Staff Paper Series

Staff Paper P74-5 April 1974

POPULATION GROWTH – IS ENOUGH, ENOUGH?

John S. Hoyt, Jr.

Department of Agricultural and Applied Economics

University of Minnesota
Institute of Agriculture
St. Paul, Minnesota 55101

STAFF PAPER P74-5 April 1974

POPULATION GROWTH--
IS ENOUGH, ENOUGH?

John S. Hout, Jr.

POPULATION GROWTH--IS ENOUGH, ENOUGH?

John S. Hoyt, Jr.*

Let me start with two disclaimers. I am neither a "world population expert" nor an expert on "population policy". However, I think it is important to be aware of some of the problems that are associated with current world population growth trends; with national (that is, U.S.) population growth and distribution trends; and with what I will call local (or Minnesota) trends. Of interest, too, is some information in which the state of Minnesota is considered as a "country" and compared with some of the 125 countries that are members of the United Nations. That, in a sense, may seem like a silly exercise but I think the results of these comparisons help us to realize why it seems to be nearly impossible for most of us (including myself) to psychologically grasp the potential enormity of the problems that will certainly - if you are a pessimist - or may possibly - if you are an optimist - face mankind in terms of future population growth trends.

In the book, The Limits to Growth, published in 1972 by the Club of Rome's project on The Predicament of Mankind the following riddle is offered to illustrate the danger of inaction in developing a realistic growth policy:

> "Suppose you own a pond on which a water lily is growing. The lily plant doubles in size each day. If the lily is allowed grow to grow unchecked, it would completely cover the pond in 30 days, choking off other forms of life in the water. For a long time the lily plant seems small, so you decide not to worry about cutting it back until it covers half the pond. On what day will that be? On the twenty-ninth day, of course. You have only one day to save your pond!"

One can examine and understand population growth trends in another way. World population experts estimate that it took man 2 million years to reach a world population of 1 billion persons ... but only 100 more years to reach the 2 billion level. At the present time we are adding a billion persons every 11 years and, by the year 2000 the time span, per billion, will be down to a mere 5 years. To put that time span and rate of growth in perspective, that is roughly a new United States of America every year.

We can put those figures in another context. Let's assume, for the moment, that we compress those 2 million years into 12 months. Let's further assume that Adam and Eve were "born" on January 1, 1973 at 12:01 a.m. Each succeeding billion in population would have been reached at the following time: The first billion would not be reached until December 31, at 10:25 p.m. -- 364 days, 22 hours and 25 minutes later. The second

---

* Professor, Department of Agricultural and Applied Economics and Program Director, Computer Systems, Agricultural Extension Service and Institute of Agriculture, University of Minnesota.

billion would be reached that same night at 11:17 p.m; the third billion the same night at 11:41 p.m.; another by 11:52 p.m. and the fifth billion by 11:57 p.m. At midnight at the end of our compressed year, we would have the 6 billionth person on earth. And, if you extrapolate just one more time, we would have the 7th billion at 12:02 a.m. January 1, 1974. (See Figure 1)

That example vividly illustrates what's happening in terms of population growth. Concern for the consequences of population growth is not new, however. A gentleman by the name of Rev. T. R. Malthus, in 1798, predicted a world crisis because, by the observations he had made, population multiplied at a geometric rate whereas the food supply was increasing at only an arithmetic rate.

And he predicted the starvation of a substantial proportion of the world's population simply because population growth was going to outstrip food production.

To date, Malthus' gloomy predictions have been unfounded. In fact, technology, and the application of technology, has been probably the single saving factor for the world.

And here is where the two camps -- of the pessimist and the optimist -- part company today. There are those who say Malthus was right - just a little early. There are others who say he was wrong in 1798 and his theories are just as wrong today. I have some quotations from two individuals who represent essentially the two camps; I would like to put them into contradistinction to one another.

One of them is Burnham Beckwith, a social scientist and the author of "The Next 500 Years" -- he is the optimist. The other is Dennis Meadows, Director of the computer simulation project that led to the book, The Limits to Growth. Their opposing views were summarized in the magazine, "The Futurist", in April of 1972. Let me share them with you.

What will happen in the next few decades?

> Meadows: There will likely be a marked decline in standards of living. The world's population may experience a "dieback" to more supportable levels, as a consequence of starvation, pollution, and other factors.
>
> Beckwith: Despite the critical problems posed by population growth and pollution, there will be continued gradual economic progress.

What does history show?

> Meadows: Famine, plague and resource depletion have been evident in the fall of many empires. We should not assume that some as-yet-undiscovered factor will release our society from the life cycle which has characterized all societies in the past.
>
> Beckwith: History shows us 10,000 years of social progress. This progress may be expected to continue.

Figure 1

ESTIMATES OF WORLD POPULATION GROWTH

HOW (FAST) DOES MAN GROW?

Number of Years Required to Add 1 Billion People to the Population	Year Reached	Net Population Growth (People Added) Per Year	(Compressed to 1 Years Time) If Adam & Eve were "born" at 12·01 a m on January 1, 1973 then each succeeding billion would be born by·
1st Billion - 2,000,000 years	1830	500	December 31, 1973 10 25 p m
2nd Billion 100 years	1930	10,000,000	December 31, 1973 11·17 p m
3rd Billion 30 years	1960	33,333,333	December 31, 1973 11·41 p m
4th Billion 15 years	1975	66,666,667	December 31, 1973 11·52 p m
5th Billion 11 years	1986	90,909,090	December 31, 1973 11·57 p m
6th Billion 9 years	1995	123,456,789	December 31, 1973 12·00 Midnight
7th Billion 5 years	2000	200,000,000	January 1, 1974 12·02 a m

Will we have enough raw materials in the years ahead?

