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THE POPULATION SLOWDOWN

A CHALLENGE TO THE MILITARY

by

Colonel Robert X. de Marcellus, FA FARNG

ABOUT THE AUTHOR

Colonel Robert X. de Marcellus received his B.S. degree in Industrial Management from the Georgia Institute of Technology in 1951.

During the Korean War he served as an infantry rifle platoon leader with the 2nd Infantry Division. Colonel de Marcellus holds the Combat Infantry Badge, the Silver Star and the Purple Heart. He is presently assigned as Inspector General of the Florida Army National Guard with the rank of Colonel.

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This paper was originally published as a USAWC essay by Colonel de Marcellus in October 1975 under the title "The Population Slowdown - A Challenge to the Military." Its purpose was to draw attention to the impact of the West's falling birth rate on our nation's defense capabilities. As a result of the presentation of the paper to the Strategic Studies Institute, the SSI recommended that the Department of the Army conduct an official study into the ramifications of the decline of manpower on national defense. [Note: The views expressed in this paper are those of the author and do not necessarily reflect the views of the Department of Defense or any of its agencies.]



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In civilian life, Colonel de Marcellus is an advertising and marketing executive and a director of the American Birthright Trust mutual fund. He resides in Palm Beach, Florida with his wife Mildred and six children, ages 4 through 16.

INTRODUCTION

“The terrifying fact is that societies refusing to give birth to new generations are doomed to share the fate of so many vanished civilizations of history.”

Cdr Robert de Marcellus October 29, 1977

America "Failure in the West: A Demographic Insight

In 1972 the United States birth rate fell for the first time below the "replacement level" total fertility of 2.1 children per family and is now at a historic low of 1.9.¹

Drastic re-evaluations of population projections have been made by the Bureau of the Census and nongovernmental demographers.

Equally drastic are the revisions of the projected age composition of the population for the next decades. Based on the declining number of births, an increase of 40% in that portion of the population over sixty-five is projected to take place within the next twenty-five years,² (from 12 million in 1950, 20 million in 1975, 26 million by 1985, to approximately 30 million by 2000).³ See Table 1.

These fundamental changes in the population will have a far-reaching effect, beginning within the next 25 years, on the nation's defense posture and will require extensive reassessment of national objectives and defense strategy.

To speak in terms of twenty-five years may seem almost irrelevant to the moment, so pressing are the problems of today. It is vitally important, however, that the impact of population change on defense be approached in a long term manner since the consequences are irreversible in the short run and profound in their effect.

Within only twenty-five years, that time separating us from the Korean War, low birth rates will already have critically affected defense. Any matter that can so affect national security in such a time span should claim the attention of defense leadership today.

The following questions are considered in this paper:

1. Is a significant reversal of the decline in fertility probable?
2. What effect will the current birth rate have on the nation's demography?
3. What are the implications of such demographic change for the economy?
4. How will defense spending, as a percent of governmental expenditure, be affected?
5. What are the implications for defense planning and strategy?

Past Census Bureau projections have pictured an exceedingly fast growth. This is because the Bureau's figures are what the name implies - projections, not predictions.⁴ For this reason, transient factors such as the postwar baby boom were projected by the Bureau in 1963 to population forecasts of 259 million by 1980.⁵ Today these projections have dropped to between 220 and 225 million by that year.

Demographers are generally agreed that the nation has undergone dramatic change in its fertility. Differences of opinion are between those who foresee a continuation of the present fertility of 1.9 children per woman (family), with a possible further decline to a 1.7 level, and those who expect a gradual return to a fertility of 2.1, at which time the population would stabilize and be able to reproduce itself in the long term. In either case, a change of great magnitude will have taken place from the U.S. fertility of 3.5 children per woman that marked the 1950's.

BABY BOOM OR BUST?

Current Projections and Future Trends

Three series, or population projection ranges, have been projected by the Census Bureau for the remaining part of the century. Series I projects a population based on a total fertility (births per woman) of 2.7, Series II of 2.1 births, and Series III of 1.7 births.⁶ See Table 2.

Series II of 2.1 births per woman was selected by the Census Bureau in projecting a declining population growth culminating in a stable population (Zero Population Growth) within seventy years. This series, 2.1 children per woman, is the "replacement level" needed to maintain a population at a constant figure. When the fertility falls below this figure, a nation must eventually have an ever decreasing population?

The fertility rate in 1974 dropped to 1.9. The current fertility rate, coupled with indications that social norms have changed, indicates that Series III, or a fertility of 1.7, is the most realistic base upon which to project future U.S. population patterns. If this choice is correct, it heralds economic and defense problems of extreme magnitude. However, use of Series II also implies major problems of crucial importance which will rival and complement the oil shortage in its consequences.⁸ The validity of using Series II as a projection is reinforced by a comparison of U.S. fertility trends with that of other Western World nations in Table 3.

A long term falling trend in the fertility of developed nations, including the United States, is a historical fact.⁹

Muddying the picture for demographers has been the postwar baby boom. One school of thought believes in cyclical fluctuations, which can be mathematically computed.¹⁹ According to this school, phenomena such as the baby boom will reoccur. Changes in society and their effect on national fertility would indicate, however, that the falling trend in fertility of developed nations is a true trend and that a repetition of the postwar baby boom will not again take place without an unlikely repetition of the conditions by which it was produced.¹ See Table 4.

It is evident that nations such as West Germany, whose fertility drops to 1.5 and whose population shrinks in absolute numbers annually, cannot produce a new baby boom if it remains in this position long.¹²

The baby boom period was marked by early marriages and a reduction of the mean age at which women had their second babies, from 27 to 24.¹³ Earlier marriages and first babies born to younger mothers prevented women from entering non-domestic life and increased the exposure to another pregnancy.

Evidence exists in the National Fertility study of 1955 that of those women interviewed who intended not to have any more children, one-third admitted to having at least one unwanted child. This figure is considered an understatement due to the psychological and emotional factors in such an admission.

In "The Family in Developed Countries", Norman B. Ryder states the opinion that the baby boom resulted from increased exposure to risk of pregnancy and relaxed contraceptive vigilance during a time when good economic conditions implied that the family standard of living would not be affected by another birth. Long exposure to pregnancy by early marriages and lack of motivation for vigilant use of the contraceptive means of the day appear, therefore, to have been a major cause of the baby boom.¹⁴ In effect, the baby boom appears to have consisted of unplanned children or "marginally" unwanted children.

The dramatic fall in the birth rate today would seem to be explained by an extension of the same reasoning. Economic conditions have not become easier for the family and an increasing number of families require double incomes to maintain the standard of living they feel suitable to their station in life. Furthermore, the "motivational" requirement in preventing unwanted births has been removed by new technologies in birth control.¹⁵ The unwanted or "unplanned" child today is not being born and the consequence is shown in the national birth rate.

Table 1.

PROJECTION OF THE U.S. POPULATION BY BROAD AGE GROUPS

Year	Population (in thousands) as of July 1			Total	65 and over as-	
	Under 20	20 to 64	65 and over		Percent of total	Ratio of 20 to 64
1985 -----	70,754	141,512	26,741	239,006	11.2	0.189
1990 -----	71,929	147,457	28,789	248,176	11.6	.195
1995 -----	74,264	152,261	30,015	256,540	11.7	.197
2000 -----	76,333	157,038	30,214	263,585	11.5	.192
2005 _	76,349	162,970	30,580	269,898	11.3	.188
2010	76,222	167,432	32,662	276,316	11.8	.195
2015 -----	76,990	168,840	36,917	282,747	13.1	.219
2020 -----	78,561	167,873	42,061	288,494	14.6	.251
2025	80,030	165,608	47,448	293,087	16.2	.287
2030 -----	80,768	164,636	51,227	296,632	17.3	.311
2035	81,202	166,502	51,879	299,583	17.3	.312
2040 -----	81,989	169,501	50,806	302,296	16.8	.300
2045 -----	83,213	172,462	49,257	304,931	16.2	.286
2050. -----	84,462	173,843	49,352	307,657	16.0	.284

The Social Security projection is based on the assumption that the birth rate will rise to replacement level of 2.1 children per woman and remain at that level for fifty years and that mortality would decrease another 15%.

