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A DYNAMIC REGIONAL IMPACT ANALYSIS OF FEDERAL
EXPENDITURES OF A WATER AND RELATED LAND RESOURCE PROJECT --
THE BOISE PROJECT OF IDAHO

PART IV

A SOCIAL IMPACT ANALYSIS OF FEDERAL EXPENDITURES
ON A WATER RELATED RESOURCE PROJECT:
BOISE PROJECT
SOCIAL SUBPROJECT

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INTRODUCTION

The basic objective of this study is to provide insight into the total impact (social, environmental, physical and economic) of a federal expenditure on a water and related land resource project, using the Boise Project as the case study. Further, the study will provide methodology for use in perceiving existing projects as well as viewing proposed projects by water planning agencies.

A history of the development of the Project and a description of climate, location and physical and economic characteristics of the area are covered in Long (1977). Similar data also appear in Caldwell and Wells (1974).

All aspects of our environment are interpreted within a cultural setting. The importance of the project impacts from flood control, hydroelectric power, irrigation, etc. are all interpreted symbolically within the subcultural milieu of the residents of the area. Thus, while economic indicators provide an indication of the growth of our society, a different set of indicators must be used to measure the social well-being of people. Recently, greater concern has been expressed along the lines of developing social indicators as a measure of the general social well-being of people in our society.

The concept of social well-being has not been totally ignored by those in the area of water resources planning. In fact, it is an integral part of modern water planning criteria. With the movement toward establishment of social indicators it seems appropriate to also be concerned about the effects of various government development projects on the social well-being of people in the particular project area. In the past, decisions relating to public investments in water resource development have been made primarily on the basis of economic benefit-cost information with minimal concern for the more intangible values that might be associated with the project. If any type of impact analysis concerning people was done, it usually centered around the idea that the construction of a given project would provide jobs for the local people and thus automatically raise social well-being. Studies have raised some questions concerning this assumption. A more detailed method for looking at the social impacts of federal developments is needed.

One approach for assessing the importance of federal developments in affecting the social aspects of an area is to study the social changes resulting from an existing government project. Thus, a major objective of the social subproject of this study is to analyze the social changes resulting from the Boise Project.

Specific Objectives

1. To develop methodology for measuring the social impacts of federal

investments in water resource development projects. Then, using this methodology ---

2. To analyze the social system existing in the Boise region "with project,"
3. To analyze the social system in the region that might exist "without project",
4. To use the information from objectives (2) and (3) in assessing changes in social well-being as a result of the development of the project with particular emphasis on comparison of the resulting changes with those anticipated during the initial planning stages of the project.

DEVELOPMENT OF SOCIAL SYSTEM INDICATORS

Recent attempts to construct testable hypotheses about social systems have centered around developing social system indicators. Interest in the concept of social indicators has been based on a need to assess social progress and to develop a set of measures that would be used to set national goals, evaluate programs and allow programs to be ranked by priority.

A discussion of the historical development of various aspects of social indicators can be found in Sheldon and Park (1975), which points to specific difficulties in selecting measures, also to the problem of existing limits of available secondary data that meet the criteria for social indicators.

According to reports of the August 1975 meeting of the American Sociological Association, social scientists are not in agreement as to the definition of a social indicator. Recently developed definitions, however, do give an indication of what the concept of a social indicator should include. Duncan (1974) reflects on the content of social indicators:

What we must have minimally, are quantitative statements about social conditions and social processes, repeatedly available through time, the reliability and validity of which are completely assessed and meet minimal standards. . .As accounting schemes, models of social processes and indicators are developed and tested, our ideas of what to measure will of course change. But that does not alter the principle that the basic ingredients are the measurements themselves. We are talking about information, the processing of information and the reporting of processed information.

A widely used definition of social indicator is found in Toward a Social Report (U.S. Department of Health, Education, and Welfare 1969:97):

A social indicator, as the term is used here, may be defined to be a statistic of direct normative interest which facilitates concise, comprehensive and balanced judgment about the condition of major aspects of a society. It is in all cases a direct measure of welfare and is subject to the interpretation that, if it changes in the "right" direction, while other things remain equal, things have gotten better, or people are "better off".

Areas considered in Toward a Social Report were 1) health, 2) social mobility, 3) the condition of the physical environment, 4) income and poverty, 5) public order and safety, and 6) learning science and art. This report was an attempt on the part of social scientists to look at several important areas and digest what is known about progress toward generally accepted goals.

Various earlier studies (Kimball and Castle, 1963; Marts, 1950; Holje, 1956) have attempted to measure indirect benefits of irrigation projects. Kimball and Castle identified: 1) purchasing of production supplies, 2) increased spending for consumption items, 3) greater consumption spending by those who supply production goods and those who process goods produced, 4) growth in service industries, 5) increase in employment and tax base, and 6) growth in population resulting in increased demand for public service such as schools, roads and law enforcement. Holje (1956) pointed out specific areas of social organization that represent indirect benefits to the community which include: 1) health, hospital and medical care services, 2) school functions and organizations, 3) livestock feeding and sale operations, 4) business service activities, and 5) leadership functions. They compared a dry land area to an irrigated area in population size, land area and acres in farms to determine social benefits.

Assumptions that stress economic well-being tend to measure the economic context of impacts of social well-being, rather than explore other significant social impacts, thus tending to minimize the complexity of social impacts. More recent attempts by Andrews, Madsen, and Legaz (1974) and the Texas Water Development Board (1973) have been more comprehensive and clear. The Texas study showed various levels of current social well-being in relation to age, income, race and sex, and the relationship of social well-being to water development. This study used a combination of secondary data and primary survey data. The types of data considered relevant to the eight social indicators they selected were 1) income and employment, 2) education, 3) environmental conditions, 4) health, 5) crime and violence, 6) communications, 7) public services, 8) economic and demographic stability, 9) demographic characteristics and various voting records. Since their analysis was based on a before and after comparison, much relevant secondary data could not be used. They balanced this lack by collecting "information on indicators of attitudes of people with respect to community problems in general and water resource problems and solutions in particular." (Texas Water Development Board, 1973:147).

A social profile is suggested by Fitzsimmons, et.al. (1975) as the baseline for a social well-being account, with comparisons to appropriate regional, state or national averages. The social profile should consist of data which are readily available or obtainable such as population, employment, education, etc. The researcher is then to make a judgment on the quality of the attribute as it exists in the planning area, marking it above average, average or below average. The impact of the planned project on the attributes is then rated from ++ to -- according to the judged effect.

The Water Resources Council (1971) has developed proposed principles and standards for planning water and related land resources in which the following purposes are set out:

1. National economic development. . .

2. Enhance quality of the environment. . .
3. Enhance regional development through increases in a region's income; increases in employment; distribution of population within and among regions; improvements . . . educational, cultural, and recreational opportunities; . . .

Assessment of plans should include the beneficial and adverse effects on social factors such as real income distribution, life, health and safety, and emergency preparedness. The trade-offs among alternative plans should be displayed as fully as possible for components of all objectives and for effects on social factors. Beneficial and adverse effects should reflect, to the best of current understanding and knowledge, the priorities and preferences expressed by the public at all levels to be affected by the plan. If particular non-monetary beneficial effects or services are not amenable to quantitative measurement, they should be described as fully as possible in appropriate qualitative terms. Social factors present complex definitional, data and measurement problems. Researchers should recognize the limitations and explore innovative approaches.