> Meadows: No, because more and more of the world's irreplaceable resources are being used up and population is rising steeply.
>
> Beckwith: Yes, because the steady advance of technology enables man to use ever poorer deposits. There is no good reason to assume that technological progress will fail to develop new and cheaper substitutes for nearly all scarce natural materials. Where necessary, we can radically reduce demand for most scarce minerals by redesigning consumers' goods and changing social habits.

Lastly,

Will we have enough food?

> Meadows: No, because population growth will eventually outstrip man's ability to grow sufficient food.
>
> Beckwith: Yes, because scientific research in food production will continue. Within a generation or two, it may yield methods of producing cheap synthetic foods which will solve man's basic food problem for all time."

I present these opposing views because they represent the dilemma that we face when we consider the problem and the solution. One can find respectable and responsible experts who take dramatically opposed positions on the future of man. One such expert has even suggested that, "population will never outstrip food supply". His simple reasoning is, if it does, people will die of starvation, therefore, the food supply will be sufficient for those who are left. I leave it to you to sort out consequences of that sort of rationalization.

It has been said that, "No problem commands more attention in the world of discourse than the population problem. The solution consists in halting population growth promptly. Yet man's efforts to accomplish this are remindful of the efforts of an acrobat who bounds up and down on a trampoline in the vain hope that eventually a rebound will carry him up to the top of the Empire State Building."

Why has a solution not been forthcoming? The answer is, in a way, very simple. No society really wills a solution to a future problem. Population growth can be halted, but it will not be halted until a General Will to halt it develops and becomes effectively institutionalized and supported by adequate sanctions. It is preferable, of course, that institutionalization assume the form of controlling mechanisms which are economic and fairly automatic in character and as free as possible of cumbersome administrative intervention.*

Spengler and others have suggested that a clear-cut target should be established but we do not see suggestions as to exactly what that target might be. On National Public Radio the other day an expert was

---

* The preceding two paragraphs are this author's version of a lengthier set of comments made by Joseph J. Spengler, Duke University economics Professor

discussing population growth and a mechanism for population control in this country. I am not sure that it is workable but he had what might be considered an ingenious solution. He suggested that every female child (at birth) be issued 2.3 green stamps; because 2.3 children per family is exactly the rate of reproduction that is needed to achieve and maintain a stable population. Women then would be allowed to have children -- when they have their first child they turn in their first green stamp and when they have their second child they turn in their second green stamp. Then, if they wish to have more -- and clearly many will -- they shop on the open market for that other 0.7 of a green stamp that they need -- in effect that they buy them from women who don't want the second or the third child. As an economist I hate to say it but it is a typical economist's solution to the problem. It is ingenious and it is clever but nowhere does it say what would happen if the woman has the third child and only has 0.3 of a green stamp -- what are the sanctions?

Lester Brown, an authority on international development, has recently completed a book, World Without Borders, which speaks at least in part to the population problem. He says that, "Population is growing rapidly because man has succeeded to an unprecedented degree, in controlling disease and feeding the world's people. More babies survive to become parents. But while the death rate has been reduced, nations have been slow to reduce their high birth rates so that population would remain stable."

If one examines the available data on population growth rates or birth rates throughout the world, one is struck by the fact that (in terms of our scale of values) the less developed (or the less well off) a country is the higher is the birth rate in that country. It is, I think, a function of several factors. It is a function of the fact that life expectancy in those countries is much lower. It is also a function of the fact that most of the economic activities in those countries are labor intensive, therefore, a large number of children is an asset to a family in terms of its own production and productivity. So you find the birth rate in the less developed, underprivileged countries being much higher than in the well-developed countries. On the otherhand, birth rates in some countries in Western Europe are now down to essentially a stable population level (for example, in West Germany). In the United States they are approaching that level.

Brown makes the following statement:

> "Not only are many of man's institutions incapable of resolving the problems he now faces, but his values, inherited largely from the past, are inconsistent with his survival. Values which are widely held, many of them built into the economic system, such as 'growth is good,' 'planned obsolescence,' 'reverence for motherhood,' and the nationalistic feelings which many of us hold, are becoming threats to our future well-being. Man must evolve a new social ethic, one which emphasizes economic and demographic stability and the recycling of raw materials. Such an ethic replaces international competition with global cooperation and sees man in harmony with nature rather than having dominion over nature."

And, I think many of us who have thought about the problem for very long will find general agreement with Mr. Brown. I referred to the book, Limits of Growth, published by the Club of Rome. For those who may not be familiar with it, the Club of Rome is a voluntary organization of businessmen, industrialists, and scholars who took it upon themselves a few years ago to construct a computer simulation model of the world. Data on what was known about rates of growth and change in a variety of factors such as population, resource use, etc. was entered as inputs. Then, they projected that model out into the future. The book contains predictions, under varying assumptions, of world collapse in the year 2000, or 1994 or 2020. There has been criticism of the book because of the fact that a computer simulation model will follow only the assumptions that one feeds into it and cannot accommodate itself to new facts without them having been fed it -- and those criticisms are valid. But, I think it is interesting to note that the conclusion of the book says something a little more than merely a dire prediction of collapse. It concludes --

