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ABSTRACT

Rural demographic characteristics, regional distribution, and their respective trends should constitute significant policy information for the nation, but the U.S. Population Census offers little aid to the researcher studying population on a minor civil division (MCD) basis. When some census data are based on a 15 percent sample, some on a 5 percent sample, the task of intelligent research and planning becomes "hazardous". For example, comparison of 1960 with 1970 census data on the Rio Grande Basin proved impossible, due to changes in size and scope of MCD's and changes in MCD population age groupings. Urban bias in the use of "metropolitan" and "non-metropolitan", terms to which the words urban and rural are often applied, creates misunderstanding as exemplified in a report titled "Back to the Boonies--Small Towns Thrive as Urban Migration Reverses". This title does not reflect the fact that people moving out of urban areas are not necessarily moving into rural areas (a phenomenon which is neither rural farm or even rural nonfarm). The Census Bureau, then, should firm up MCD boundaries, because man-made barriers (reservoirs, interstate highways, old and new resource sites, etc.) require new delineation for MCD's so that demographic data can be made available for planning and research. (JC)

PROBLEMS OF DEFINITION IN LOCATING RURAL-URBAN POPULATION IN SPARSE LAND AREAS OR MAXIMUM FEASIBLE MISUNDERSTANDING ARISING FROM CENSUS DATA

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Introduction: The first three words in the second title (Maximum Feasible Misunderstanding) represents the title of a book by Dr. Daniel P. Moynihan 1/ as you know. The second title is more euphomous and more to the point of what is to be conveyed here. It seems that the U.S. Census of Population, for all its resource and time consumption, and for all its urban bias-- SMSA's, SMA's, urbanized areas, Metropolitan centers, Metropolitan areas, change in minor civil division reporting areas, along with the problem of annexation-- contributes to a maximum feasible misunderstanding of the in-place population phenonemon. Especially for demographic trends analysis in the sparse areas. 2/ To have this happen at a time when a significant number of the census management and decision-making people were social scientists makes this tragic.

What I have to say stems from the fact that I am a rural sociologist; and from the sparsely populated Yonland states of the West. I am concerned with the social cost of space in much of this nation, a cost that needs finally to be paid by the densely settled Sutland parts of the nation. Certainly there is a price of density, but something that can be coped with by increased income and production; something that appears impossible in the case of the sparsely populated Yonland.

The Problem: There are some very well established principles

of Rural Sociology, including rural social organization and rural values. And there are still about as many rural people (54 million) now as there ever were in the nation. Their demographic characteristics and regional distribution of these, and the trends in these respects, over time, are significant policy information for the nation. The nation, it would appear ought to have such information for planning; and ought to have the in-place raw data to test some of the past established principles, or note changes in them.

The problem is that for the rural areas, especially in the Yonland regions of the Nation, the census offers little aid for the researcher and the resource manager for understanding population phenonemon on a minor civil division (MCD) basis. When to the census count itself, some of the data are based on a 15% sample, and some on a 5% sample, and are a mere extension of the known data, the task of intelligent research and direction-giving becomes especially hazardous. 3/ The time is at hand for a full count on all population items for MCD's, especially for the sparsely populated Yonland. Perhaps a sampling of certain data is in order for the urban and metropolitan areas; but not for the sparse areas, if a non-statistical person may be permitted to express himself without having his throat cut.

A Case History Situation: The Rio Grande Basin is sparsely populated, but a growing area. In 1950 the population was about half a million. This had grown to about 850,000 by 1960, and about 980,000 by 1970 (see table 1). 4/ It is one of the most arid surface water basins in the nation ; and under-ground waters are equally short. Hence the Bureau of Reclamation is making it a special target area for the study of water needs and utilization. The

largest reservoir in the area, Elephant Butte in central New Mexico, near Truth or Consequence, is the major artificial water body in the basin, its capacity being slightly over 2 million acre feet of stored water. 5/ This is only 11% the size of Fort Peck Reservoir, about 9% the size of Garrison, and about 10% the size of Oahe Reservoir, all on the Upper Missouri. 6/ Finished in 1913, Elephant Butte has been filled only twice in its 61 year history. Last summer, 1973, it had the lowest quantity of water in its recorded history: and during the late fall and early winter, the second complete fill.

The writer invented the term "Sutland" settlement strips, and the term "Yonland" area. The former represents the clustering and concentration of population: the latter the distant and far reaches of population settlement. These are, importantly, western states phenonema, west of the 98th Meridian.