Components of regional development objectives given in the proposed principles and standards are:

1. Increase in regional income.
2. Effects of other components:
 - a. Achieving desirable population dispersal and urban-rural balance through distribution of population and employment opportunities.
 - b. Increases in regional employment.
 - c. Maintaining the rural population base while drawing some people back into outlying areas with more opportunities for employment, recreation, more and better living space and an amenable social environment represents a responsive approach toward redirecting geographic distribution of the population while providing for economic growth and development.
 - d. Educational, cultural and recreational opportunities through improved opportunities for community services such as utilities, transportation, schools and hospitals and historic and scientific sites.

It is suggested in the proposed principles and standards that these criteria be presented in a complete display or accounting of relevant beneficial and adverse effects, in nonmonetary terms for most social factors.

Details of an environmental evaluation system developed by Battelle-Columbus for the Bureau of Reclamation are given in Dee (1972). This method seeks to assess environmental impacts in terms of a total score in impact units with and without the proposed project. The purpose of this plan is to allow for explicit trade-offs between beneficial and adverse environmental changes. Both beneficial and adverse impacts should be assessed. However, properties are not commonly measured in commensurate units, therefore it is difficult to evaluate the net effect. A proposed technique is to transform all parameters into commensurate units:

1. Transform all parameter estimates into their corresponding quality through use of a value function which relates various levels of parameter estimates to appropriate levels of quality. This is done by assigning to each unit a quality which ranges between good and bad, with 0 = bad, 1 = good. This assignment is based on a value judgment of the researcher, the research team, or some other group.
2. Weight all parameters in proportion to their relative importance as indicators of the degree to which projects may disturb or enhance man's relationship with social environment. The weighting procedure is:
 - a. Rank elements according to selected criterion (again a value judgment):
 - b. Compare ranks by contiguous pairs to determine degree of difference in importance;
 - c. Distribute 1,000 points first to categories (economic, environmental, social), then to each quality (opportunity, living conditions, etc.), then to parameters (income, education, employment, etc.).

Estimates of weights should consider:

- a. Inclusiveness of parameter,
 - b. Reliability of parameter measure,
 - c. Sensitivity of parameters to changes in the (social) environment.
3. Multiply the quality of the parameters by relative weights to obtain common units. The sum of these units then equals the social impact.

The resulting output from this procedure should indicate not only trade-offs of beneficial and adverse impacts but also should signal warnings of sensitive areas as well as note data gaps.

The procedure from Dee was field tested on several projects. Results of interest to this study are the assessments in the so-called "human interest" section. The subject project was divided into sectors and each sector assigned a proportion to indicate the project influence in each sector. Each sector was given a "with project" and "without project" rating which were then multiplied by the predetermined weights and qualities to arrive at an index figure. These indices were compared for an assessment of the estimated change attributable to the project. Conclusions for these specific projects were that there would be a decrease in employment opportunities, in housing quality, and in social interaction with the project.

An attempt to develop indices with statistical procedures rather than value judgments of individuals or groups is made in Social Indicators for Small Areas (Bixhorn, 1973). The methodology is described thus:

1. Define dimensions (health, education, etc.);
2. Aggregate statistical series to measure value;
3. Variables in (2) are converted to rates.

Administrators involved in the project refused to rank or assign weights based on their judgments on the importance of variables to dimensions so another point was added:

4. Assignment of weights by mathematicians, reflecting the degree of correlation between variables. The principal component method was used to create an index number representing an indicator. Results were confirmed with intercorrelation between variables, dropping those variables with low correlation.

Numbers derived from the above process then become index numbers within each dimension. Rates in (3) were determined by setting a numerator (data on the variable) over a denominator (total population or subject population, for example.)

Weiner (1973) has attempted to use a similar methodology in a study of blight in sections of Los Angeles. He uses a concept he calls the "scientific urban matrix" which assumes that:

1. The city is composed of various delivery subsystems.
2. Blight is a symptom of failure of these delivery subsystems to adequately provide for needs of users.
3. Each delivery system is composed of dimensions at least partially measurable.

Weiner's methodology was:

1. Data was aggregated to geographic units. Residents were sampled and polled to rate their communities for a subjective evaluation of the overall performance of the system.
2. Categories of delivery systems were set up and variables (indicators) were developed to measure categories. For a variable to be included it was essential that data measuring it be available. (Bixhorn in the previous article has stated that while it is desirable to establish indicators relevant to social theory, absence of data may make such indicators worthless.)
3. The various delivery systems (categories) were weighted based on relationships (regressions) between their data and the overall community ambience scores obtained in (1), producing the ranks and weights as follows:

<u>Rank</u>	<u>Category</u>	<u>Relative Weight</u>
1	Education	1.000
2	Housing and Neighborhood	.442
3	Income Production	.438
(These three categories explained 88 percent variance.)		
4	Health	.224
5	Law Enforcement	.197
6	Accessibility	.196
7	Recreation	.144
8	Fire Protection	.002
(These remaining categories added 1 percent to variance explained.)		

METHODOLOGY

Definitions

To facilitate communication and lessen the need for excessive explanation of terms throughout the report, several definitions are in order:

"Project" refers to the Boise Irrigation Project developed by the Bureau of Reclamation.

"Project Area" is the combined area of Ada and Canyon counties. Although the project covers slightly more area than this, only that within the two counties is considered in this study.

"With project" refers to the existing status of the area in a given time period.

"Without project" refers to the hypothesized status of the area which is estimated would exist if the project had not been developed.

"Social indicators" are those tangible dimensions of the larger concepts such as education which are assumed to make up the still more intangible quality of life.

Procedure

The Boise Project was analyzed for both spatial and temporal impact -- impact on Ada and Canyon Counties and changes from 1940-1970. To a limited degree changes from 1910-1970 are discussed, but data for the earlier period were insufficient for complete analysis. The procedures consisted of:

1. An assessment of the status of the two counties "with project", in terms of the quality of life of the social system constituted by that area;
2. An estimate of the status of the two counties "without project";
3. An evaluation of the impact of the project involving both a comparison of areas and changes over time.

Selection of Indicators

Using assumptions suggested by Weiner (see page 7) that the county comprises a social system composed of various delivery subsystems, categories

of delivery subsystems were developed which appeared to meet the criterion of being indicative of the quality of life, based on theory, past research and general human experience.

Categories are not themselves directly measurable; for example, "education" as a concept consists of many smaller dimensions, some of which are measurable. Donald McGranahan, writing in *Measuring Development* (Baster, 1972:92-93) states:

...in the social development field most main goals like "health", "education", "security," "equity," and other objects of social policy are not directly measurable in their totalities or even clearly defined, and indicators commonly serve as proxy or partial measures of these entities.