Source: 1975 *Annual Report of the Board of Trustees of the Federal Old Age and Survivors Insurance and Disability Insurance Trust Funds.*

Table 2.

**CENSUS BUREAU PROJECTIONS
BASED ON THREE ASSUMED
FERTILITY RATES**

Year	Series I	Series II	Series III
ESTIMATES			
1970	204,875		
1974	211,909		
PROJECTIONS			
1975	213,641	213,450	213,323
1980	225,705	222,769	220,356
1985	241,274	234,068	228,355
1990	257,663	245,075	235,581
1995	272,685	254,495	241,198
2000	287,007	262,494	245,098
2005	303,144	270,377	247,926
2010	322,049	278,754	250,193
2015	342,340	286,960	251,693
2020	362,348	294,046	251,884
2025	382,011	299,713	250,421

Projection of U.S. Population (in thousands) using three different fertility estimates.

Source: *Current Population Reports Series P-25, No. 541, February 1975.*

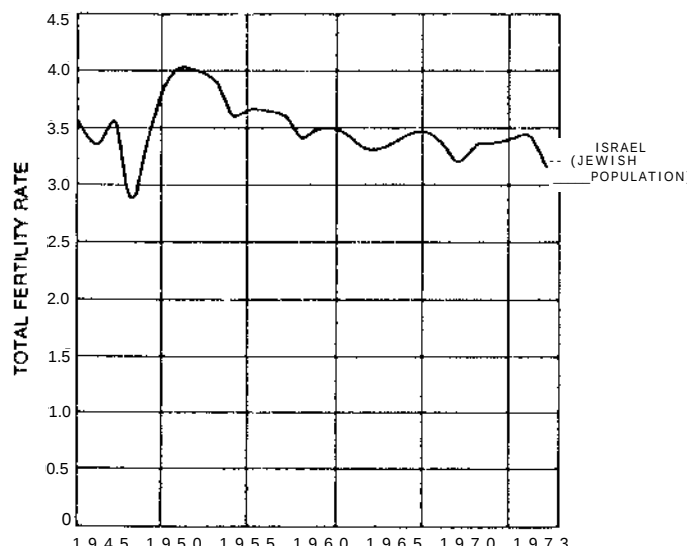
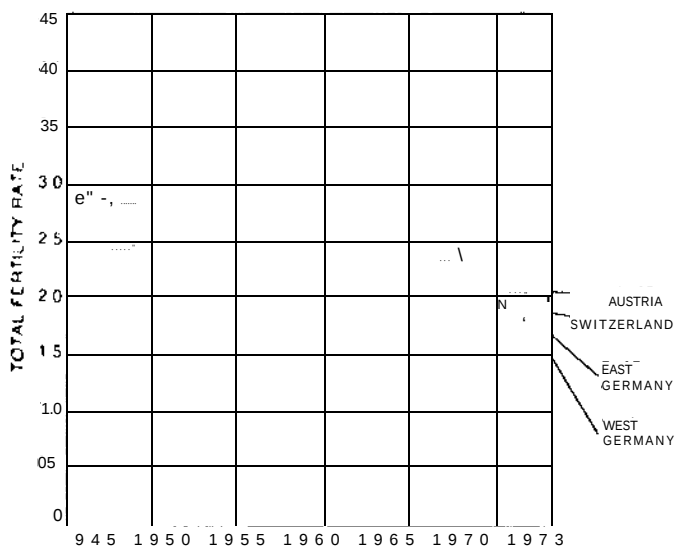
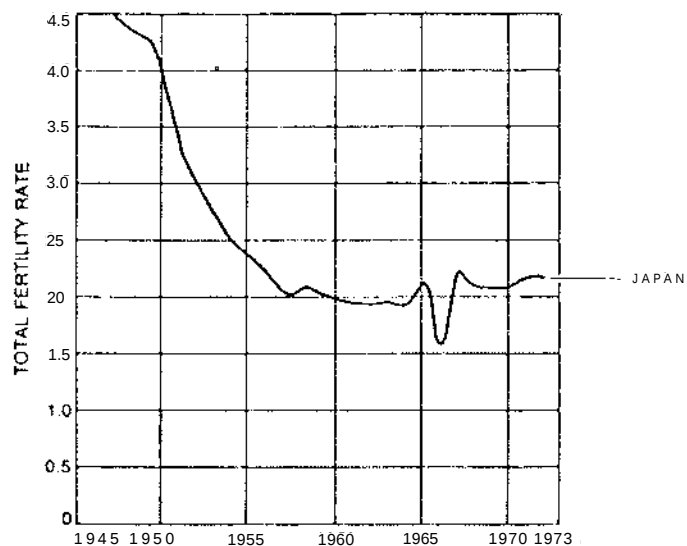
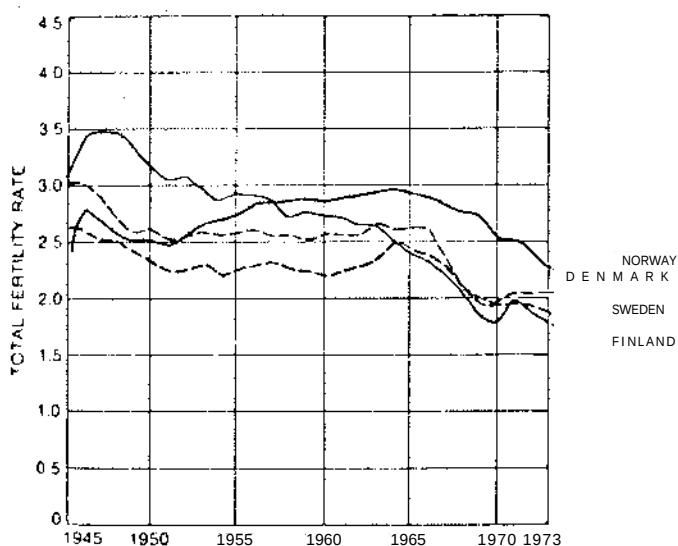
The validity of this conclusion seems borne out by the impact of legalized abortion as a "backup" to contraception.

The approximately 900,000 aborted births in the United States in 1974¹⁶ (unreported early abortions probably add considerably to this figure), reduced by one quarter the number of children who would otherwise have been born. Had these births taken place, the national birth rate would have been over 19 per thousand instead of 14.9 (or a fertility of approximately 2.7).¹⁷

June Sklar and Beth Berkov assert the belief that a new baby boom may be in the making.¹⁸ Their assertion is based on study of California statistics that show a 1974 leveling of the downward trend in the birth rate and even a 3% gain. This leveling out of the decline in Californian birth rate is considered by them to be a "bottoming out" process prior to a new rise.