The writer tried to do his bit by way of studying the local population distribution and growth trend for the Rio Grande Basin. He started with the 1960 population data from the census. The hope was to get similar data for 1970, to have a ten-year trend, by MCD'S. It was thought wise to have this by MCD'S in order to have some rural-urban or some density contrasts for different variables. Also great variations in trends were expected for counties and as between MCD's. Some counties and also MCD's are very large. For example, the land size of Rhode Island is 1049 square miles. Twenty counties (or their basin parts alone)in the basin were that large or larger: and twenty MCD's were that large or larger. Connecitcut has a land area of 4862 square miles. Eight counties and three MCD's in the Basin were that large or larger. It is important to know where the population concentration lies, or whether it is scattered generally over the entire area, for many

reasons --location of towns and distance between them, location of schools and dispersion of them, location and degree of concentration of farming areas, and other demographic characteristics. With population as sparse as it is, and distances so great, there may be very high social costs of space attached to these demographic characteristics that are of significance to rural community, to the state, and to the nation, as well as to the people themselves.

Data for 1950 MCD's could not be obtained for a 1950-60 comparison since the census made significant boundary changes in MCD's during this period. 7/ It was hoped that the 1970 MCD's would be comparable to those of 1960 so that a 1960-70 trend for certain characteristics could be established, but this was not to be as will be seen later.

In 1960 some of the counties and MCD's had portions of their area inside the basin, and portions outside it. Hence there was the ardous task of measuring the respective parts of each inside the basin. In some cases this was less difficult than in others, especially when the MCD's were taken for 1960 as the basis for basin boundary delineation. But even for the latter, when of large size, the specific population characteristics on the periphery were guesstimates of such broken MCD's when they projected beyond the basin boundary. By 1970, the census had again consolidated some of these MCD's, or otherwise changed their boundaries, and this made for very vulnerable comparisons between 1960 and 1970, that a trend comparison was avoided. A maximum feasible frustration and a maximum misunderstanding was likely. But more of this later.

Table 1 gives certain population data and indices for the Upper Rio Grande Basin. It includes portions of three states--

i.e. Colorado, New Mexico and Texas. This total area involved 27 counties and 91 MCD's in 1960. The total land area thus included was 68,191 square miles, with a density of 12.5 persons per square mile

This basin, 68,191 square miles, is only 14% of the three state land area; and 1.9% of the conterminous (48 states) land area. This Upper Rio Grande Basin land area was about the size of the state of Washington, or that of Oklahoma, or North Dakota, or Missouri. It was almost the geographic size of the entirety of the following nine states put together: Connecticut, Delaware, Maryland, Massachusettes, New Hampshire, New Jersey, Rhode Island, Vermont, and West Virginia.

Since the population of the 14 Yonland states has decided Yonland dispersal all over, and intense concentration in limited Sutland areas, the mere size of some of these counties and some of the MCD's makes it virtually impossible to pinpoint some of the demographic characteristics even in reasonable manner, as indicated earlier. But this is further complicated by the fact that some of this population consists of Mexican American, of Spanish American, and of varied Indian and Anglo ethnic decent, which may have significant demographic differentials, and in trends of such demographic indicies. For example, it is a well known fact that an increasingly larger portion of the Mexican American population has been moving to the cities--the ghettos most often. How does this change, over time, some of the population characteristics of some of the MCD's and counties, including the rural and urban aspects, and all the institutional structure related thereto? Do these urban ghetto Mexican Americans speak for those remaining in the rural areas? The writer could relate a vivid story

Table I. Certain 1960 and 1970 U.S. Census of Population Data for Minor Civil Divisions and Counties for the Upper Rio Grande Basin on the American Side.*

State & Area	Number of Areas			1960										1970			
	Counties 1960	MCD (1) 1960	Sq. Mi.	County Range Sq. Mi	Population	Density	Sex Ratio		Fertility Depends (3)				% Urban	Pop	% Urban	Density	Sex Ratio
							Density Range		Range	Rate	Range	Ratio	Range					
Colorado	7	16	3,410	52 to 2,312	38,774	4.6	0.2 to 33.0	101	97 to 106	685	607 to 929	863	613 to 6113	24.7	37,558	29.0	4.3	98
New Mexico	14	61	40,367	14 to 6607	482,092	11.9	0.2 to 3592.7	101	86 to 218	686	544 to 122.4	755	375 to 1156	73.5	563 456	80.2	14.0	97
Texas	6	14	19,414	108 to 6,208	333,181	17.2	0.3 to 2049.1	102	87 to 244	694	543 to 950	733	533 to 968	86.4	378 099	93.5	19.1	96
Total Basin	27	91	68,191	14 to 6607	854,022	12.5	0.2 to 3592.7	101	96 to 244	689	543 to 1224	751	376 to 1156	78.1	979 091	62.9	14.4	97

(1) Minor civil divisions established for census enumeration purposes, see 1960 Census of Population PC (1) B, table 25 & 26.