Following McGranahan and others, categories have been broken down into specific social indicators which serve as proxies for the categories. An infinite number of indicators are possible; our efforts concentrated on a parsimonious selection of indicators which were judged pertinent to the area, for which data were available and which seemed to measure a substantial portion of the category under which they were subsumed. Indicators were selected which can be measured in terms of some unit such as people or money. In addition, an appropriate base was selected for each indicator--some measure to which the indicator could be compared. In most cases this base was population but in some cases it was State averages or some other suitable level of data. Indicators within categories were assumed to have equal weight since no precedent has been found for doing otherwise. To quote Drewnowski (in Baster, 1972:87):

As long as we do not have a system of weights based on sound theoretical principles we have to use some conventional system. The simplest of these is a system of equal weights. It makes the level of living index an arithmetical mean of all the selected indicators. There is nothing wrong in using it as long as we are fully aware of the nature of the operation.

A value + or - was assigned to each indicator based on a judgment of whether a greater incidence of the indicator would be a benefit or a detriment to the social system. Some aspects of the situation (such as population) thus cannot be a part of the equation.

These indicators, their value assignment and appropriate base are displayed in Table 1.

Table 1. Categories and Indicators for Assessment of Status With and Without Boise Project, Including Bases and Values.

Indicators	Value	Base "With Project"	Base "Without Project"
Category: EDUCATION			
(a) Median years school completed	+	12 years	12 years
(b) Numbers age 14-17 in school	+	Population aged 14-17	Estimated population 14-17
(c) Numbers over age 25 completing high school	+	Population over age 25	Estimated population over 25
Category: HOUSING AND NEIGHBORHOOD			
(a) Median Rent	-	Median family income	Estimated family income
(b) Number with all plumbing housing units	+	Number of housing units	Estimated population of county
(c) Number migrant	-	Population of county	Estimated population of county
(d) Owner-occupied units	+	Number of housing units	Estimated number of housing units
Category: FORMAL ACHIEVEMENT			
(a) Median Income, family	+	State median income, family	State median income, family
(b) Percentage of labor force employed	+	Labor force	Estimated number blue collar
(c) Occupational prestige			
(1) Number of white collar	+	Number blue collar	Estimated number blue collar
(2) Number high white collar	+	Number low white collar	Estimated number low white collar
(3) Number high blue collar	+	Number low blue collar	Estimated number low blue collar
Combine and average (1), (2), (3) for (c)			
(d) Number of families under poverty level	-	Number of families	Estimated number families
Category: HEALTH (MENTAL AND PHYSICAL)			
(a) Infant Mortality	-	Number of live births	Estimated number of live births
(b) All Deaths	-	Population	Estimated Population
(c) Deaths from selected respiratory disease	-	Deaths	Estimated Deaths
(d) Deaths from Heart Disease	-	"	"
(e) Suicides	-	"	"
(f) Deaths from accidents, other than motor vehicle	-	"	"
Category: LAW ENFORCEMENT			
(a) Number of violent crimes	-	Population, 1,000's	Estimated population
(b) Number of property crimes	-	Population, 1,000's	Estimated population
(c) Narcotics and drugs	-	Population, 1,000's	Estimated population
(d) Arrests	-	Reported Crimes	Estimated reported crimes
Category: ACCESSIBILITY			
(a) Units Public Carriers	+	Population, 1,000's	Estimated population
(b) Miles of state roads	+	Sq. Miles	Sq. Miles
(c) Miles of federal roads	+	Sq. Miles	Sq. Miles
(d) Miles of all roads & streets	+	Sq. Miles	Sq. Miles
(e) Traffic accidents	+	Miles of roads	Estimated miles of roads
Category: RECREATION			
(a) Units, indoor recreation facilities	+	Population, 1,000's	Estimated population
(b) Acreage-outdoor recreation	+	1/10 acre per person	1/10 acre per person
(c) Visitor days recreation	+	Population, 1,000's	Estimated population

Data Collection

The primary sources of data for the analysis were the U.S. Census of Population, the Census of Agriculture and other official statistics, as well as any other data we felt were from a reliable source. Reliability and availability were twin criteria for our data collection process. Prior to 1940, the U.S. Census did not cover a large array of data pertinent to this study, therefore our analysis covers the period 1940-1970 only.

Data were displayed on worksheets which served as the basis for development of tables. Calculations were performed where necessary to render the data to usable form.

Development of Indices and Analysis

Status "With Project"

The analysis of the status of the area "with project" was made as follows:

1. Measure indicator (collect data);
2. Develop appropriate base;
3. Calculate ratio of indicator/base;
4. Assign a value + or -;
5. Sum of ratios/number of indicators in category (allows a variable number of indicators within categories without influencing outcome unduly).
6. This creates an "index" for each category which since it is based on common units (ratio of indicator to base) can be compared with each of the other indices thus created.

The above process results in seven indices, some indicating a positive position for the category, some a negative position.

Status "Without Project"

The "without project" estimated was made using the same categories, social indicators and values as were used in the "with project" status analysis. The first procedure was an estimate of the change in population size that would have occurred if the project had not been developed. The resulting population estimate then

became the basis for estimating changes in social indicators "without project".

A confounding factor was immediately apparent due to the presence of the State Capital at Boise in Ada County, as well as other related factors such as businesses and industries which have located in the area in order to be near the Capital or because the growing population (most of which is probably also due to the impact of the Capital) makes the area a good place to do business. In addition, by 1970 there was a major State University in Boise and smaller colleges in Nampa and Caldwell. These factors were grouped together and termed the "Capital" impact. A control was instituted to abstract the effect of this "Capital" impact before estimates of the impact of the Boise Project was made (see Steps 5 and 6 following).

There are a number of assumptions basic to our "without project" estimate:

1. Irrigated farms in the area would be fewer but without restrictions on acreage imposed on the Project lands, farms would also be somewhat larger.
2. The farm population would thus be less than actual farm population in the Project area.
3. The impact of the decreased farm population "without project" would result in a proportionate decrease in non-farm population in the Project area.
4. The proportion of the population resulting from the above described "Capital" impact would remain at its actual size.

The population estimating process is one of apportioning existing population to various segments and estimating changes in each segment. That segment of population which is assumed to have experienced no change as a result of the Project is also assumed to have no change in ratios of social indicators as developed in the "with Project" scenerio, based on Census data on Ada and Canyon Counties. However, there is no Census data to tell us what rates of each social indicator would exist in the absence of the Project. Therefore, to assess indicators in those segments where it is assumed change would have taken place "without Project", it is necessary to derive proxy data from a control area.

Two other counties were selected as "control" counties, Cassia as a control for Ada County and Gooding as control for Canyon County. Both control counties have little Federal investment in the development of irrigation and are essentially rural areas with no large cities or related industrial and business development. It was assumed

these counties were typical of the patterns that would have developed in Ada and Canyon had the Project not been developed. Bases for this selection were similarities between the control counties and our "without Project" projections for the subject counties in proportion of farm land irrigated and in cropping patterns. These similarities are displayed below:

	Year	Ada* Without Project	Canyon* Without Project	Cassia	Gooding
Percent of Land Irrigated	1950	19.1	30.8	21.6	40.2
	1960	24.9	27.2	16.5	32.5
	1970	23.9	27.4	30**	32**

Boise Project Area
Without Project*

Cropping Pattern, Percent of Irri- gated Acres	1972	Hay	30	29	33
		Pasture	20	11	29
		Grain	20	30	27
		Intensive Crops	30	26	11

*Nelson and Warnick, Economic Subproject Report, 1976: Appendix

**Based on 1964 Census of Agriculture

The control counties also had population sizes and ratios of farm population to total population that seemed reasonable to expect for our "without Project" populations (see Appendix Table 1). The data from the control counties served both as the basis for population estimates "without Project" and estimated changes in social indicators resulting from the changed population.