> "If there is cause for deep concern, there is also cause for hope. Deliberately limiting growth would be difficult, but not impossible. The way to proceed is clear, and the necessary steps, although they are new ones for human society are well within human capabilities. Man possesses, for a small moment in his history, the most powerful combination of knowledge, tools, and resources the world has ever known. He has all that is physically necessary to create a totally new form of human society--one that would be built to last for generations. The two missing ingredients are a realistic, long-term goal that can guide mankind to the equilibrium society and the human will to achieve that goal."
>
> (We are back to Professor Spengler's "General Will").
>
> "Without such a goal and a commitment to it, short-term concerns will generate the exponential growth that drives the world system toward the limits of the earth and ultimate collapse. With that goal and that commitment, mankind would be ready now to begin a controlled orderly transition from growth to global equilibrium."

At the national level, Senator Vance Hartke of Indiana has been outspoken in favor of legislation that would deal with the problem of planned (or "balanced") growth and with limits to population growth.

He has said,

> "America is beset by a number of problems that continue to grow more rapidly than the government's ability to limit or contain them. Since 1900, the country has undergone something of a demographic revolution. In terms of total numbers, our population has increased from 76 million in 1900 to almost 205 million in 1970. This represents an additional 129 million people that our society has been called upon to accommodate over the past 70 years. By the end of the year 2000, the population will soar to between 270 and 320 million.

(Most people would agree today that, based on present trends, the lower figure is probably closer to being a reasonable projection.)

> "More alarming, America, as a metropolitan nation, will see an even greater population increase in the urban areas. By 2000, present trends will concentrate 70% of the population in the 12 largest urban regions occupying one-tenth of the national land area."

He sees no let-up in the concentration in the metropolitan areas which we have experienced in the last several decades and I am inclined to agree with him. I can do this best by way of an illustration of projected changes in Minnesota population concentrations. Figures 2, 3 and 4 are called "population trees". In Figure 2, the upper lefthand "tree" shows the distribution of population, by age group, for the state of Minnesota in 1970. The upper right "tree" is the state in 1985 and the lower center "tree" shows the distribution in the year 2000, as projected. Total population is noted on each graphic.

By way of comparison, examine Figure 3. This is Anoka County in Minnesota; shown at the same scale in terms of percentage distributions. In comparison with the state "tree" there are rather substantial differences. Anoka County is a rapidly growing urban county that has experienced a substantial in-migration over the past two decades a situation that is expected to continue. Anoka will grow in total population from 154,000 people in 1970 to 683,000 by the year 2000. It will have in 2000 a much larger than normal percentage of people in the working age group. It is an example of Senator Hartke's references to the differential growth rates of urban areas.

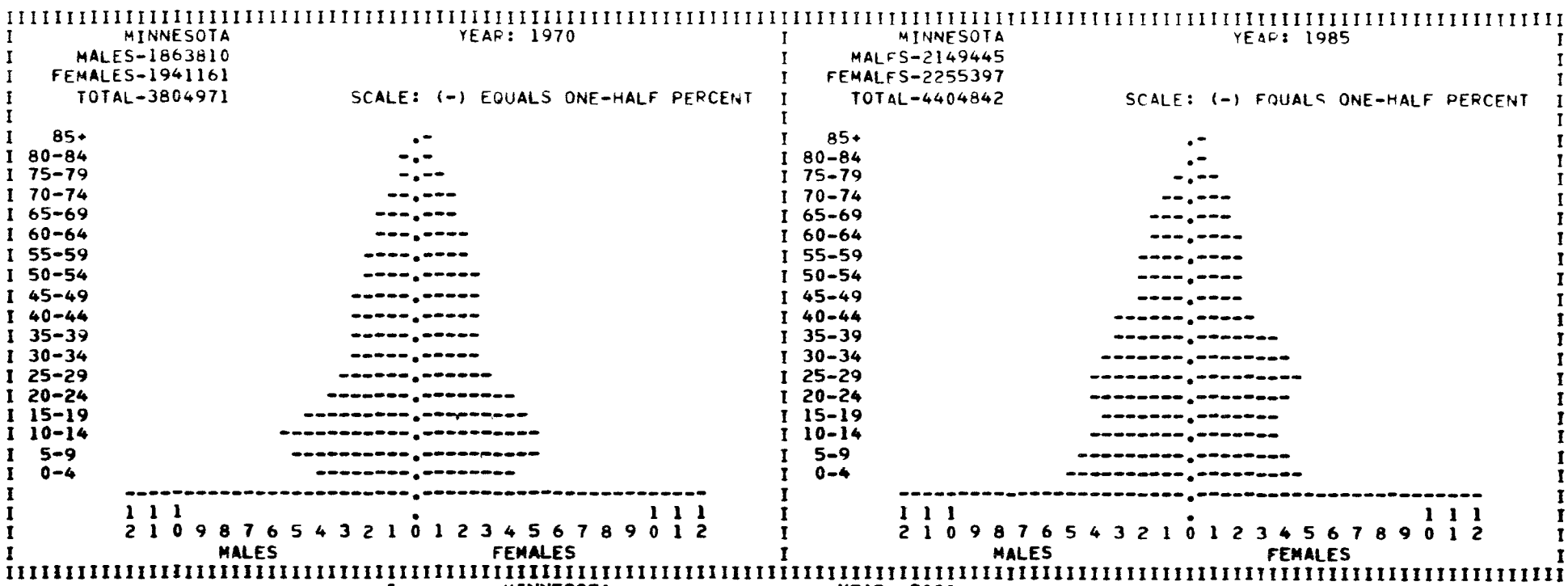
Figure 4 illustrates a rural county -- Faribault County. Its location is right on the southern Minnesota border.

