuber 1960b). In October 1960, Taeuber and Hauser were referring to the national sample in their correspondence as “our proposed public use sample” (Taeuber 1960c). As Taeuber described in a letter to Eleanor C. Isbell of the Social Science Research Council, “The plan is to offer to make the tapes containing the information for each person within the 60,000 households available on a cost basis. Any institution or person purchasing these tapes would be free to use them for any tabulations desired. Subsamples or subgroups might be drawn for special analysis. Preliminary discussion with a number of persons indicates that such material may be particularly useful in the preparation of theses” (Taeuber 1960a).

Seven months later, a memo was being circulated to the branch chiefs of the Population Division, outlining the basic specifications of the sample, and requesting the branch chiefs’ review and recommendations to the proposed “One in a Thousand Sample” (Brunsmann 1961). By November 1961, staff reached consensus on the form the public use sample would take. Richard A. Hornseth, Chief, Computer Programming Branch, Decennial Operations Division produced a memorandum describing the “tape specifications for the permanent file for the one per thousand

sample” that optimized compatibility with the broadest range of computing equipment (Hornseth 1961; U.S. Census Bureau 1962b).

Originally projected to become available “early in 1962,” regular decennial census work delayed the release of the public use sample. (Taeuber 1961; U.S. Census Bureau 1961; *Population Index* 1962a, 1962b; Lawrence 1961; Scammon and Ekler 1961)). In the April 1962 issue of *Population Index*, the announcement “One-In-A-Thousand Population Census Sample” described the new data products and concluded “It is anticipated that these materials will be available during the later part of 1962. The cost to each subscriber will depend upon the number of subscriptions. It is expected that the cost will be between \$4,000 and \$7,000 each” (*Population Index* 1962a: 126). With a subsidy from the Population Council, the price for non-profit organizations ended up being considerably lower, just \$1,500 (*Population Index* 1962b). The cost to individual researchers was often much less than that, since institutions purchasing the tapes could then freely copy and redistribute them at no additional charge.

The Census Bureau announced the “One-In-A-Thousand Sample” on October 12, 1962, and indicated that the sample would be distributed on “10 reels of magnetic tape designed for use on the more popular types of electronic computers, as well as decks of 80-column punchcards designed for use on conventional punchcard tabulators” (U.S. Census Bureau 1961).

Conclusion

Our research demonstrates that the first microdata sample was an outcome of interactions between Census Bureau staff and members of the academic community, especially the PAA. *Population Index* noted “These samples were developed in response to strong recommendations by a number of social scientists that such material would be a valuable tool for researchers” (*Population index* 1962b: 238).

The most important player in the design and execution of the first microdata sample was Conrad Taeuber. Like most Census Bureau leaders of the era, Taeuber had close ties to PAA. Among other roles, he served as the fourth Secretary of the Association (1939-42) and the 12th President (1948-49). It is therefore unsurprising that Taeuber was attuned to the needs of the demographic research community. In 1991, Taeuber received the PAA Robert J. Lapham award for his contributions to the development of demographic research infrastructure.

The cost of the 1960 microdata was substantial—\$1,500 in 1962 works out to some \$15,000 in 2024 dollars—and few social scientists had access to the computing equipment, software, and technical expertise needed to analyze the tapes. Despite these obstacles, the research community quickly began to acquire and use the novel source. By 1965, 40 copies of the data had been sold (Glick 1965). The first paper using the 1960 sample at PAA did not appear until 1964, and the earliest publication appeared in 1965 (Belcher 1963; Cowhig and Beale 1965). By 1968, there were at least seven publications and six dissertations, in addition to numerous conference presentations based on the data.²

Despite the early adoption of microdata, it quickly became apparent that there were substantial limitations of the one-in-1000 sample, including the lack of geographic identifiers and the small sample size, which limited the potential for analysis of population subgroups. The Census Bureau rectified these issues for the 1970 census by releasing six independent 1-in-100 samples, providing data on a total of six percent of the population. The new samples provided much more detail, especially for geographic variables.

² Other early publications using the new sample include Cain (1966), Welch (1966a), Ladinsky (1967), Bayer (1967), Mitra (1967), Belcher (1967), and McAllister (1967). The first dissertations using the 1960 microdata are Cain (1964), Bayer (1965), Welch (1966b), Rogers (1967), Marckwardt (1968), and Mallan (1968). For conference presentations, see for example, The 1968 Meeting of the Population Association (1968).