The population estimate "without Project" begins with farm population since changes throughout the Project area are assumed to hinge on the increased farm population resulting from the irrigation project. Each farm added provides not only employment for a farmer and farm labor but for associated agribusiness employment as well as increased jobs in other sectors such as schools, government, health care, retail establishments, construction, recreation and others. The ratio of the farm population to the nonfarm population is an essential part of our population estimating procedure.

Since the impact was seen as possibly quite different on the two counties, our method was to estimate changes for each county (Ada and Canyon) and then to aggregate results for changes in the Project area. Thus the Project area data is an average of the two counties weighted by existing or estimated populations.

The steps in our farm population "without Project" estimating procedure are outlined below:

- Step 1 - The acres available for irrigation without Project were taken from the Economic Subproject Report (Nelson and Warnick, 1976). (See Appendix Table 1)
- Step 2 - The available acres in (1) were divided by the average irrigated acres per farm from the control counties (Appendix Table 1), resulting in the number of irrigated farms possible without Project.
- Step 3 - The number of farms from Step 2 was multiplied by the average number of persons per farm for the control counties. The average per farm takes into account not only the changes in family size over time but changes in resident labor requirements since it was derived by dividing the existing farm population in the control county by the number of farms (Appendix Table 1). This operation results in the estimated population on irrigated farms without Project.
- Step 4 - It was assumed that nonirrigated farm population in Ada and Canyon counties would not be affected by the Project, that the all-dry farms exist in an area where irrigation is not possible under any condition. Land which is irrigated by the Project but which might not be irrigated without Project might be farmed as all-dry land but our assumption is that it would be added to the dry land acreage of partially irrigated farms. Therefore the population (quite small) that actually occupied the nonirrigated farms in each time period was added to the estimated irrigated farm population derived in Step 3 to arrive at the estimated total farm population without Project.

The next procedure was to eliminate the impact of the State Capital and other associated or nonproject related influences as described earlier. Our assumption for this process was that the area "without Capital" would resemble the control counties in farm/nonfarm ratio. The procedure for the "without Capital" estimate follows:

- Step 5 - The actual farm population in each county (Ada and Canyon) was multiplied by the farm/nonfarm ratios from the control counties (Appendix Table 1). This produced a nonfarm population estimate "with Project" but "without Capital".
- Step 6 - The estimated nonfarm "without Capital" population from Step 5 was added to the actual farm population to arrive at the total estimated "without Capital" population. These "without Capital" estimates were subtracted from actual population to give an estimated "Capital" impact.

The last procedure was then to estimate the total population "without Project", using the estimated farm population from Step 4 and the estimated Capital impact from Step 6:

- Step 7 - The estimated farm population "without Project" (Step 4) was multiplied by the farm/nonfarm ratio from the control counties (Appendix Table 1). This produced an estimated nonfarm "without Capital" and "without Project" segment.
- Step 8 - The nonfarm "without Capital" and "without Project" segment from Step 7 was added to the estimated farm population "without Project" (Step 4) to arrive at a total "without Capital" and "without Project" population which is the portion of the population which would likely be different for the "without" scenerio than for the "with" scenerio.
- Step 9 - The population due to the Capital is assumed to remain the same in either scenerio. This Capital segment was added to the estimated population in Step 8 to arrive at the total population in each county "without Project". The difference between the estimated total population "without Project" and the actual population at each time period is assumed to be the impact of the project on population.

The rural nonfarm segment was estimated with a similar procedure, assuming that the ratio of farm to total rural population would be similar "without Project" to that actually occurring in the control counties (Appendix Table 1).

The resulting population estimates, impacts and percentage distributions are available in Appendix Tables 2, 3 and 4.

Removing both the impact of the Capital (and related factors) and the impact of the Project leaves us with a "primary" population consisting of both farm and nonfarm segments which we assume would exist in the area without Capital and Project influences. This "primary" segment (arrived at in Step 8 above) is that portion of the population which would likely be somewhat different without Project. This "primary" segment is then used in calculating changes in social indicators for the "without" scenerio.

The procedure for estimating changes in social indicators is essentially that of allocating portions of indicators to segments of the population developed in the above steps. The procedure for estimating changes in social indicators follows:

- Step 1 - The same indicators, values and categories were used as were used for the "with Project" status.
- Step 2 - A base was selected which was relevant to the indicator, most often estimated total population "without Project" (See Table 1).
- Step 3 - That base (Step 2) was allocated to a "Capital" segment and to a without Capital "primary" segment as per earlier estimates. If the base were other than estimated population it was allocated on a percentage basis as per population estimates.
- Step 4 - Since we assume the Capital segment was not affected by the Project this portion of the base was multiplied by the actual ratios for each indicator obtained in the "with" status.
- Step 5 - The portion of the base we have allocated to the "primary" segment was assumed to be where change would take place "without Project". Therefore ratios for each indicator from the control counties were applied to this segment.
- Step 6 - The results of Steps 4 and 5 were summed to arrive at a new indicator. This sum was then divided by the base in Step 2 to arrive at a ratio for the indicator "without Project".
- Step 7 - The sum of the ratios for indicators in each category was divided by the number of indicators in each category to produce an index for that category "without Project". These indices can then be compared to the "with" indices for a summary of the impact of the Project.

This social indicator change process is summarized below:

$$\frac{\text{Base (Capital Segment X Actual Ratio)}}{\text{Appointed (Primary Segment X Control Ratio)}} = \frac{\text{New Indicator}}{\text{Base}} = \frac{\text{Ratio Without Project}}{\text{Ratio Without Project}}$$

(Without Project Ratio for Indicator 1 + Without Project Ratio for Indicator 2 + . . .) ÷ number of Indicators = Index for Category.

Unless otherwise specified, data in the tables should be read as a ratio of indicator to base with base = 1.000. These decimals may also be converted to percentages, as was done for most of the discussion.

IMPACT OF THE PROJECT ON THE TWO-COUNTY AREA

Population

The "With Project" Scenerio

The Boise Project covers, in the main, two counties in southern Idaho, Ada and Canyon, with roughly 45 percent of the project lying in Ada County and approximately 55 percent in Canyon County. Ada County is also the site of the State Capitol. The largest city in the area (and in the State) is the capital city of Boise with a 1970 population of 75,000. Other cities are Nampa (population 21,000) and Caldwell (population 14,000), both in Canyon County, and several smaller towns under 3,000 population.

Population and growth over the life of the project are shown in Table 2 and Figure 1. Ada County has always had a larger population than Canyon with Boise being a thriving city of 6,000 before the project began. This early growth of Boise resulted from a "cross-roads" location on east-west, north-south travel from early pioneer, mining and cattle drive days. Having an early start in an otherwise sparsley populated area, Boise quickly became the trade and service center for the area. With the moving of the State Capitol from Lewiston to Boise in 1864, this early growth pattern was confirmed. Presently Ada County (with 16 percent of the State's population) has twice the population of neighboring Canyon County.