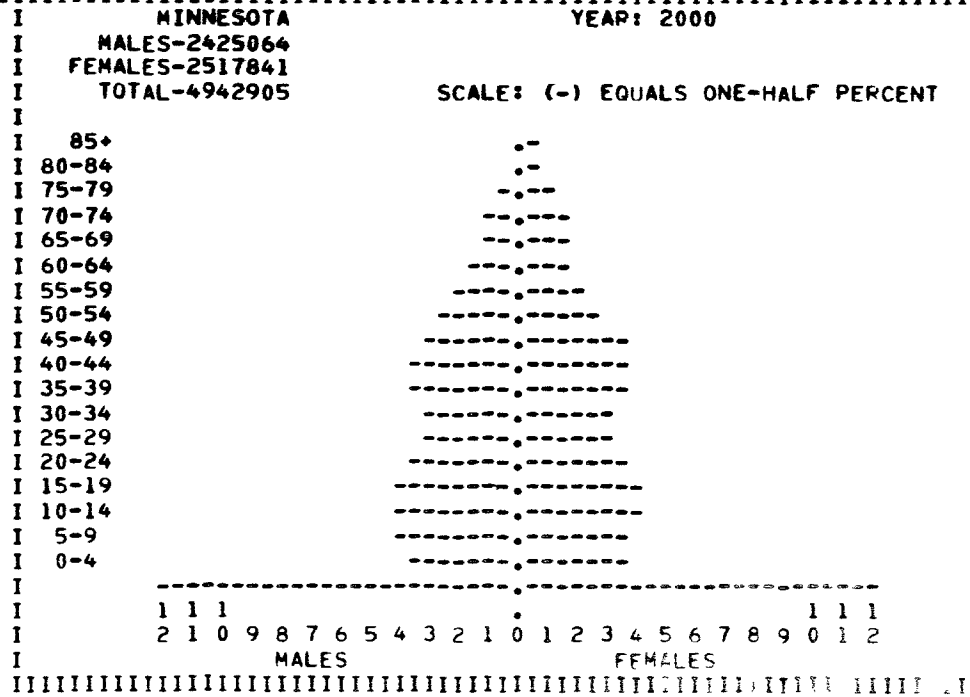
Faribault had a population distribution in 1970 that contained a substantially fewer than average percentage of people in the working age group. It will continue to have substantially fewer by the year 2000. And, by 2000, will have a substantially larger than average number of people in the age groups of over 55 or over 65. It is a clear fact that population growth and population distribution will vary widely throughout the counties of Minnesota and throughout the United State. Public policies dealing with governmental delivery of public services are going to have to adjust to those wide differences. In short, in examining population redistribution we ought to be considering what sorts of policies are necessary or useful in terms of affecting the reasons people migrate from one area to another.

About nine months ago a member of the Board of Regents commented to me that many years ago he had seen data which compared Minnesota with some other countries in the world that was very interesting. He asked, "do you have anything like that available now?" I didn't, but suggested that we would see what could be acquired. We examined available United Nations material and collected data on the 125 UN countries and the state