A key innovation of the early 1970s was preparation of an updated version of the 1960 census microdata. This updated version was ten times the size of the original 1960 sample. Most importantly, the new 1960 sample released in January 1973 was reorganized to be as compatible as possible with the 1970 samples, with identical coding schemes for most variables and an identical record layout. This made it easy to compare 1960 and 1970 and to assess the massive social and economic changes that occurred in that tumultuous decade. As Dudley Kirk expressed in 1963, “A further significant contribution of the cards and tapes is their meaning for posterity. In addition to the fixed census tabulations, published and unpublished, the one-in-a-thousand sample represents a permanent record of the 1960 population in a viable form that can be readily manipulated in the future to gain historical series in terms of problems and trends now unforeseen” (Kirk 1963: 17).

With the rapid decline in the cost of computing, together with the emergence of the first statistical packages that simplified coding, the public use samples became core resources of U.S. social science. The story of the invention of microdata illustrates the value of close communication and collaboration between the Census Bureau and the research community. The documents convey a sense of shared purpose: the goal was to create a tool for understanding society that would be “equally available to anyone.”

Today, the Census Bureau and researchers are much less closely connected. In sharp contrast to the mid-twentieth century, the biographies of PAA presidents over the past two decades include virtually no formal connections to the Census Bureau (PAA History Committee (1973-2024)). Citing concerns about disclosure protection for respondents, the Census Bureau recently proposed sharply restricting access to reliable public use microdata (Ruggles 2024, 2025). To keep this vital resource broadly available, the research community and the Bureau should emulate our

predecessors. By working together in a spirit of compromise and cooperation, we can identify any realistic vulnerabilities and develop targeted solutions to fix them.

References

- Anderson, M.J. (2015). *The American Census: A Social History*. New Haven: Yale University Press.
- Bayer, A.E. (1965). *The Assimilation of American Family Patterns by European Immigrants and Their Children* (doctoral dissertation). Florida State University.
- Bayer, A.E. (1967). Differential fertility of nativity-parentage groups in the United States: The assimilation of European female foreign stock. *Sociological Inquiry*, 37, 99-108.
- Belcher, J.C. (1963). The one-person household in the United States: Based on the one-in-1000 sample of the 1960 Census," *Population Index*, 29, 313.
- Belcher, J.C. (1967). The one-person household: A consequence of the isolated nuclear family? *Journal of Marriage and Family*, 29, 534-540.
- Brunsmann, H.G. (1961). Memorandum to Henry S. Shrylock, May 26, 1961 (attachment, "The One in a Thousand Sample," dated May 10, 1961), NARA RG 29, Eighteenth Decennial Census Methodological Files Concerning Program Planning and Development, 1955-1965, 1960 Census Sampling Theory and Techniques, Container 1.
- Brunsmann, H.G. (1963). Letter to Dr. Joshua Lederberg, April 22, 1963. Joshua Lederberg Papers, National Library of Medicine.
- Burgess, R.W. (1960). Memorandum, April 1, 1960. NARA RG 29, Census Advisory Committee on Population Statistics, 1948-1980, Box 1 A1-419.
- Cain, G.G. (1964). *Labor Force Participation of Married Women* (doctoral dissertation). University of Chicago.
- Cain, G.G. (1966). *Married Women in the Labor Force: An Economic Analysis*. Chicago, Illinois: University of Chicago Press.
- Cowhig, J.D. and Beale, C.L. (1965). "Levels of living among Whites and Nonwhites" in *White-Nonwhite Differentials in Health, Education, and Welfare*, U.S. Department of Health, Education, and Welfare (February-October): 56-65.
- Duncan, J.W. and Shelton, W.C. (1978). *Revolution in the United States Government Statistics: 1926-1976*. U.S. Department of Commerce Office of Statistical Policy and Standards. Washington, D.C.: GPO.
- Duncan, O.D. (1957). Report of the Committee on the 1960 Census Population Association of America. *Population Index* 23: 293-305.
- Duncan, O.D. (1978). Developing social indicators. *Proceedings of the National Academy of Sciences* 71, 5096-5102.
- Eckler, A.R. (1957). Memorandum to Executive Staff, December 26, 1957, NARA, RG29, Office of the Director, Box 4 MLR A1 389F NN3-029-99-019.
- Eckler, A.R. (1960a). A Progress Report on Some Phases of the Census Bureau's Program. Associated University Bureaus of Business and Economic Research—AUBBER, Eugene, Oregon, <https://catalog.archives.gov/id/274957221>.
- Eckler, A.R. (1960b). Memorandum to Kenneth F. McClure, February 18, 1960. NARA RG 29, Census Advisory Committee on Population Statistics, 1948-1980, Box 1 A1-419.
- Fabricant, Solomon. (1965). Report of the Census Advisory Committee. *American Economic Review*, 55(1/2), 619-620.
- Glick, P.G. (1965). "Census Data as a Source for Theses and Dissertations in the Field of Sociology," *The Milbank Memorial Fund Quarterly*, 43, 17-30.
- Hauser, P.M. (1960). The 1960 census as an instrument for population research. *Population Index* 26, 201-202.