Ada County has been the faster growing of the two counties, increasing 196 percent in population from 1930 to 1970, while Canyon County's population in the same period grew by 98 percent and State population grew by 60 percent.

Cities in the two counties have experienced even greater population increases (see Table 3)--with the result that Ada County was considered 78 percent urban in 1970 and Canyon was 57 percent urban, compared to 54 percent for the State as a whole. Much of the urbanization is accounted for by annexation to the three major cities; between 1960 and 1970 Boise nearly doubled in population as a result of annexing surrounding unincorporated suburbs. Population density in 1970 was 108 persons per square mile in Ada and 106 persons per square mile in Canyon, while the statewide density was 8.6.

The "Without Project" Scenerio

The social impacts of a given water development project are tied

Table 2. Population Changes in Boise Project Area, Ada and Canyon Counties, State.

Year	Population	% Change in Decade	Farm Population	% Change in Decade (Farm Population)
ADA COUNTY				
1910	29,088	%	*11,750	%
1920	35,213	+21.1	*13,820	
1930	37,925	+ 7.7	9,731	
1940	50,401	+32.9	11,356	+16.7
1950	70,649	+40.2	9,236	-18.7
1960	93,146	+31.8	7,064	-23.5
1970	112,230	+20.5	4,275	-39.5
Change 1930- 1970***	74,305	+195.9	-5,456	-56.1
Area: 1,046 square miles				
Population per square mile (1970) 107.6				
CANYON COUNTY				
1910	**25,232	%	*17,575	%
1920	26,932	+ 6.7	*12,727	
1930	30,930	+14.9	14,707	
1940	40,987	+32.5	17,143	+16.6
1950	53,597	+30.8	17,270	+ 0.7
1960	57,662	+ 7.6	13,682	-20.8
1970	61,288	+ 6.3	8,271	-39.6
Change 1930- 1970***	30,358	+98.2	-6,436	-43.8
Area: 580 square miles				
Population per square mile: (1970) 106.0				
STATE				
1910	325,594	%	*255,696	%
1920	431,866	+32.6	196,563	
1930	445,032	+ 3.0	186,100	- 5.3
1940	524,873	+17.9	200,016	+ 7.5
1950	588,637	+12.1	164,605	-17.7
1960	667,191	+13.3	132,782	-19.3
1970	712,567	+ 6.8	94,020	-29.2
Change 1930- 1970***	267,535	+60.1	-92,080	-49.5
Area: 82,677 square miles				
Population per square mile: (1970) 8.6				

*All rural population

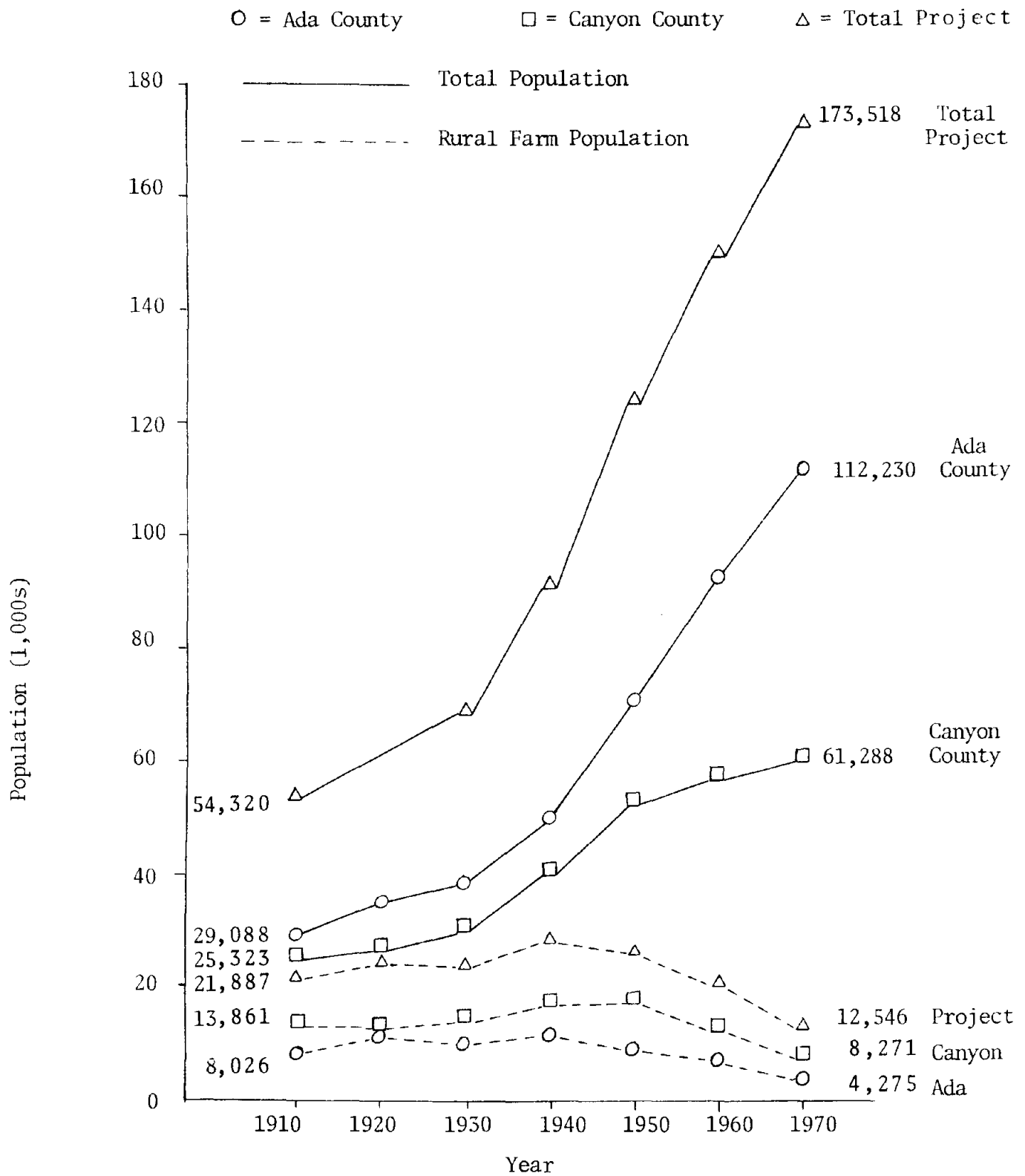
**Includes an area later in Payette County

***Change is for 1930-1970 only. Before that date farm population was not separated from rural population for counties (1910 and 1920) and State (1910).

Table 3. Population Changes, Major Cities in Boise Project Area and Percent of County and State Populations Classed as Urban.