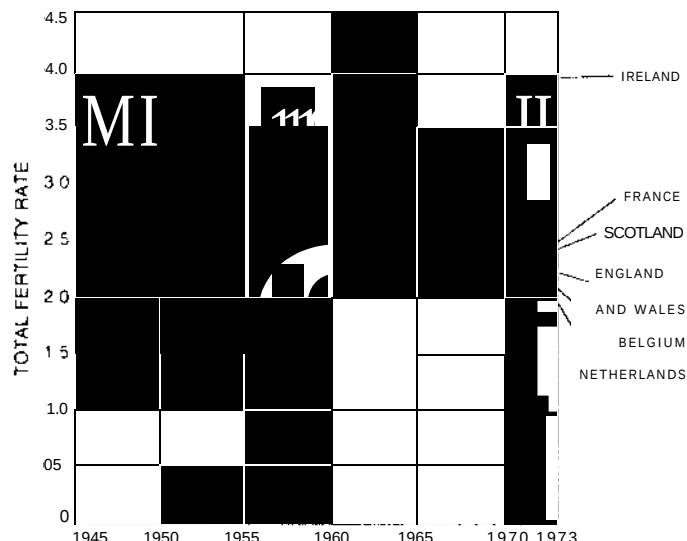
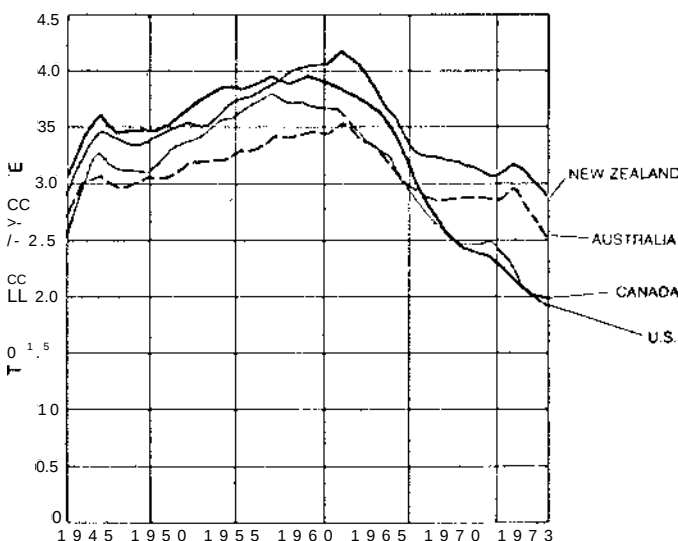
The two California demographers theorize that the all time low in birth rates came about because women postponed having children to a later age and that now, if they are going to have them, they must have them soon, thus starting a "catching up process" while new waves of women enter childbearing age behind them. These latter women would be the girls born in the baby boom of the fifties.

Table 3. **POPULATION TRENDS IN DEVELOPED COUNTRIES**



SCANDINAVIAN COUNTRIES (top), except for Sweden, showed a brief postwar surge in fertility. The decline since then has been sharpest in Finland. Countries of Central Europe (bottom) have followed a fertility pattern similar to that of Western Europe. West German fertility is now the lowest among all developed countries.

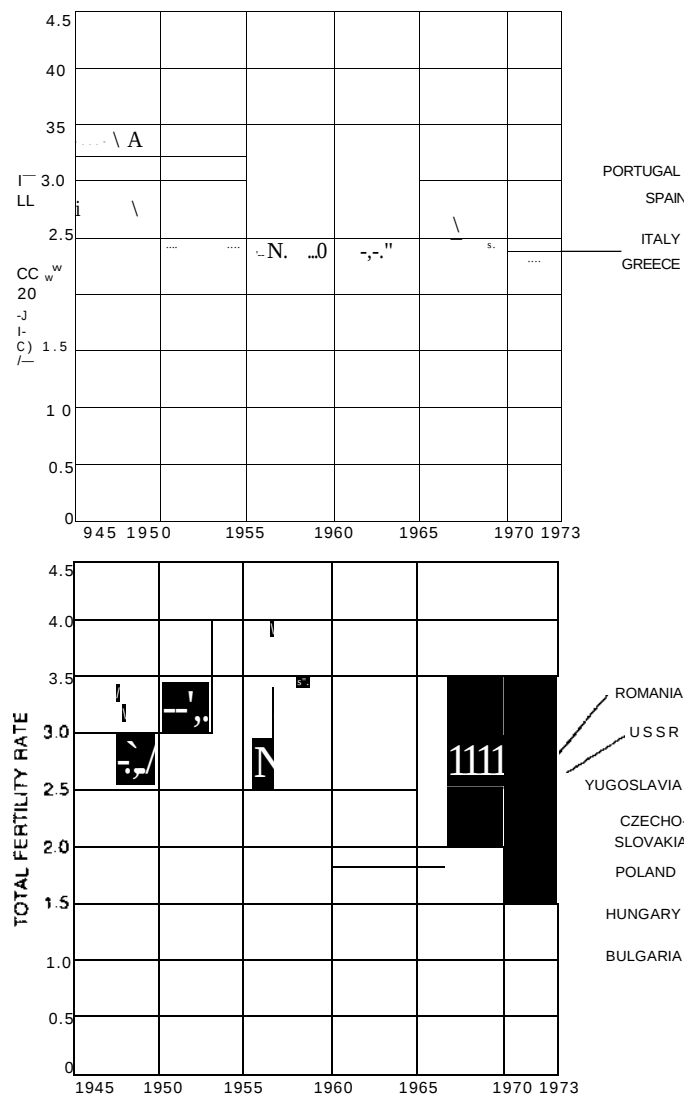
TWO NEWLY DEVELOPED COUNTRIES, Japan (top) and Israel (bottom), show markedly different fertility patterns. Drop in Japanese fertility followed the adoption of a permissive abortion law. The curve for Israel applies only to Jewish population. Fertility of the Arabs in Israel is currently more than twice as high.



POSTWAR "BABY BOOM" was most pronounced among overseas English-speaking populations (left). Sharp declines began in the 1960's. The post-war surge in fertility in Western Europe (right) was brief.

Fertility fell sharply, climbed again slowly and has been declining for 10 years. Fertility in Ireland is quite different.

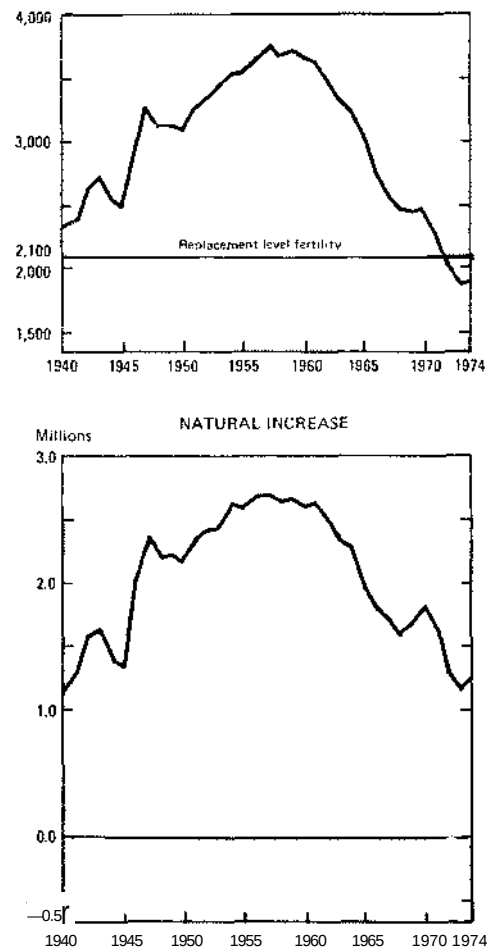
Table 3 Continued



SLOW DECLINE IN FERTILITY seems to be taking place in Portugal and Italy (*top*). There is no clear trend in Spain and Greece but data are limited. In Communist countries of Eastern Europe (*bottom*) fertility has generally been falling, except for a brief sharp rise in Romania when abortion law was tightened in 1967.