(2) Changes (%) in total population 1960-1970.

(3) Those under 15 and over 65 as a proportion per each 1000 of those 15 to 64 years of age.

*Data for Colorado, New Mexico and Texas are taken for 1960 & 1970 from PC (1) B General Population Characteristics Series.

of two sisters, the number of children they had, and the availability of conveniences.

Table 1 indicates a few of the demographic differentials by different parts of the basin. It must be remembered that table 1 is a severe contraction, or only a short summary of a much larger table by the individual MCD's (91) and for the raw data from which the indices are constructed. To present this latter data is too cumbersome, but coefficients of variation from a central tendency might have been in order for each of these items.

For example, the density of population varied from an average of 4.6 persons per square mile for the seven Colorado Rio Grande basin counties, to 11.9 persons per square mile for the 14 New Mexico counties in the basin, to 17.2 for the six Texas counties. For MCD's for the 16 such districts in the seven Colorado counties, the range in density varied from 0.2 to 33.0 persons per square mile. For New Mexico this range in density varied from 0.2 to 3592.7 for the 61 MCD's. For Texas basin counties, the MCD densities varied from 0.3 to 2049.6 persons per square mile.

The sex ratio varied significantly by MCD's and counties in the Upper Rio Grande Basin. The sex ratio is the number of males per 100 females. For the Colorado MCD's in the basin, this ratio varied from 97 to 106, with an average of 101. For New Mexico, this range was from 86 to 218, with an average of 101. For Texas, this range for 14 MCD's varied from 89 to 244, with an average of 101.

The fertility ratio index (children under 5 to women 15 to 44) showed a great range of variation. In the case of the 16 Colorado MCD's the range was from 607 children under 5 for each 1000 women 15 to44, to 929, with an average of 685. For New

Mexico the respective figures were 544, 1224 and 686 for the 61 MCD's. For the Texas 14 MCD's, the range was from a low of 343 to a high of 950; with an average of 694. The rural urban classification was not introduced, but undoubtedly the Indian amd Mexican American ethnicity explains some of the variations. Also age composition was another factor, as for example in the case of El Paso where the high of 1224 tended to prevail in the military base area.

The dependency ratio (the number of children under 15 and the aged of 65 and over per each 1000 persons aged 15 to 65) showed great variations by MCD's in the three state basins. In both Colorado and New Mexico some MCD's had ratios of over 1000 (the highest 1113 and 1156 respectively), meaning there were over 1000 dependents per 1000 adults 15 to 65 years of age.

If the data were arranged by degree of variation for a given variable, certain other variables would show significant variations. This detailed analysis was not made in order to be brief. It is sufficient to say that in the case of the sex ratio, dividing the MCD's into those with a density of 50 persons or less per square mile, and those with a density greater than 50, 34.5% of the instances had a sex ratio of less than 101, in the former and 38.5% in the latter instance, showing other factors were involved. Using 750 or less as the dependency ratio, the districts with 50 or more persons per square mile had 61.5% of the districts in this category, while the districts with fewer than 50 persons per square mile had only 24.4% of their MCD'S in this category, showing that dependency ratios are associated negatively with density. The fertility ratio was also negatively associated ~~with density~~ with density, though not as significantly

as several decades earlier, probably. But this is only skimming the surface of these associations, for lack of space.

No rural-urban variations were extracted, except this brief reference to density, because the data were not available, and further elaboration would lead to maximum feasible misunderstanding. This paper is already getting too long , and there is another item that needs to be introduced. But it should be said at this point that a comparison of the 1960 data with those of 1970 was found impossible. This was impossible not alone because of changes in size and scope of MCD's during this time, but also because the age groupings of the population had been changed for the MCD's.8/ This fact destroyed the usefullness of the census data for trend determination purposes. The writer rises to the occasion by saying that this 1970 procedure is a maximum feasible consternation and frustration, something that could be perpetrated only by a maximum of urban and metropolitan bias by the census managers. This is a maximum feasible offense against the sparse regions of the nation, and includes a maximum of rubbish-like thinking by urban oriented social scientists.