Year	Ada County Population	Boise		Canyon County Population	Nampa		Caldwell		State % Urban	Ada County % Urban	Canyon Co. % Urban
		Population	% Change		Population	% Change	Population	% Change			
1910	29,088	17,358		25,232	4,205		3,543		21.5	59.9	30.7
1920	35,213	21,393	+ 23.0	26,932	7,621	+81.2	5,106	+30.6	27.6	60.8	52.7
1930	37,925	21,544	+ .7	30,930	8,206	+ 7.7	4,974	- 2.6	29.1	56.8	42.6
1940	50,401	29,130	+ 35.2	40,987	12,149	+48.1	7,272	+46.2	33.7	51.8	47.4
1950	70,649	34,393	+ 18.1	53,597	16,185	+33.2	10,487	+44.2	42.9	68.4	49.8
1960	93,146	34,481	+ .3	57,662	18,013	+11.3	12,230	+16.6	47.5	70.2	52.4
1970	112,230	74,990	+117.5	61,288	20,768	+15.3	14,219	+16.3	54.1	78.2	57.1
Change 1910- 1970:	83,142	57,632	301	36,056	16,563	254	10,676	332			

Figure 1. Population, Boise Project Area, Ada and Canyon Counties, With Project.



inherently to the effects of the project on the population of the area affected. A project impact on the population may be reflected in several ways. The most obvious and direct impact is on the quantity of people in the project area. The project may either increase or decrease the population of the affected area. Another aspect closely related to the change in quantity of population is the duration of the impact. The population may increase dramatically during construction of the project, then return to previous levels or even decline over the rest of the project period. On the other hand, a project may have little impact on population for half the project life; then a combination of factors directly resulting from the project and other factors conducive to a population increase cause a dramatic increase in the population of the area. The portion of the increase resulting from the project may continue over time or may drop off after the initial burst. The impact of the Boise Project on population appears to have followed the latter pattern to some degree.

Based on the foregoing assumptions and procedures, the impacts of the Project on population are depicted in Table 4 and Figures 2 and 3.

Most noticeable in Table 4 are the differential impacts of the Capital and Project on the two counties. According to our estimate, Capital impacts on Ada County have apparently been greater than the Project impacts. From 1940-1970, 54 percent to 85 percent of the current population in Ada County could be attributed to the influence of the Capital and 22 percent to 60 percent of Canyon County's population was the result of being adjacent to the Capital county. On the other hand, in 1940, 30 percent of the total population in Ada County could be attributed to the Project; this drops to 8 percent in 1970. Thus, over the last 30 years, the Project impacts on population in Ada County have diminished while the impacts attributable to the Capital have increased. In Canyon County 58 percent of the population in 1940 was Project related. This figure has dropped to 22 percent in 1970. Project impacts have been more a factor in Canyon County's population than in Ada County (see Figures 2 and 3, Appendix Tables 2 and 3).

In addition to a change in numbers of population, we estimate that without Project there would also have been a change in the distribution of that population (Appendix Table 4). While the Project was unable to halt the trend toward increased urbanization and decreased farm population, it apparently did reduce the proportionate flow of residents into urban centers. The urban population would be reduced in actual numbers without project but would represent a greater proportion of the population, 60 to 76% compared to 48 to 71% with project. Farm population would drop drastically with either scenerio, but with Project the proportion held at 31% to 7%--without Project the proportion would likely have been 16% to 4%. This has been especially true in

Table 4. Estimated Impact of Capital and of Project on Ada and Canyon Counties.

Year	Actual County Population With Project	Capital		Project	
		Impact on Population	% of Actual Population	Impact on Population	% of Actual Population
ADA COUNTY					
1940	50,401	27,235	54.0	14,896	29.5
1950	70,649	48,206	68.2	11,525	16.3
1960	93,460	71,703	76.7	10,481	11.2
1970	112,230	95,857	85.4	8,890	7.9

CANYON COUNTY					
1940	40,987	9,101	22.2	23,706	57.8
1950	53,597	8,868	16.6	31,758	59.2
1960	57,662	22,910	39.7	24,165	41.9
1970	61,288	36,971	60.3	13,198	21.5

Figure 2. Population, Boise Project Area, Ada and Canyon Counties, Without Project.