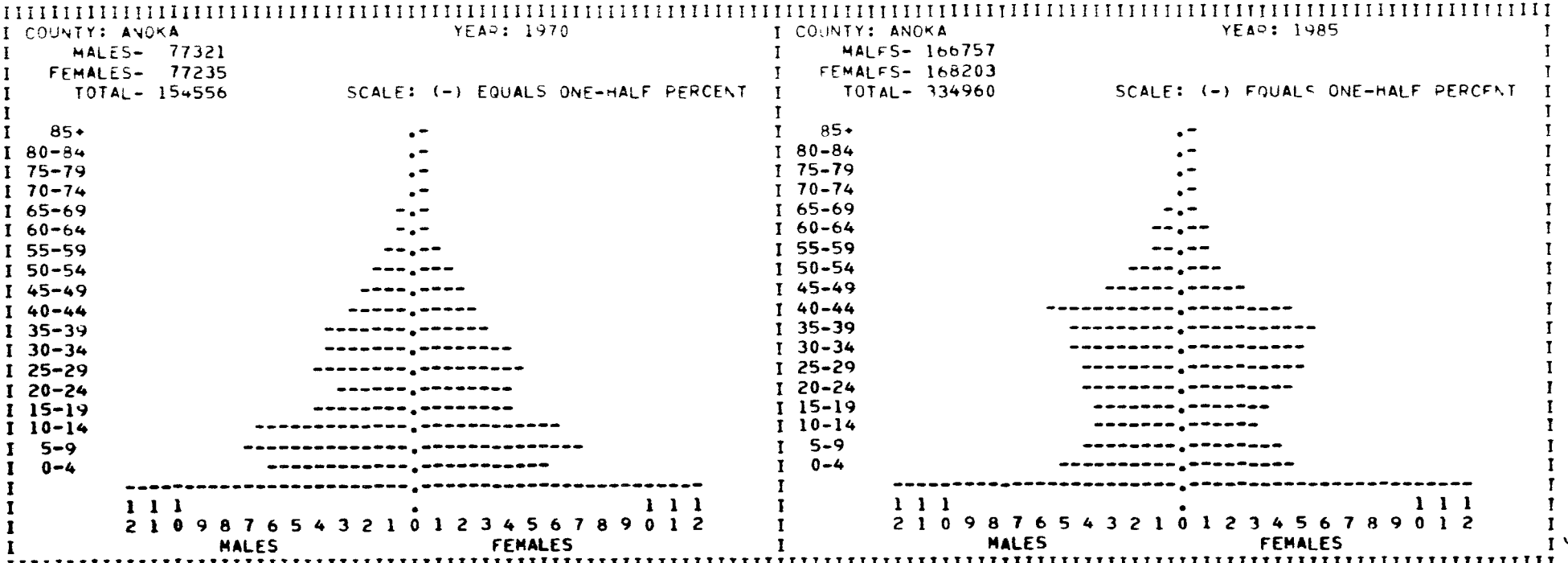
Figure 2

MINNESOTA ANALYSIS AND PLANNING SYSTEM
POPULATION BY AGE AND SEX: 1970, 1985, AND 2000





MINNESOTA ANALYSIS AND PLANNING SYSTEM
POPULATION BY AGE AND SEX: 1970, 1985, AND 2000



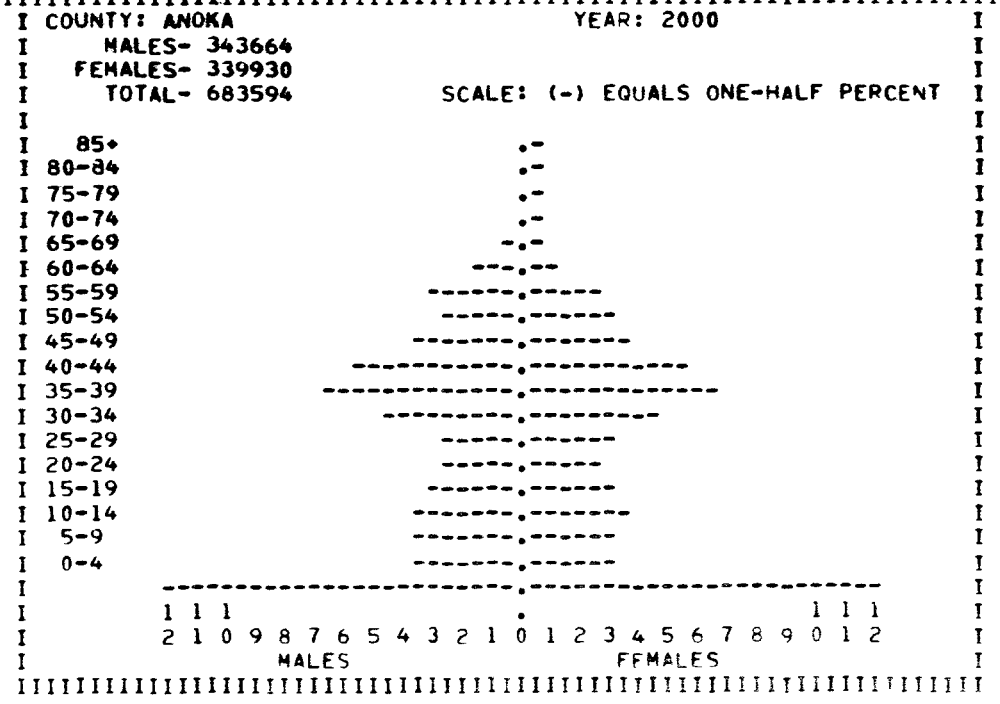
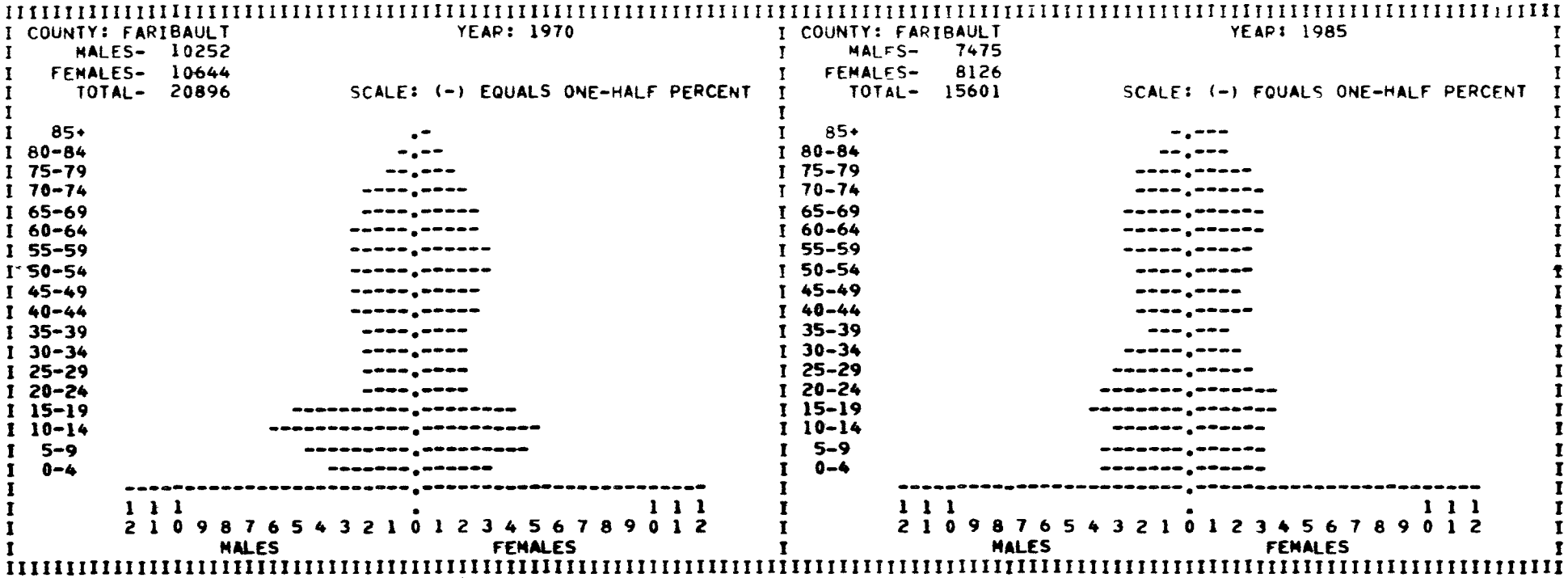
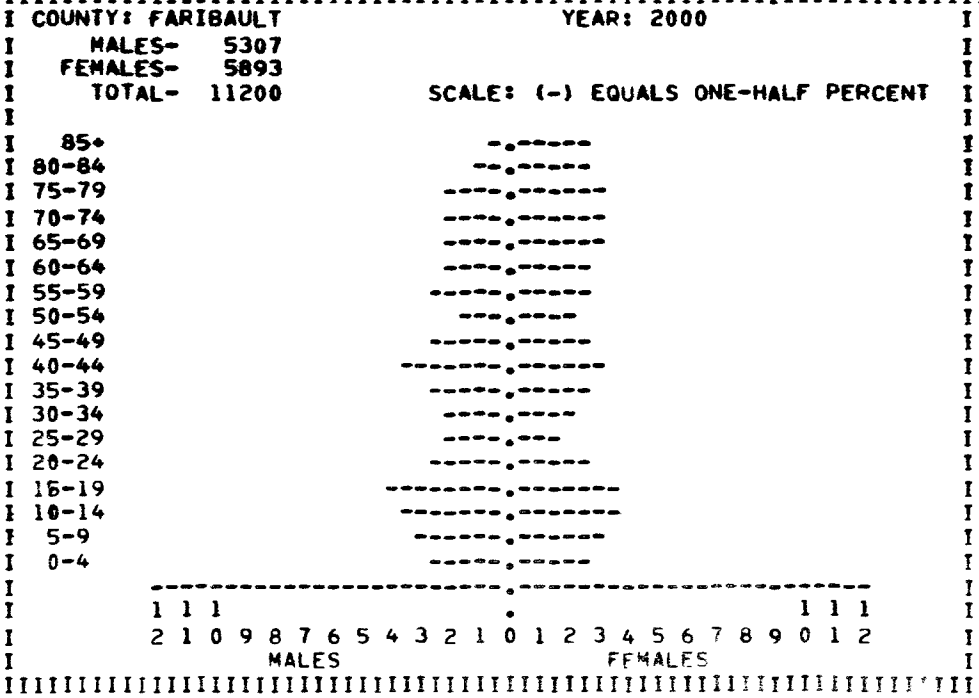