Table 4.

TOTAL FERTILITY RATE AND NATURAL INCREASE: 1940 to 1974



Source: *Current Population Reports, Series P-25, No. 545, April 1975.*

The reasoning of Sklar and Berkov is based on the following points:

1. The "bottoming" indication is in spite of high abortion rates.
2. It occurred in spite of economic downturn.
3. It occurred without an increase in marriage rate.

This development is possible and would be welcome news to those grappling with the problems faced by the Social Security Administration. However, in view of the longterm experience of all other developed Western nations and of the effect on birth rates when the "unplanned" child is

precluded by recent developments in contraception, such an upturn in fertility appears a slim possibility.¹⁹

The assumption that childless women will try to "catch up" has yet to be demonstrated. Since the declining rate is due in part to the decreased proportion of children born to women over 30 years of age, it would appear optimistic to think that childless women approaching that age will decide to "catch up". In the past it has been shown that cohorts of women that put off childbearing for an unusually long time seldom make up the child deficit later.²⁰ During the low birth rates of the '30's, it became apparent that many of the children demographers thought were being "postponed" actually were never born.

ABORTION AS A POPULATION SUPPRESSOR

There is also the fact that abortion is a new and fast rising trend. While an estimated 892,000 abortions were performed in 1974, 745,000 took place in 1973, 587,000 in 1972, 480,000 in 1971 and 193,000 in 1970. It can be anticipated that abortions will take an increasing toll of the birth rate for several years. The Alan Guttmacher Institute estimates that an additional one half to one million women would have had an abortion had it been feasible.²¹ The Institute says that between 1.3 and 1.8 million women "needed" abortions but were unable to get them due to inadequate services. This figure is projected from New York and California figures. Had the higher number been performed, the U.S. birth rate would have sunk another 33% for a total fertility of approximately 1.26. Such a development would ultimately almost halve the U.S. population at each generation.

Any scientific breakthrough enabling parents to determine the sex of their child would also have a lowering effect on birth rates as parents no longer "try again" for the

desired boy or girl.²²

Indications that the lower fertility is a result of basic changes in society appear in the results of surveys taken throughout the Western nations. The number of children desired in 1970 by women married 20 years was 3.5, but those married five years or less desired only 2.5.²³ By 1972 a further decline to 2.2 showed in surveys.²⁴

These declines are consistent with the decline that actually has taken place in fertility. (Table 4) While it is possible that the actual number of children will be higher than the number desired due to unplanned pregnancies, it is doubtful that this will take place in the face of new methods of birth control. In the United States sterilization has become the most favored method of birth control for wives between 30 and 44 and legalized abortion is increasingly reducing the number of unplanned children.²⁵ A new baby boom is deemed most unlikely in the foreseeable future by most demographers.²⁶

SUBGROUP EFFECT

Seldom mentioned in projections of population figures is the effect of subgroups within a population. An historic example of this effect occurred in Europe over the last century with France moving from a nation with the lowest fertility to one of the highest. A major reason for the shift is due to pronatal governmental activity and financial subsidies for families with children, but probably of greater importance has been the gradual replacement over a century of one population by another. Family oriented Catholic gentry continued a high birth rate over several generations as the unchurched majority produced an extremely low birth rate.²⁷

While the geometric pyramiding of a high birth rate is often observed, it is seldom noted that it also occurs negatively as soon as fertility falls below replacement level. It

can be expected that subgroup action will have a similar effect to some degree in the United States. Whether the subgroup maintains its characteristics or absorbs the value system of the majority and is, in turn, affected by the same trends remains to be seen. The black birth rate, for instance, has been much higher than the white. However, evidence indicates that blacks are copying the value system of the white majority and the black birth rate is falling at a pace approximately equal to that of the white.²⁸ (from 25.1 births per thousand in 1970 for N.Y. State to 19.8 in 1974).²⁹

Subgroup emergence as a majority, however, is not without costs. While in France it was the more educated classes that maintained the high birth rate, the reverse is true in the U.S. Certain elements of the U.S. population are an endangered species and

others will rapidly become extinct, statistically speaking, unless their declining birth rate is reversed. The Jewish community within the U.S. is one of the latter. In view of the extremely great contribution that this sector has made to American scientific and economic progress, it is questionable whether the United States can maintain its lead in these areas without their contribution.

New York City is of interest since as an urban center it projects national trends that may result from increased urbanization. The city had an overall birth rate of 16.7 in 1971. However, a breakdown by major race and religion reveals the extremely low combined "WASP" and Jewish birth rate. See Table 5.

Table 5.
1971 NEW YORK CITY FERTILITY
by MAJOR SUBGROUP

	Total White	Catholic	White non-Cath.	Non-White
Population	6,048,841	1,800,000	4,248,841	1,846,021
Births	91,480	48,750	42,730	40,440
Rate/1000	15.1	27	10.05	21.9

Source: Figures for White and Non-White population from Department of Health, The City of New York, Summary of Vital Statistics 1971, pp. 2 and 8. Catholic figures from "General Summary," The Official Catholic Directory 1972" p. 2. White non-Catholic figures computed from the above by author. Note: Black Catholic figure is discounted due to non-availability of figure; however, the figure is nominal and would not appreciably affect fertility rates computed.

Table 6.
1974 NEW YORK CITY FERTILITY
by MAJOR SUBGROUP

	Total White	Catholic	White non-Cath.	Non-White
	11.91	20	8.4	19.8

Source: Logrillo, Letter to Author.

While later New York City figures are not yet available for 1974, an extension using the New York State non-white birth rate indicates that the births per thousand for that year in New York City would be as shown in Table 6.

Such crude birth rates would indicate a fertility for the white non-Catholic population of approximately one (1) and a fertility

for all whites of about 1.4. Overall total fertility would be approximately 1.6.³⁰ This estimated fertility roughly coincides with the Census Bureau's national report of indicated family size among young women of 1.8.³¹

Part of the very significant drop in fertility in New York City is explained by the number of abortions. In 1971 while there were 131,920 live births, there were 202,435 abortions. Of these, 69,517 were residents of the city.³² This means there was one resident abortion for every 1.89 births.

In New York City, at current birth rates, 10 English-speaking whites will be represented by only 1.27 persons in 5 generations. The same trends, though less advanced, are perceived in figures for the United States as a whole. See Table 7.

Table 7.
1973 U.S. FERTILITY
by MAJOR SUBGROUP

	Total Pop.	White non-Cath.	Catholic	Black
Population	208,671,161	137,783,862	48,214,729	22,672,5??
Births	3,109,199	1,687,408	916,564	489,7??
Rate/1000	14.9	12.2	18.9	21.?
Fertility	1.9	1.55	2.2	2.4

Source: White and Non-white figures from "Summary Report Final Natality Statistics, 1973" Vital Statistics Report p. 3, Catholic figures from "General Summary," The Official Catholic Directory, 1974, p. 4. Non-white Catholic figures are discounted because of unavailability, but their small number and the similarity between fertility of Catholics and Non-Whites would preclude their effecting fertility figures materially.