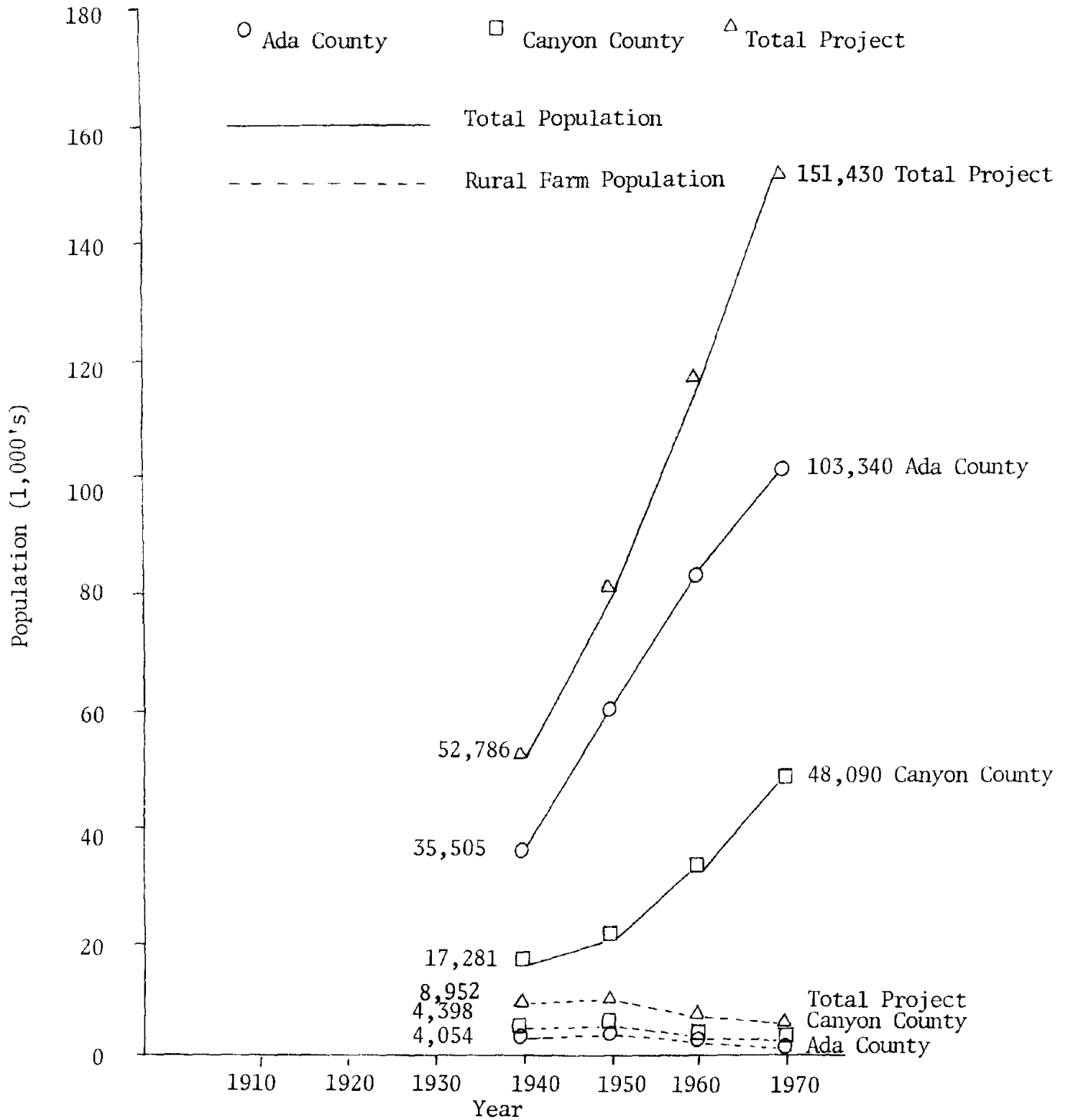
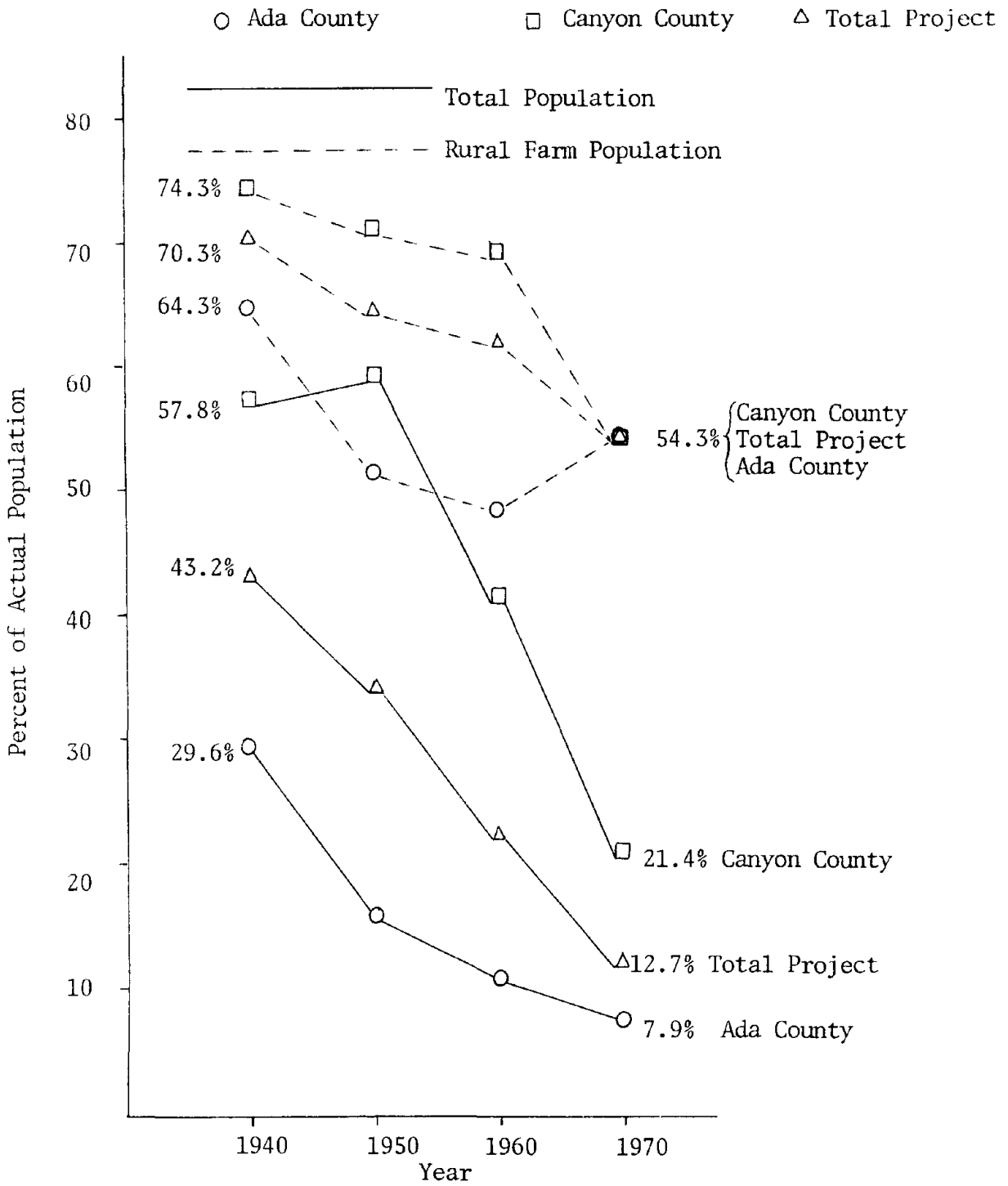


Figure 3. Estimated Impact of Boise Project as a Percent of Actual Population.



Canyon County with the Project apparently holding more of the farm population while reducing the proportion of the population classed as urban.

The Social Indicators

The foregoing discussion describes the population of the Boise Project area but says little about the quality of the social life. To do that we have selected a number of indicators which have been recorded in the U.S. Census and which can be assigned a plus or minus value. We have reported each indicator separately with a ratio determined by relating that indicator to an appropriate base, usually population. These indicators were then grouped into categories so that an index could be constructed for each group of indicators. This enabled us to compare the indices for the "with Project" scenerio to the indices for the "without Project" scenerio. We felt this was an appropriate way to organize the information and to quantify the impact of this Project. The selection of indicators and the procedure for computing ratio and indices have been discussed under "Methodology".

Education

Indicators for this category were median years of school, percent completing four years of high school or more, and percent ages 14-17 enrolled in school (See Appendix Table 5).

With Project. The trend in the Project area and over the State has been a rise in the median years of school, with the Project slightly ahead of State median in 1940 at 9.8 years compared to 8.9 years. By 1970, there was essentially no difference at 12.1 and 12.3. Ada County has consistently had the highest median years of education of the two counties, from 10.3 years in 1940 to 12.5 in 1970. Canyon County median on the other hand has been less than the State median even though there has been a steady rise in the Canyon median from 9.1 (1940) to 12.1 (1970). Ada County had reached the bench mark of 12.0 by 1950 while Canyon lagged 20 years, reaching a median of 12.0 only by 1970. It should be emphasized that these differences are small and should not overshadow the fact that from 1940 to 1970 median years rose 2.3 years over the Project area, 2.2 years in Ada County and 3 years in Canyon County.

The percent completing high school or more measures another dimension of education similar to median years. The base for this ratio was the population over age 25. This indicator showed the same general trend as median years; it would be a surprise if it did not. However, there were some differences. Both the State and the Project area showed a rise from 30-35% completing high school to around 55% over the period 1940-1970. Ada County has been above State averages with

39% in 1940 to 70% in 1970. Canyon County followed State averages closely in 1940 and 1950, but dropped behind in 1960 by about 7% and by 1970 had not quite caught up. A statement was made in the Economic Subproject Report (Long, 1977) that most of the changes in Ada County have also occurred in Canyon County but 20 years later. We note this phenomenon in the education indicators as well as other indicators, although the lag is often only 10 years.