The Maximum feasible ignorance: The January 5, 1974 issue of the National Observer, pp.1, ff., carries an article by David W. Hacker, based on data perpetrated by Rural Sociologist, Dr. Calvin L. Beale of the Population Studies Group of the U.S. Dept. of Agriculture's Economic Research Services. 9/ The title reads: Back to the Boonies--Small Towns Thrive as Urban Migration Reverses. Whatever Calvin Beale's role in this, large or small, misquoted or misguided, he cannot be absolved from the maximum feasible misunderstanding that arises from this kind of maximum feasible irresponsible bias. In the Mid-Thirties a large number of Rural

Sociologist, headed by Drs. Dwight Sanderson, John H. Kolb and C.C. Taylor did excellent data collecting and research for the New Deal efforts in resettlement, income levels, migration, family composition, job change conditions and trends for farm, small town and urban conditions. There was then a back-to-the-land movement; strikes in the cities; great unemployment; and separation of CIO from the AFof L. Also, the Social Security Act was passed; and the Resettlement Administration (later the Farm Security Administration and still later the Farm and Home Administration) was created and initiated. Soil conservation, rural electrification, agricultural planning, and land purchase as well as debt readjustment were effected, as well as the basic features of the farm income support and production control program. 10/ Rural Sociologists were innovators, researchers, fact finders and program implementors for rural and farm people; and sometimes for urban people too, but seldom in the sense of maximum feasible misunderstanding. That was forty years ago.

Today the U.S. Census can hardly be induced to give information about farm people and rural people. The great rip-off is metropolitanism and its growth; and the contrasting category of non-metropolitanism. Each of these categories contain rural-farm and rural-non-farm people. The non-metropolitan category includes urban people in counties having no single city or joint cities of 50,000 or more population. The former, i.e. the metropolitan, includes these plus all centers of 50,000 and over, and all the rural farm and small city population in the county having such a center. And to this two-category agglomeration the words urban and rural are often applied, and implications are given that there is no difference between the two because they drive the same type

of car, fly in the same type of air-liner, have the same type of bath room, or shop in the same type of shopping center--as if these things made people social or even put them into meaningful contact.

And it is in this sense that Dr. Calvin L. Beale of the Economic Research Service of the Department of Agrulture uses the U.S. Census categories of Metropolitanism and non-Metropolitanism. This certainly leads to maximum feasible misunderstanding, for it is never the reservations and conditional limits that are emphasized.

Beale estimates that the net movement from non-metropolitan to metropolitan areas was 5.5 million people between 1950 and 1960; and only 2.2 million between 1960 and 1970. Also, between the spring of 1970 and July 1972, Beale's group estimates there was a net movement of between 300,000 and 500,000 from the metropolitan to the non-metropolitan category-- a reversal of the movement of the last several decades. This is called a "historic turning point".

Then the movement of four families from the metropolitan to the non-metropolitan areas is identified and described in the Observer article. The writer will not burden you with the "best of two worlds" enjoyment these back-to-the non-metropolitan pioneers delight in. None have moved to the great open spaces of the Yonland; all are hovering near the periphery of the Metropolitan centers.

This rural sociologist sees nothing rural-farm nor even rural-non-farm about this; and this should be emphasized. It certainly isn't the "boonies" these people are returning to; and with the threatening energy crises there may not even be a historic

turning point, eventually. This writer could produce many case histories of rural farm people (families) with gross incomes of several million dollars per family; but with a deficit net family living income were it not for inflated debt to buy the family living, Mr. Beale and Mr. Butz not-with-standing to the contrary. There also was a gentleman, once, by the name of Sitting Bull. I hope there is nothing in common between these three B's. How about some attention to the rural people in this energy crises era--windmills, horse and mule power, old fashioned blacksmithing, and hand labor in place of big machines--horses that pull tractors that got stuck when pulling still larger tractors out of the mire, or the snow for that matter, in the fall of 1972 and 1973. And something more innovative, such as solar energy on the farms. Or does this not involve social organization, social values and social attitudes; and are these not on the end of the "rural" rather than the "urban" continuum scale? Where are you, Mr. Beale?

What the Census of Population Bureau needs to do: The decision-makers for the U.S.Census of Population, with the help of Calvin L. Beale, need to once more do is to firm up the MCD boundaries, and publish the resulting data in some detail and consistently over a period of time. The following are old and new reasons for such an effort:

(a) Natural barriers have always aided in defining MCD, county and state boundaries-- the great rivers such as the Ohio, the Mississippi, the Missouri, and the Colorado for example. Also, the Grand Canyon of the Colorado, that of the Columbia and the Snake, the Wind River Canyon of the Powder River, and mountain vallies flanked by great mountain ranges with only occasional passes are other natural anchors for maintenance of boundaries for the in-place location of demographic information. Little can be and needs be done about these boundaries.

(b) But there are also man-made barriers or anchors, some of them of very recent origin and impact, that require new delineation for MCD's, and counties perhaps, so that demographic data might be available for planning. I shall mention only a number.