Nationally the non-Catholic whites show a birth rate 12.20 per thousand or an approximate total fertility of 1.55 children per woman. Whether or not the Catholic and non-white population can maintain their 1974 birth rate and counter-balance the low fertility of non-Catholic whites in order to maintain the present national fertility of 1.9 is problematical. Both the Catholic and the non-white birth rates have dropped markedly during the last decade.³³

Characteristics of the population will shift very fast. Those young who enter the work force will increasingly be from groups who have not hitherto been considered the most productive. Will the minorities acquire the productivity that has been so long associated with the "WASP" and Jewish population?

SOCIAL SECURITY ADMINISTRATION PROJECTION

During the remainder of the century the number of young people in the population base will remain approximately constant due to the growth of the total population "programmed" by the baby boom following World War II. The number of people over 65 however, will increase dramatically, from 21,815,000 today to 30,214,000 by the year 2000, and will finally constitute 16.2% of the population with 47,448,000 senior citizens by 2025.³⁴ (The percentage increase will be much larger if the fertility does not rise again to 2.1). During the next 25 years the expenditures for old age survivors under the Social Security System in the U.S. will exceed taxes scheduled in the present law under all economic assumptions.³⁵ The spread between expenditures and tax rate as a percent of income will increase under the best economic assumptions.

Conclusions of the Board of Trustees of the Federal Old Age and Survivors Insurance

and Disability Insurance Trust Funds (OASDHI) are that "The long range actuarial cost estimates indicate that for every year in the future the estimated expenditures will exceed the estimated income from taxes. This excess increases with time and is estimated to average about 1.3 percent of taxable payroll over the next 25 year period (1975-1999). All reasonable alternative actuarial assumptions indicate that over the remainder of this century the financing of the old age, survivors, and disability program will need additional revenues equivalent to about 1.3 percent of taxable payroll."³⁶

The Bureau points out that if the economic and fertility conditions of the past few years remain constant, the long-range actuarial deficit in the old age, survivors and disability program would exceed even its least optimistic projection.³⁷

Table 8 shows the projected annual awards per individual assuming current eco-

Table 8.

PROJECTED ANNUAL AVERAGE BENEFIT AWARDS

(In Thousands)

Calendar year	Retired workers and dependents				Survivors of deceased workers			
	Old-Age	Wives ²	Children	Mothers	Children	Widows ³	Parents	Total
Actual data (as of June 30):								
1970	13,066	2, 651	535	514	2, 673	3, 151	29	22, 619
1971	13,604	2, 673	556	523	2, 745	3, 287	28	23, 416
1972	14,181	2, 706	578	536	2, 847	3, 433	27	24, 308
1973	14,880	2, 756	602	548	2, 887	3, 575	25	25, 273
1974	15,589	2, 806	619	565	2, 908	3, 620	24	26, 131
Projection (as of June 30):								
1985	21,243	2, 892	518	765	3, 035	3, 686	15	32, 154
1990..	23,319	2, 897	387	777	3, 030	3, 610	15	34, 035
1995	24,589	2, 898	310.	824	3, 253	3, 514	15	35, 403
2000..	25,172	2, 766	311	849	3, 526	3, 452	15	36, 091
2305	26,310	2, 528	345	855	3, 662	3, 417	15	37, 132
2010	29,077	2, 352	416	832	3, 636	3, 394	15	39, 722
2015	33,623	2, 317	496	815	3, 614	3, 345	15	44, 225
2020	39,120	2, 302	577	819	3, 679	3, 339	15	49, 851
2025	44,427	2, 288	623	834	3, 777	3, 326	15	55, 290
2030	47,655	2, 247	619	843	3, 833	3, 327	15	58, 539
2035	48,513	2, 121	590	5236	3, 842	3, 262	15	59, 179
2040	47,506	1, 969	552	823	3, 853	3, 225	15	57, 943
2045	46,689	1, 841	551	829	3, 906	3, 153	15	56, 984
2050	47,020	1, 809	577	837	3, 978	3, 070	15	57, 306

¹ Excluding the effect of the railroad financial interchange provisions.

² Including dependent husband beneficiaries.

³ Including dependent widower beneficiaries.

Source: 1975 Annual Report of the Board of Trustees of the Federal Old Age and Survivors Insurance and Disability Insurance Trust Funds.

Table 9.

PROJECTED BENEFICIARIES

Calendar year	Average annual retirement benefit		Ratio of increase in retirement benefits to increase in earnings	
	Awards	In current payment	Awards	In current payment
1975 -----	2, 750	2, 603	1.000	1.000
1985 -----	5. 921	5. 001	1. 060	.946
1990 -----	8. 020	6. 832	1.066	.960
1995 -----	10. 832	9. 280	1.074	.972
2000 -----	15. 206	12. 643	1. 126	.989
2005 -----	21. 517	17. 521	1. 191	1.024
2010 -----	29. 769	24. 504	1.231	1.070
2015 -----	41.038	34.136	1.268	1.114
2020 -----	56. 399	47. 218	1.302	1. 152
2025 -----	77. 431	65. 014	1. 336	1. 185
2030 -----	106. 166	89. 316	1.369	1. 217
2035 -----	145. 696	122. 569	1.404	1.248
2040 -----	198.435	167.970	1.429	1.278
2045 -----	269.841	229.422	1.452	1.304
2050 -----	366,258	312,401	1.473	1.327

¹ Based on the central set of economic assumptions of annual increases of 4 percent in CPI and 6 percent in earnings and somewhat higher increases before 1981. The benefits refer only to those payable to retired workers. The figures in the column entitled "In current-payment" refer to the average benefits for all retired workers who are receiving benefits, while those in the column entitled "Awards" refer to the average benefits for those workers retiring in the particular year.

Source: 1975 Annual Report of the Board of Trustees of the Federal Old Age and Survivors Insurance and Disability Insurance Trust Funds.

economic trends and benefit increases.³⁸ Table 9 shows the projected increase in the number of beneficiaries.³⁹ Projected total disbursements for any year can be computed by

multiplying the number of projected beneficiaries in Table 9 by the projected amount of the annual award for the same year from Table 8.⁴⁰

Although originally set up under the concept that it would operate with sizeable reserves, the OASDHI actually operates on a near pay-as-you-go basis of transfers of current real resources from the working population to the retired one. At present the trust fund represents only about one year's obligation. In effect, the OASDHI system is a transfer of resources from one

demographic group to another. Changes in composition of the two groups will exert great leverage and economic pressures. The above figures indicate that in the future monies from new sources must be used to pay the OASDHI benefits already mandated by law. The economic consequences of this aging population is now receiving close study by some economists.

ECONOMIC CONSEQUENCES

Assuming a return to a fertility of 2.1 and a replacement level birth rate, the ratio of the aged population to those economically active will have increased from .188 to .281 - an increase of 49% by 2050. However, if trends towards early retirement at reduced benefits continue, or if the legal retirement age is lowered (to age 60) the ratio of aged to active would move to .42. This is a rise of 123% in the burden of providing for the aged that the young must carry. Boone A. Turchi, of the Carolina Population Center, computes that a rise of 50% in the ratio of retired to economically active would call for an increase in real per capita income of 1/2% annually between 1970 and 2050. However, if the trend towards earlier retirement continues and retirement at age 60 becomes law, the real per capita in-

crease in income would have to be 1.01% annually. If the history of the OASDHI system is a guide, benefits will be increased because of the policy of attenuating the drop in real income of newly retired workers. Turchi computes that to achieve an increase in real benefits per capita of 1% a year would require a growth rate in per capita income of 2.01%. Actually, real monthly social security benefits between 1950 and 1972 grew at the annual rate of 3.52% which would require a growth rate of 4.53% in personal income.⁴¹ It is imperative, therefore, that real income grow significantly in order that the working members of the population be able to support the retired. Such growth is questioned by economists.