Figure 4

MINNESOTA ANALYSIS AND PLANNING SYSTEM
POPULATION BY AGE AND SEX: 1970, 1985, AND 2000





of Minnesota. The computer-based file contains 75 statistical attributes--population, production, medical services, newspapers. The results of that exercise are shown in Figures 5 and 6. I wondered when we collected the data who might use it--other than possibly the student who wanted to look at world or economic geography. The file has, in fact, been used by such students. We also found another very interesting use. It seems that the Minnesota Orchestra is going to make a tour of Europe this summer and they came to us and wanted some information comparing Minnesota with the countries in Europe that they were going to be visiting as a part of the promotional material they were going to distribute prior to leaving for these countries. They were going to be in Austria, France and Italy. Figure 5 shows the results of the comparisons they requested.

Figure 6 illustrates one other use we have made of the file. It needs to be introduced with a little caution. Figure 6 says "preliminary" and it is. We asked, "what happens if we take a number of the statistical characteristics which (at least in our view) represent something that might be called 'quality of life'". (Use whatever label you want. I have used quality of life because that is the one that is the current rage in terms of comparing one place with another.) We took eight of the items and simply ranked the attributes for every UN country. For example, life expectancy is longest in Sweden so it has a number one rank. Livestock production per capita is highest in the United States--we have the number one rank there. All 125 countries are ranked in Figure 6. The United States ranks as number one, Minnesota number two and, in order, the remainder of the top ten are Canada, Argentina, France, Norway, Sweden, United Kingdom, Denmark and Japan. It is interesting to look at the third page of Figure 6. It shows the lowest third of the rankings and you almost have a listing that would produce a map of Africa and the lower Middle East.

By way of conclusion, let me reiterate that the problems of implementation of population stability are monumental. How can you get 125 or 150 independent nations to agree on what is a fair share of income or output for them to get (or give) and then get them to do it. My only concern is that the solutions that have been proposed to date, in terms of implementation, are probably a generation away. I am not offering an answer to the problem. I don't have one. As a matter of fact, in trying to decide whether I come down on the "pessimist" or the "optimist" side of the current discussion I am not sure which of those labels applies to me. By way of background I am an engineer and an economist. I tend to be optimistic from the technologist's point of view. However, the more I look at my social science background, the more of a pessimist I become--and that leaves me in a bit of a dilemma.