- Hornseth, R.A. (1961). Memorandum to Sigmund Schor, November 27, 1961, NARA RG 29, Eighteenth Decennial Census Methodological Files Concerning Program Planning and Development, 1955-1965, 1960 Census Sampling Theory and Techniques, Container 1.
- Kirk, D. (1963). "The 1960 Census—research potential," *American Behavioral Scientist*, 6, 14-18.
- Krause, Rebecca S. (2013). Statistical déjà vu: The National Data Center Proposal of 1965 and its descendants. *Journal of Privacy and Confidentiality*, 5, 1-37.
- Ladinsky, J. (1967). Sources of geographic mobility among professional workers: A multivariate analysis. *Demography*, 4, 293-309.
- Lawrence, Jr., C.B. (1961). "Availability of Magnetic Computer Tapes Containing Census Information," Summary remarks for the meeting on census tracts at the 121st Annual Meeting of the American Statistical Association, New York City, December 28, 1961, <https://catalog.archives.gov/id/274957294>.
- Magnuson, D.L. (1995). The Making of a Modern Census: The United States Census of Population, 1790-1940 (doctoral dissertation). University of Minnesota.
- Maisel, S.J. (1957). *American Housing and Its Use* by Louis Winnick, review in *American Economic Review* 47, 1076-1077.
- Mallan, L.B. (1968). Financial Patterns in Households with Working Wives (doctoral dissertation). Northwestern University.
- Marckwardt, A.M. (1968). *Differentials of Recent Internal Migration in the United States* (doctoral dissertation). University of Michigan.
- Mason, W.M., Taeuber, K.E., and Winsborough, H. (1976). "Old data for new research: Report of a workshop on research opportunities and issues in the design and construction of public use samples from the 1940 and 1950 censuses and from current population surveys from 1960 forward" (Working Paper 77-3). Madison, Wisconsin: Center for Demography and Ecology.
- McAllister, D. (1967). The demand for rental housing: An investigation of some demographic and economic determinants. *The Annals of Regional Science*, 1, 127-142.
- Mitra, S. (1967). Income, Socioeconomic Status, and Fertility in the United States. *Obstetrical & Gynecological Survey*, 22(2): 270-272.
- Neuroth, J.B. (2023). The National Data Center proposals between macro modelling and micro targeting. *Cogent Arts & Humanities* 1, 2286077
- Osborn, F. (1960). The 1960 Meeting of the Population Association. *Population Index*, 26, 199-202.
- PAA History Committee (1973-2024). Demographic Destinies: Interviews with Presidents of the Population Association of America. Available at <https://www.populationassociation.org/about/officers-directors/past-presidents>, accessed 1/18/25.
- PAA History Committee (1988). Demographic Destinies: Interviews with Presidents of the Population Association of America. Interview with Philip Hauser. Available at <https://www.populationassociation.org/about/officers-directors/past-presidents>, accessed 1/18/25.
- PAA History Committee (1989 [1979]). Demographic Destinies: Interviews with Presidents of the Population Association of America. Interview with Ronald Freedman. Available at <https://www.populationassociation.org/about/officers-directors/past-presidents>, accessed 1/18/25.