POPULATION REINVESTMENT

John C. Suerth of Gerber's was featured by *Business Week* in an article discussing the detrimental impact of the baby dearth on some businesses.⁴² In spite of Gerber's problems, many business analysts see an even greater cornucopia opening to Americans as a result of the lower birth rate. It is pointed out that Gerber's can shift to adult prepared foods as the babies of the baby boom move into the most productive adult years unencumbered by the costs of child rearing.

Monies not spent on larger families will be saved for investment, thereby aiding the capital market, and public expenditures on schools and other child-support services will be reduced. The Kiplinger Letter states: "Some managers and investors see declines in the birth rate and conclude that the future sales and profits will nosedive. Wrong. Markets will CHANGE, not die. Many are getting bigger. In face, slower population increases actually will boost living standards."⁴³ This view is correct, of course, in the short run. It is as true for the population as a whole as it is for the individual family.

However, the long-term consequence of "living off one's human capital" without reinvestment for the future is economic collapse when the burdens of supporting a proportionally extremely large aged population becomes intolerable.

It is argued by some business analysts that the GNP can continue to grow in spite of ZPG and that for this reason the economy will continue to prosper and individual wealth will grow. A closer analysis of GNP is required than this. Social Security payments to the retired and their subsequent expenditure of these monies for food and lodging add to the GNP, but these transfer payments do not create wealth since retired senior citizens are non-productive.⁴⁴

ZPG will certainly bring about a major change in the ratio of the retired to the economically active citizens. Turchi summarizes that the impact will be to increase the relative transfer of current goods and services from the young to the retired with a reduction in the relative level of personal savings vis-a-vis consumption. This implies a decline

in the economic growth potential of the nation while at the same time requiring an increase in the rate of economic growth if the older population is to be supported without increasing the real burden on the younger population. The history of the OASDHI indicates that benefits will rise and so will the real burden.⁴⁵

It is probable that an increasingly inflationary economy will place ever heavier burdens on the economically active portion of the population, while the older, non-productive portion gain increasing political strength and press for ever greater benefits to meet higher living costs.⁴⁶ These pressures will certainly stress the economy and government budgets far beyond the problems faced today. It can be safely presumed that these stresses will result in budget cuts in other areas, such as defense.⁴⁷

Of particular interest are the implications of the following theories concerning the economy in a ZPG environment:

1. Population mobility will be curtailed in a stagnant population, both vertically in occupational categories and horizontally between them.⁴⁸ Reduction in economic mobility of the population will take place precisely when it is most needed to compensate for major shifts brought about by demographic change (manufacture of rockers instead of baby buggies).⁴⁹

2. A stationary population is likely to be composed of less favorable social and economic selection if, as is now the case, those most able to provide for family and social requirements are in the smallest fertility groups and must be made up for by those portions of the population least able to provide.⁵⁰

3. Profit prospects will be adversely affected by worsening expectations that reduce the incentives to invest; particularly in science, innovation and new activities.⁵¹

4. Decision making will tend to pass to older people with shorter perspectives.⁵²

5. When a critical ratio of that portion of the population working to that portion that is retired is reached, further benefits for the retired will be paid for by deficit financing which will intensify inflation.

6. Taxes will absorb more potential savings.⁵³

7. The return on capital inputs will fall.⁵⁴

8. The rate of increase of production will diminish unless the rate of technological change increases.⁵⁵

9. As the population becomes older it will in general be less adaptable, bringing about less than optimal distribution of labor.⁵⁶

10. Growth rate of aggregate savings will decline.⁵⁷

11. The demand for satiable goods will stabilize.⁵⁸

12. Maintenance of a high level of activity without the stimulus of population growth will be more difficult.⁵⁹

13. Fractional unemployment will rise.⁶⁰

14. Capital formation in the private sector will decline.⁶¹

15. Income distribution will become increasingly unequal if the middle and upper income families have the lowest fertility.⁶²

16. A marked decline in population growth will result in a decline in technological progress, investment and employment with multiplier effects.⁶³ (Had Space Program funds been spent in support of the aged, technological advance would have been greatly retarded).

17. Increasing the amount of capital per worker in order to compensate for the shortage of workers is limited by the law of diminishing returns, and as more capital is added its marginal effect or profitability decreases.⁶⁴

Historically the national economy has been a voracious devourer of manpower. In its precedent-breaking growth from the Civil War until World War I, growth in the American economy was fueled by millions of immigrants. Starting with World War I, industrial growth used up the millions of small farm families until by 1966 only 5.9 of the U.S. population was still agriculture.⁶⁵ Today 48% of American women are employed, a figure that appears close to the maximum.⁶⁶

Unquestionably, any further increase in the proportion of women working would further diminish the national fertility.⁶⁷

A stagnant or shrinking population being a new experience for the developed nations, the various economic theories on its

effect have yet to be proven by events. However, given the fact that the dramatic growth of Western economies developed concurrently with population growth, it would be rash not to suspect a causative relationship and the effects of a declining population.

Particularly is this true when linked to other problems such as the developing energy crises. Considering that economic growth has been directly linked to energy use, curtailment of economic growth by energy shortages might further impair the ability of the economically active to support the retired element.⁶⁸

Enke attributes economic growth during

this era to compounded technological advance and increase in investment per head. He appears to discount growth in aggregate demand and presents what appears to be an incomplete explanation for economic growth of the period.⁶⁹

By 1995 pension beneficiaries will increase by 212%.⁷⁰ An increasing number of retired persons in the population has already brought about the broadening of benefits for the aged.

In addition to social security benefits, greatly increased expenditures for all forms of medical care for the aged and others are taking place and probably will continue to expand.⁷¹

EFFECT ON DEFENSE

What will be the effect on defense if fertility remains below or even at replacement level for a long period of time? Assuming an increase of the birth rate to the maintenance level and assuming there is no increase in the political influence by the larger elderly group, it is clear from Social Security administration projections that present tax revenues cannot possibly meet social security obligations. Additionally, the impact of retirement benefits due to military and civilian government workers hired since World War II has been felt in only a partial manner. Where will these additional funds come from?

The questions raised for the long-term defense planner are these: Is there any evidence to warrant confidence that the U.S. birth rate will regain or rise above replacement level? If U.S. fertility does not recoup, can we expect real economic growth to continue in the face of a stagnant or decreasing labor force and with increasing outlays for the non-productive portion of the population? What factor will take the place of the apparent historical requirement in our economy for an ever larger labor force? Is it reasonable to expect defense spending to remain at the present proportion of national budget? Is there any valid reason to assume that the British model of cutting defense spending to finance social security would not be followed in the United States?

THE BRITISH MODEL

A study of changes in British government spending is illuminative. Britain, because of an earlier decline in its birth rate, has felt the impact sooner of a proportionately larger elderly population." British Old Age Social Security benefits in 1951 were 11.8% of public expenditures while defense was 24.1%. By 1973 old age benefits had climbed to 17.3% and defense had fallen to 12.6%.⁷² Other areas of governmental spending experienced only minor change. That defense should bear the brunt of a "re-ordering of national priorities" is not surprising in view of the inflexibility of most of the remaining budgetary items and the increasing influence of that proportion of the population with short-term interests.