Figure 5
REPORT FROM MN.VS.WORLD DATA FILE

	MINNESOTA	AUSTRIA	FRANCE	ITALY
LAND AREA (SQUARE MILES)	84,068	32,374	210,038	116,303
POPULATION	3,805,069	7,456,400	49,778,540	49,903,878
PERCENT URBAN POPULATION	66	52	70	-0
EMPLOYEMNT IN PERCENTS				
AGRICULTURE-FORESTRY	7	22	13	19
MINING	0	1	1	0
MANUFACTURING	20	28	26	30
CONSTRUCTION	5	9	9	10
UTILITIES	1	1	0	1
COMMERCE	21	11	19	14
TRANSPORTATION	5	5	5	5
SERVICE	34	18	21	16
OTHER	4	1	1	-0
UNEMPLOYED	3	4	5	4
TOTAL GRAIN PRODUCTION, tons per person	12.7	0.7	0.8	0.4
TOTAL MEAT PRODUCTION, pounds per person	404	112	120	50
TOTAL LIVESTOCK PRODUCTION, number per person	2.02	0.78	0.86	0.56
TOTAL IRON ORE PRODUCTION, tons per person	13.15	0.17	0.36	0.01
NUMBER OF RADIOS PER 1000 PEOPLE	1,451	273	314	218
NUMBER OF TELEVISIONS PER 1000 PEOPLE	266	192	201	181
DAILY NEWSPAPER CIRC PER 1000 PEOPLE	294	268	238	127
TOTAL ELECTRIC GENERATING CAPACITY, megawatts per person	0.001	0.001	0.0007	0.0006
NUMBER OF PASSENGER VEHICLES, number per person	0.46	0.16	0.03	0.02
NUMBER OF COMMERCIAL VEHICLES, number per person	0.11	0.05	0.06	0.02
NUMBER OF PEOPLE PER PHYSCIAN	658	540	747	553

Figure 6

MINNESOTA VS. THE WORLD
PRELIMINARY "QUALITY OF LIFE" RANKINGS
MINNESOTA, 125 UNITED NATIONS COUNTRIES, AND THE UN "AVERAGE" COUNTRY

Minnesota Analysis and Planning System

March 1, 1974

Nation	Pop. Density Deviation from UN Average	Life Expectancy	Radios Per Capita	Newspapers Per Capita	Total Livestock Production Per Capita	Total Electrical Capacity Per Capita	Motor Vehicles Per Capita	Physicians Per Capita	Rank
United States	7	23	2	12	1	1	2	10	1
Minnesota	23	21	1	13	17	27	12	14	2
Canada	72	6	3	22	9	5	3	18	3
Argentina	54	36	9	25	3	23	19	4	4
France	98	10	14	17	4	6	5	22	5
Norway	41	5	15	6	55	12	24	20	6
Sweden	20	1	90	1	31	10	11	24	7
United Kingdom	117	14	12	3	6	4	8	27	8
Denmark	102	2	11	8	15	24	18	17	9
Japan	118	12	26	2	16	3	1	28	10
Netherlands	121	4	13	11	11	16	7	25	11
Belgium	120	7	8	15	18	20	10	13	12
Czechoslovakia	104	17	24	16	12	15	21	3	13
Austria	97	15	22	14	28	17	17	7	14
New Zealand	46	13	28	7	13	97	22	11	15
Spain	90	28	35	33	14	8	6	23	16
Italy	112	27	32	28	10	7	14	8	17
Poland	100	20	38	20	8	11	26	15	18
Australia	77	9	36	10	7	97	4	26	19
USSR	48	22	5	9	95	2	91	2	20
Hungary	103	26	27	19	26	31	39	5	21
Mexico	1	47	21	114	20	18	16	48	22
Un.Average.Nation	2	61	47	36	19	13	15	92	23
Uruguay	35	29	7	27	25	97	44	33	24
South Africa	24	76	48	57	21	21	13	40	25
Bulgaria	91	8	23	24	33	26	91	6	26
Finland	36	24	6	114	46	25	23	30	27
Brazil	43	48	78	58	5	14	9	50	28
Yogoslavia	94	34	40	40	22	22	25	32	29
Ireland	57	18	34	18	29	97	29	29	30
Venezuela	55	44	39	45	38	29	27	35	31
Iceland	73	3	16	4	95	44	91	21	32
Chili	42	57	49	39	36	35	37	58	33