- Population Index. (1956). The 1956 Meeting of the Population Association. *Population Index* 22 171-183.
- Population Index. (1959). The 1959 Meeting of the Population Association. *Population Index* 25, 191-211.
- Population Index (1962a). “One-In-A Thousand Population Census Sample.” *Population Index*, 28, 126.
- Population Index (1962b). “Two National Samples of the Population of the United States.” *Population Index*, 28, 238-239.
- Rogers, D.C. (1967). *Private Rates of Return to Education in the United States: A Case Study* (doctoral dissertation). Yale University.
- Ruggles, R. (1967). “The Coordination and Integration of Government Statistical Programs,” statement at the hearings Before the Subcommittee on Economic Statistics of the Joint Economic Committee, Nineteenth Congress, First Session of the United States, May 17, 1967, pp. 20-32.
- Ruggles, S. (2024). When privacy protection goes wrong: How and why the 2020 Census confidentiality program failed. *Journal of Economic Perspectives* 38, 201-226.
- Ruggles, S. (2025). “The challenge of synthetic census microdata: A researcher perspective.” *Proceedings of the National Academy of Sciences* (forthcoming).
- Ruggles, S. and Magnuson, D.L. (2020). Census technology, politics, and institutional change, 1790-2020. *The Journal of American History*, 107, 19-51.
- Ruggles, S. and Magnuson, D.L. (2023). 'It's none of their damn business': Privacy and disclosure control in the U.S. Census, 1790-2020. *Population and Development Review* 49, 651-679
- Scammon, R.M. and Eckler, A.R. (1961). “Ten Major Contributions of the 1960 Census to Marketing Planning—And How We Hope to Make the Census Tools Even More Useful,” paper presented at the 121st Annual Meeting of the American Statistical Association, New York City, December 29, 1961, <https://catalog.archives.gov/id/274957301>.
- Taeuber, C. (1959a). Correspondence to Glen E. Taylor, December 5, 1959, NARA RG 29, Office of the Director, A. Ross Eckler, Correspondence Files – Taeuber Chron. 1940-1968, Box 10 MLR A1 389F.
- Taeuber, C. (1959b). Memorandum, October 12, 1959. NARA RG 29, Office of the Director, Box 10 MLR A1 389F.
- Taeuber, C. (1960a). Correspondence to Eleanor C. Isbell, September 15, 1960, NARA RG 29, Office of the Director, A. Ross Eckler, Correspondence Files – Taeuber Chron. 1940-1968, Box 9 MLR A1 389F.
- Taeuber, C. (1960b). Correspondence to Philip M. Hauser, September 21, 1960, NARA RG 29, Office of the Director, A. Ross Eckler, Correspondence Files – Taeuber Chron. 1940-1968, Box 9 MLR A1 389F.
- Taeuber, C. (1960c). Correspondence to Philip M. Hauser, October 6, 1960, NARA RG 29, Office of the Director, A. Ross Eckler, Correspondence Files – Taeuber Chron. 1940-1968, Box 9 MLR A1 389F.
- Taeuber, C. (1961). Correspondence to Otis Dudley Duncan, June 7, 1961, NARA RG 29, Office of the Director, A. Ross Eckler, Correspondence Files – Taeuber Chron. 1940-1968, Box 9 MLR A1 389F.
- Taeuber, C. (1971). Providing Relevant Data. *The American Sociologist*, 6, Supplementary Issue.
- U.S. Census Bureau. (1961). “The One-In-A-Thousand Sample, October 12, 1961.” NARA RG 29, Eighteenth Decennial Census Methodological Files Concerning Program Planning

- and Development, 1955-1965, 1960 Census Sampling Theory and Techniques, Container 1.
- U.S. Census Bureau' (1962). "Current and Prospective Developments in Federal Statistics: Bureau of the Census Program," prepared for submission to meeting of the American Statistical Association, Minneapolis, September 8, 1962, <https://catalog.archives.gov/id/274957399>.
- U.S. Census Bureau. [undated (1962)]. *U.S. Censuses of Population and Housing: 1960, 1/1,000, 1/10,000: Two national samples of the population of the United States: Description and Technical Documentation* (U.S. Department of Commerce).
- U.S. Census Bureau. (1966). *1960 Censuses of Population and Housing: Procedural History, Appendix C*. Washington, D.C.: GPO.
- Welch, F. (1966a). Measurement of the quality of schooling. *The American Economic Review*, 56(½): 379-392.
- Welch, F. (1966b). *The Determinants of the Return to Schooling in Rural Farm Areas, 1959* (doctoral dissertation). University of Chicago.