If European economic and military strength collapses due to an inability to carry the burdens of aged populations, what new problems in Western defense strategy will face the United States? What new policies and strategies should be considered to harness the potential of Latin American manpower? Should defense planning envisage governmental efforts to increase the U.S. birth rate?

Whether or not the United States can regain a fertility above replacement level is one of the most important factors in assessing the nation's future on its 200th anniversary.

It is probably prudent to predict that real economic growth, in the face of slowing population growth (aggregate demand) and energy constraints, will not set new records; and that if the defense budget becomes a markedly smaller percentage of national expenditures the nation's defense posture will decline.

Using the experience of Britain as a model, one can ask what would have been the effect on today's defense posture had the U.S. experienced over the last 22 years increasing expenditures for old age benefits on the same scale as Britain's?

GNP figures for Britain in 1951 were not reported as they are now. However, national revenue of L 3,700,014,000 in 1951 had increased by 1973 to L 22,801,000,000⁷⁴, an increase that indicates a comparable growth

in GNP. Such a growth, however, did not result in a "larger pie" from which a reduced percentage of defense spending could be taken sufficient to maintain comparable combat strength, nor did it result in a healthier or more flourishing economy. A marked growth in GNP is not a panacea for the economy or defense potential when weighed down by an ever increasing non-productive population.

Such a quick appraisal of the United Kingdom's experience does not consider other economic factors, nor does it refute the fact that if an economy experienced true growth in its productivity, a smaller proportion of the budget could continue to buy a constant amount of defense potential (assuming no inflation in the economy or increase in the complexity of weapons). Such an overall view of the United Kingdom's experience does, however, indicate the end result of constantly increasing expenditures for old age benefits and provides a very important "crystal ball" for assessment of U.S. trends.

"Fortress America?"

AN APPRAISAL OF FUTURE STRATEGY

Structuring a defense force with half of today's dollars would involve fateful decisions, and may require a strategy that involves the following:

1. A pull-back from Europe; hopefully with negotiated reductions in Pact forces; if not, then unilaterally.
2. Fast-declining reliance on European allies who, for the most part, will be faced with a similar and larger problem and who may opt for a neutral position when U.S. troops depart.
3. Increased reliance on "massive retaliation" as the "cheapest" form of defense rather than on the conventional force capability of "flexible response."

Brazil may emerge as the most powerful economic and military ally of the United States. In the Pacific, the U.S. may have to retrench to the island perimeter of the Western Pacific.

Increasingly the security of the United States would lie in the balance of power bet-

ween the USSR and the People's Republic of China.

The low birth rate of Eastern Europe and European Russia will be an offsetting factor to low fertility in the U.S., Japan and Western Europe. While the overall birth rate of the USSR is still high because of their non-European peoples, an internal demographic imbalance may in itself cause stresses within the USSR.⁷⁵

The United States would be unable to afford Middle East strife. Combined with a worsening energy crisis, the economic constraints of our aging population would force increasing support of Arab positions. Africa would not be considered an area for defense activities, nor would South Asia.

In short, were the United States forced to adopt within two decades a defense budget proportional to only half of today's, drastic revisions in strategic thought would be required. "Fortress America" and a completely nuclear strategy may well be the only defense the United States can afford.

The U.S. armed forces two decades from now may be very similar to those of the United Kingdom's today - strategic nuclear deterrent forces backed by a very small Army force. A U.S. active Army of a half dozen or fewer divisions with a larger force of National Guard units may be the structure of tomorrow's Army. The smaller cost of Guard forces will become increasingly attractive. The Navy, as it is no longer called upon to project its force to world-wide commitments, and in the face of drastic budget cuts, may retire its carriers in favor of its nuclear and ASW role. These would appear the unattractive outlines that defense spending cuts will force on strategy.

Today's birth rate and the historical falling trend in fertility are a stark fact; its harmful economic consequences are conjectural but very probable; the implied consequences for defense grave.

A partial alternative to such Draconian changes in strategy exists. The volunteer military can be replaced by universal national service. When privates draw only that money needed for PX sundries, it will also make possible lower pay scales across the board.

A return to compulsory service would be more palatable if all were required to serve through a program wherein youth choose the form of national service they were to perform, in the military, other governmental, or non-governmental public service institutions. Such a program would also pump new and economical labor into hospitals, police forces and other public service agencies, relieving the demand for government funds in support of programs such as law enforcement, Medicare and Medicaid.

It seems clear that a combination of revised strategy and low-pay military will be required.

These, then, are the quandaries of the defense planner as the nation enters its third century. Prudence suggests that worldwide commitments be trimmed in all but the most critical areas, while plans are made for requiring American youth to serve the nation at nominal pay. For this is the heart of the matter; as the proportion of aged in the nation rapidly increase, the young must shoulder an increasing burden.