(1) Man-made reservoirs, some of them several hundred miles in length, have resulted or will in future result in MCD changes--i.e. Fort Peck Reservoir; Garrison Reservoir; Oahe Reservoir which resulted in changing an Indian reservation area and tribal headquarters; the Grand Coulee Reservoir and the expansion of the attached irrigation project; the Boulder (Hoover) Dam Reservoir; the new Libby Dam Reservoir on the Columbia which has international significance; the Yellowtail Reservoir; the prospect for reservoirs on the Red River of the South. All of these already have or will further seperate and divide MCD's, and cause demographic phenomena to evolve in varied ways.

(2) Inter-state highways and private free-ways have already and will in future affect greatly the demographic characteristics of MCD's and counties, and some of these features need to be considered for new boundary anchors. They involve the welfare of rural areas and populations.

(3) Old and new resource use have such an impact that old and new anchors for MCD boundary maintenance need to be considered. Butte, Montana, a mile high city with mile deep shafts, is now being pit mined from near the top, and portions of the city MCD's have disappeared completely and others are sliding down the mountain unto the flats--completely new areas that need MCD delineation. Pit mining in Utah, near Salt Lake City, is resulting in cave-ins of former thriving communities. MCD boundaries need redefinition for the future. Prospects for strip mining of coal and shale oil material for much of the Great Plains and Rocky Mountain states will require reaffirmation of MCD boundaries or redefinition so that demographic tools may be used to describe what is happening.

(4) Larger cities in the Semi-arid and Arid West, where irrigation agriculture has been important, are having agricultural land purchased by the cities, merely for the water that is attached to the land for city water use. El Paso, Albuquerque and Denver are a few notable examples. Meanwhile there has been excessive parcelization and fragmentation of land holdings in such areas, aside from this city water steal. These influences will necessarily affect the demographic characteristics of such areas which, in turn, have a significant impact upon social organization of rural areas. Mere annexation of area and population to megapolis appears not to be the answer. MCD boundary reaffirmation may be a more feasible solution, letting the population and demographic chips fall where they may.

This listing of boundary reaffirmation or redefinition for MCD's appears to be a sizable task for the Census Bureau and for Dr. Beale's Study group in the Dept. of Agriculture. The trend of moving to the Boonies of non-metropolitan size, if such there be really, might then be more meaningfully described.

Footnotes

1/ Moynihan, Daniel P., Maximum Feasible Misunderstanding, The Free Press, 1969.

2/ SeeIntroduction of Number of Inhabitants, United States Summary, 1970. PC (1) A1, pp. III through VI, and PC (1) A 1, pp. VII to XVIII for 1960.

3/ See 1970, General Social and Economic Characteristics, PC (1) C1, U. S. Summary, pp. III to V, and Appendix C. Tables 25 and 26 in Part B for 1960, for example, have raw data for MCD's by states. For 1970, the equivalent of tables 25 and 26 are not available in identical, or only in limited form. It may, perhaps, be available on tapes, but what researcher in the sparsely populated area, where the social cost of space is high even for research, and financially denuding, has the fiscal resources to get this done.

4/ The City of Juarez, across the Rio Grande from El Paso, in Mexico, is estimated to now have a population of 500,000. Therefore, about 1.5 million people reside in the Upper Rio Grande Basin.

5/ Water Resources Policy Commission Report to the President entitled, Ten Rivers In America's Future, Vol. 2, p.308, U.S. Gov't Print. Office, Wash. D.C., 1950.

6/ Ibid., p. 182.

7/ See U.S. Census, 1970, PC(1)A1, pp. X and XI for a description of the old MCD's (often school districts whose boundaries changed with consolidation) in 1960 for 18 states, and changing many of these to Census County Districts or Divisions by 1970. The 1970 census, however, again changed MCD boundaries for many MCD's.

8/ See footnote 3 and 7 above with respect to tables 26 and 27 in PC (1) B for 1960, and 1970. In 1970, table 33 has only partially comparable data.

9/ This presumably will appear as an article by Dr. Calvin L. L. Beale of the Population Study Group of the U.S. dept. of Agriculture's Economic Research Service in the Journal of Soil and Water Conservation for Jan-Feb., 1974.

10/ See Rowley, William D., M. L. Wilson and the Campaign for the Domestic Allotment, Univ. of Neb. Press, 1970. Also Kirkendall, Richard S., Social Scientists and Farm Politics in the Age of Roosevelt, Univ. of Missouri Press, 1966; and Lubove, Roy, The Struggle for Social Security: 1900 to 1935, Harvard Univ. Press, 1968.