Nation	Pop. Density Deviation from UN Average	Life Expectancy	Radios Per Capita	Newspapers Per Capita	Total Livestock Production Per Capita	Total Electrical Capacity Per Capita	Motor Vehicles Per Capita	Physicians Per Capita	Rank
Romania	95	31	44	26	30	19	91	19	34
Peru	56	59	51	29	49	37	36	49	35
Luxembourg	108	42	4	5	95	38	50	31	36
Portugal	99	46	46	44	43	34	28	37	37
Greece	89	25	60	41	39	97	31	12	38
Malaysia	22	39	89	43	58	40	34	69	39
Israel	101	11	30	21	95	97	40	1	40
Costa Rica	5	45	72	37	63	54	91	47	41
Turkey	68	60	65	55	45	33	38	55	42
Ecuador	26	65	20	56	60	45	91	60	43
Columbia	30	85	62	48	23	32	91	54	44
Panama	16	52	42	31	95	53	91	46	45
Mongolia	81	54	54	34	54	51	91	9	46
United Arab Republic	82	63	53	65	37	28	56	52	47
Cyprus	87	16	25	32	95	68	91	38	48
Morocco	33	71	77	73	47	43	35	93	49
Iran	28	73	64	84	34	97	33	63	50
Kuwait	67	41	45	59	95	97	47	34	51
Paraguay	61	53	71	54	48	65	91	42	52
Fiji	4	30	63	61	95	97	91	53	53
Trinidad & Tobago	115	43	17	30	95	47	91	57	54
Thailand	88	58	68	67	50	39	43	83	55
Nicaragua	37	72	81	50	59	64	91	43	56
Tunisia	9	66	69	72	95	57	54	79	57
Cuba	92	35	41	114	40	97	51	36	58
Iraq	19	64	37	114	56	97	45	76	59
China	85	33	92	114	2	30	91	62	60
India	114	95	102	74	24	9	20	73	61
Bolivia	70	74	19	53	95	56	91	56	62
Jamaica	113	38	29	46	95	49	91	61	63
Phillipines	107	70	87	63	42	36	30	88	64
Guatemala	49	77	57	62	61	62	91	71	65
Albania	83	37	70	49	62	97	91	45	66
Syria	32	62	31	114	95	46	91	68	67
Guyana	65	49	61	47	95	66	91	67	68
Barbados	124	40	10	38	95	97	91	51	69
Singapore	126	32	84	23	95	97	53	41	70
Ghana	38	84	67	52	95	42	91	97	71
Jordan	13	67	75	64	95	97	91	66	72

Nation	Pop. Density Deviation from UN Average	Life Expectancy	Radios Per Capita	Newspaper Per Capita	Total Livestock Production Per Capita	Total Electrical Capacity Per Capita	Motor Vehicles Per Capita	Physicians Per Capita	Rank
Algeria	60	68	83	75	64	97	42	82	73
El Salvador	111	56	58	35	95	58	91	70	74
Malta	125	19	18	114	95	97	91	16	75
Ceylon (SRI Lanka)	116	50	91	51	95	55	55	64	76
Kenya	15	83	85	76	95	97	46	85	77
Uganda	53	81	76	82	51	67	91	84	78
Mauritius	122	51	55	42	95	61	91	72	79
Indonesia	86	80	59	86	41	97	32	110	80
Dominican Republic	96	55	93	60	95	60	91	44	81
Honduras	25	75	79	70	95	97	91	65	82
Khmer Republic (Cambodia)	21	91	43	66	95	97	91	95	83
Burma	3	82	112	80	95	52	91	87	84
Pakistan	106	69	113	88	27	97	41	77	85
Afghanistan	6	109	110	89	53	59	91	104	86
Liberia	51	117	52	90	95	50	91	86	87
Sierra Leone	17	97	80	71	95	97	91	99	88
Libya	79	114	88	68	95	97	49	59	89
Nigeria	84	115	100	85	35	41	91	106	90
Cameroon	47	102	94	97	57	63	91	108	91
Zambia	59	88	106	77	95	48	91	98	92
Gambia	10	106	50	114	95	97	91	101	93
Senegal	27	96	74	91	95	97	91	96	94
Lebanon	119	125	33	114	95	97	48	39	95
Sudan	63	79	116	81	44	97	91	102	96
United Republic Tanzania	40	107	118	92	52	97	91	81	97
Madagascar	45	113	66	83	95	97	91	89	98
Swaziland	8	99	95	114	95	97	91	80	99
Saudi Arabia	64	90	119	78	95	97	52	91	100
Ethiopia	12	112	121	99	32	97	91	125	101
Laos	39	78	108	96	95	97	91	100	102
Peoples Republic of Yemen	58	89	82	114	95	97	91	90	103
Dahomey	14	111	96	101	95	97	91	112	104
Ivory Coast	50	100	107	79	95	97	91	103	105
Gabon	75	120	56	114	95	97	91	75	106
Lesotho	11	87	122	114	95	97	91	111	107
Congo	76	105	73	114	95	97	91	78	108

Nation	Pop. Density Deviation from UN Average	Life Expectancy	Radios Per Capita	Newspapers Per Capita	Total Livestock Production Per Capita	Total Electrical Capacity Per Capita	Motor Vehicles Per Capita	Physicians Per Capita	Rank
Equatorial Guinea	52	104	125	94	95	97	91	74	109
Togo	34	119	101	87	95	97	91	109	110
Botswana	80	93	114	69	95	97	91	105	111
Malawi	31	108	103	114	95	97	91	115	112
Yemen	18	92	125	114	95	97	91	123	113
Mauritonia	78	98	86	114	95	97	91	107	114
Guinea	44	124	99	100	95	97	91	117	115
Somalia	62	110	105	98	95	97	91	113	116
Haiti	110	86	109	93	95	97	91	94	117
Upper Volta	29	123	111	114	95	97	91	126	118
Niger	71	103	98	114	95	97	91	119	119
Chad	69	122	97	114	95	97	91	124	120
Nepal	93	101	123	95	95	97	91	116	121
Mali	66	116	117	114	95	97	91	122	122
Central African Republic	74	121	125	114	95	97	91	114	123
Rwanda	109	94	120	114	95	97	91	120	124
Burundi	105	118	104	114	95	97	91	121	125
Maldives	123	125	115	114	95	97	91	118	126