FOOTNOTES

1. Norman R. Ryder, "The Family in Developed Countries", *Scientific American*, September 1974, p. 125.
2. U.S. Congress. House Ways and Means Committee. 1975 Annual Report of the Board of Trustees of the Federal Old Age and Survivors Insurance and Disability Insurance Trust Funds, 1975 p. 48. (hereafter referred to as "Congress, 1975 OASIDITF Report").
3. "Manpower A.D. 2000", in *Occupational Outlook Quarterly*, Summer 1973, p. 19. See also George H. Brown, "The New Demographic Profile", *Reports*, 15 September 1975, p. 9.
4. Stephen Enke, "Population Growth and Economic Growth", *The Public Interest*, p. 86.
5. "Trends in Marriages, Births and Population, Health, Education, and Welfare Indicators, 1963, p. xxx.
6. "Population Estimates and Projections", *Current Population Reports*, February 1975, Series p-25, No. 541, p. 3.
7. "Population Estimates and Projections", February 1975, p. 3.
8. Charles M. Weis, *Population - Energy Requirements, Environmental Effects*", ed. by Joseph J. Spengler, p. 119.
9. The historical pattern of Western fertility is not only of vital interest to the United States in predicting its own population pattern, but also presents grave additional implications for Western Defense. The questions raised in this paper not only apply to Western European allies, but, due to the earlier date of the fall in their birth rates, will apply at a much earlier date.
For example, Western Germany, the most capable ally of the U.S. in Western Europe, has reached the demographic point at which each year the nation will experience a greater number of deaths than births: a point the United States may not reach until the next century. The question then must be raised how soon will Western Europe become a defense liability rather than a defense asset?
10. Ronald Lee, "The Formal Dynamics of Controlled Populations and the Echo, the Boom and the Bust", *Demography*, November 1974, pp. 582-583.
11. Paul C. Clock, "Some Recent Changes in American Families", *Current Population Reports*, Special Studies, p. 3.
12. As the total number of women of childbearing age continues to shrink, the base of fertile women required for a baby boom also shrinks at an ever increasing rate, Westloff, p. 112. Coupled with adverse economic conditions, a below zero population growth might exert a cumulative downward pressure on fertility, Spengler, p. 2. Within the last fifteen years the fertility rates of the United States and Canada have dropped by more than 50%. If the below replacement level birth rate continues, U.S. and Canadian population increase will have stopped in less than two generations (not 70 years as forecast by the Census Bureau, using a fertility of 2.1). If the 1973 fertility rate is continued - even with continuing immigration at present levels - the population will ultimately decline. Westloff, p. 111.
13. Glick, p. 3.
14. Ryder, p. 126.
15. Westloff, p. 127.
16. Provisional Estimates of Abortion Need and Services in the year following the 1973 Supreme Court Decision: United States, Each State, and Metropolitan Area, New York 1975.
17. In Rumania the birth rate moved from less than two children to more than 3.7 per woman in 1965 when legal abortion was ended after a period in which Eastern Europe had more abortions than live births. Since then, as other birth control means have taken the place of abortion, fertility has dropped again. In Japan the birth rate dropped from a total fertility of 4.5 to 2.0 in one decade following legalization of abortion.
18. June Sklar and Beth Berkow, *The American Birthrate: Evidences of a Coming Rise*, *Science*, 29 August 1975, pp. 695-697.
19. Ryder, p. 132.
20. Glick, p. 1.
21. Provisional Estimates of Abortion Need and Services in the year following the 1973 Supreme Court Decision, p. 8.
22. Enke, p. 89.
23. Ryder, p. 127. Comparably low values are found in other developed nations. Belgium 2.2, Czechoslovakia 2.2, Poland 2.2, France 2.1, Yugoslavia 2.1, Hungary 1.9 and England 1.8. Westloff, p. 113.
24. Westloff, p. 113.
25. Westloff, p. 113.
26. Glick, p. 3,
27. A simple model demonstrating the effect of such a minority on long range national patterns can be constructed with five couples (10 people) averaging one child per family for 5 generations and one couple (2 people) averaging 4 children per family over the same period of time. At the fourth generation the five couples would be represented by .625 of a person while the one couple would be represented by 32 people.
28. Sklar and Berkow, p. 698.
29. Computed from 1970 birth rate and subsequent birth and death statistics, Vito M. Logrillo, Department of Health, State of New York, letter to author, 4 September 1975.
30. Total fertility refers to the number of children born to each woman computed by groups of women in five year increments. The ratio of change in total fertility to change in the birth rate (number of births per thousand population) will vary as the age distribution of the childbearing women changes, "Population Estimates and Projections", *Current Population Reports*, April 1975 p. 2.
31. "Manpower A.D. 2000" p. 17.
32. Department of Health, The City of New York. Summary of Vital Statistics, pp. 2 and 5,
33. In 1964 the Catholic birth rate was 29.5 per thousand, "General Summary", *The Official Catholic Directory* 1974, p. 4.
34. An increase of over 25 million people in the over 65 age group within 50 years is not conjectural. Rather, these are the citizens 40 years and older who are alive today.
The number of pension beneficiaries will increase in the next 20 years from 9,647,000 to 30,067,000 of which 23,319 will be on social security (part of the increase is due to broader coverage of social security). By 2025, 44,427 will be on social security. This information from Vito Natrella, U.S. Internal Revenue Service, letter to author, 17 September 1974 and Congress, 1975 OASIDITF Report, p. 50.
35. Congress, 1975 OASIDITF Report, p. 42.
36. 1975 OASIDITF Report, p. 44.
37. Despite the fact that disbursements will exceed current trust fund income projections, it is interesting to note that an individual earning \$13,200 in 1974 paid more than double the social security tax he paid in 1970 and over 65% more than he paid in 1972, Boone A. Turchi, "Stationary Populations: Pensions and the Social Security System" in *Zero Population Growth: Implications*, ed. by Joseph J. Spengler, p. 80.
38. 1975 OASIDITF Report, p. 52.
39. 1975 OASIDITF Report, p. 51.

40. For example, the year 2,000 would give a total projected awards payment of \$382,765,000 and the year 2025 of \$3,440,027,037,000. As a spokesman of the actuarial office of the social security administration stated, such figures are "meaningless", Lotte Lisle, Office of Actuaries, Social Securities Administration, Telcon, 6 October 1975. It should again be emphasized that these distressing figures are based on current benefit payments and the assumption that after decreasing to a total fertility rate of 1.7 in 1977 that the birth rate will go back up to a level of 2.1 and remain there. No allowance is made in them for either increased political pressure from an enlarged senior element in the population for a "reordering of priorities", or a failure of the birth rate to rise. Turchi, p. 82.

41. Turchi, p. 83.

42. "Marketing", *Business Week*, 13 April 1973, pp. 45-50.

43. "The Kiplinger Shop Talk Letter", August 1975, p. 1.

44. In discussion of the falling birth rate in the popular press and many government publications, it is usually pointed out that the total number of births will increase in the next decade (as a result of the "War Babies" having children). This is true only in the short run, not after the turn of the century.

45. Turchi, pp. 83-89.

46. Turchi, p. 83.

47. Turchi holds that demographic change is such a pervasive matter, that short-run neo-Keynesian analyses or long run neo-classical growth models are both inappropriate attacks on the problem. "... Much of what is assumed to be 'structure' in a short run model is in fact variable in the longer run demographic context. Likewise the impact of demographic change on the economic system is likely to be so pervasive that the highly aggregated neo-classical models are likely to obscure many interrelationships of interest. Moreover, population is likely to have a strong impact both on aggregate prices and on the level of unemployment and government intervention in the economy...

The pervasiveness of demographic change and the different aspects of its effect are demonstrated by the impact on the housing industry. Zero population growth will, by depressing the level of savings as resources are transferred from the young to support the old, result in a lower supply of funds for the mortgage market. However, at the same time it will be severely restricting the demand for housing. Thus, this major area of aggregate demand will be affected from two different directions, but both stemming from a lower birth rate. Turchi, p. 88-91.

48. Joseph J. Spengler, *Zero Population Growth: Implications*. p. 7.

49. William J. Serow, "The Economics of Stationary and Declining Populations: Some Views from the First Half of the Twentieth Century" in *Zero Population Growth: Implications*, ed. by Joseph J. Spengler, p. 19.

50. Spengler, p. 11.

51. Spengler, p. 10.

52. Spengler, p. 10.

53. Turchi, p. 89; Spengler, p. 10.

55. Spengler, p. 10.

56. Serow, p. 18.

57. Serow, p. 19.

58. Serow, p. 19.

59. Serow, p. 20.

60. Serow, p. 20.

61. Serow, p. 20.

62. Serow, p. 22.

63. Serow, pp. 24-25.

64. Alan R. Sweezy, "The National History of the Stagnation Thesis", in *Zero Population Growth: Implications*, ed. by Joseph J. Spengler, p. 35.

65. Weiss, p. 119.

66. Theodore W. Baner, *Natural and Energy Resources*, p. 41.

67. Judith Blake, "The Changing Status of Women in Developed Countries", *Scientific American*, September 1974, p. 139.

68. IRS estimates a total increase by 1995 from 19,289,000 working wives to 25,163,000, a gain proportional to the increase in employment which is forecast by the Department of Labor Statistics to rise from 86,696,000 to 110,986,000 by 1995, Vito Natrella, U.S. Internal Revenue Service, letter to author, 17 September 1975.

69. Weiss, p. 119.

70. Enke, p. 91.

71. Natrella, letter to author, 17 September 1975.

72. Vira R. Kevett, "Characteristics and Needs of an Aging Population in a Southern Metropolitan Area", ed. by Joseph J. Spengler, p. 137.

73. Nissel and Lewis, p. 75.

74. Nissel and Lewis, p. 199.

75. *World Almanac* 1973, p. 608; also see *The Statesman's Year Book* 1953, p. 84.

76. "Russia Alarmed at Falling Birth Rate", *Miami Herald*, 1 August, 1968, p. 18-H; see also Eric Bourne, "Births Low, Communist Nations Restrict Divorce and Abortion as Population Lags", *Christian Science Monitor*, 1 November 1966, p. 2; and Reinhard Meier, "Soviet Population Problems", *USAWC A-4*, p. 73. Reprinted from *Swiss Review of World Affairs*, August 1974, pp. 7-9.

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