The percent aged 14-17 enrolled in school was used as an indicator of the dropout rate, a proxy quality measure. The base for this was the population aged 14-17. As with the other indicators, there has been a trend for a rising percentage in this age group enrolled in school. The Project area with 85% to 94% enrolled over the time period 1940-1970 closely paralleled State averages. Ada County has had very slightly more enrolled than State averages; Canyon very slightly fewer enrolled. By 1970, percentages were nearly the same for the two counties and the State, leaving only 5 to 8% in this age group not in school. This compares to a U.S. average of 7.2% not in school in 1970.

These three education indicators were then combined and averaged to achieve an education index for each study area. This allows each aspect of education (as we have measured it) to compliment or contradict the others as the case may be. (The values of all the indicators for the education category are plus.) We feel this is similar to the way people make judgements on social phenomena, balancing one quality against other qualities. In order to make median years a part of the index, the median years as reported by the Census were divided by 12.0, setting a hypothetical standard of completion of high school against which to measure the actual achievement. All indices should be read as a ratio of actual accomplishment to an hypothetical ideal situation with 1.000 marking that ideal. In the case of education, 1.000 would be achieved if the median years of education were at least 12.0, if all the population over 25 had completed four years of high school, and if all the young people aged 14-17 were enrolled in school. Obviously few normal populations will reach this hypothetical ideal but that is not the point. Our object was to quantify the concept "education" so that we could make comparisons among areas and between the "with" and "without" scenerios.

The "with Project" Education Index follows:

	<u>Ada</u>	<u>Canyon</u>	<u>Project</u>	<u>State</u>
1940	.709	.627	.673	.634
1950	.799	.702	.758	.722
1960	.854	.746	.813	.800
1970	.895	.883	.863	.856

As would be expected from the preceding discussion, the Education Index for the Project Area was very close to the index for the State as a whole. Ada County was somewhat above State averages over the period 1940-1970, showing a change of .19 in index points. Canyon County was somewhat under State averages for the same period but with a total change of .20 index points. Education has improved in Canyon County but has lagged about 10 to 15 years behind Ada County and about 5 years behind the State as a whole.

Without Project. Education levels in the absence of the project would likely not be greatly different. One possible exception would be median years of education for 1950 which we estimate at 11.3 with Project, 10.4 without. This results from a change in Ada County where the hypothetical median years without Project is 10.4 in contrast to an actual 12.0 in that year. It is doubtful that a difference for one Census year only, in one area only, signifies any significant difference but rather may be a random change resulted from changes in the control County. (Figures 4-7, Appendix Table 5).

The "Without Project" Education Index follows:

	<u>Ada</u>	<u>Canyon</u>	<u>Project</u>
1940	.697	.644	.679
1950	.748	.714	.739
1960	.848	.756	.821
1970	.889	.829	.869

When all indicators are combined to form an index of Education, Ada County appears to have profited from .01 to .05 points from the project. At the same time Canyon County appears to have lost about .01 points as a result of the project. These are not large changes and over the Project area the situations in Ada and Canyon would largely cancel each other out so that there would essentially be no change in the Education Index. The rise in the level of education would have occurred with or without the Project and would have been still very slightly ahead of State averages.

Formal Achievement

Formal achievement is a summary of the ways in which a community functions to meet needs for production and consumption of goods as well as the provision of financial security for individuals and families. From a sociological point of view this function includes not only income

Figure 4. Education, Boise Project Area, With and Without Project: Median Years of School Completed.

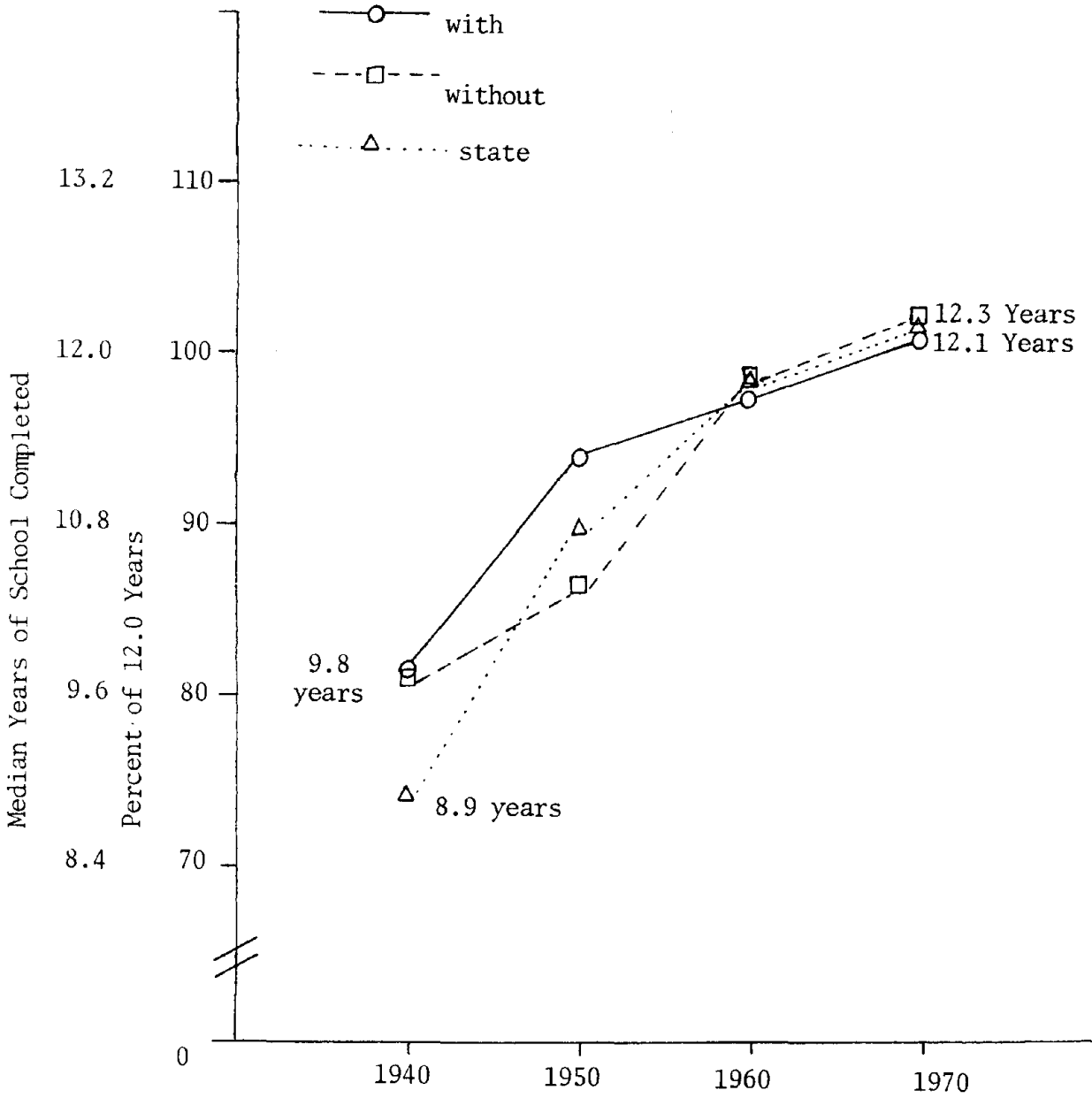


Figure 5. Education, Boise Project Area, With and Without Project: % Completing High School.

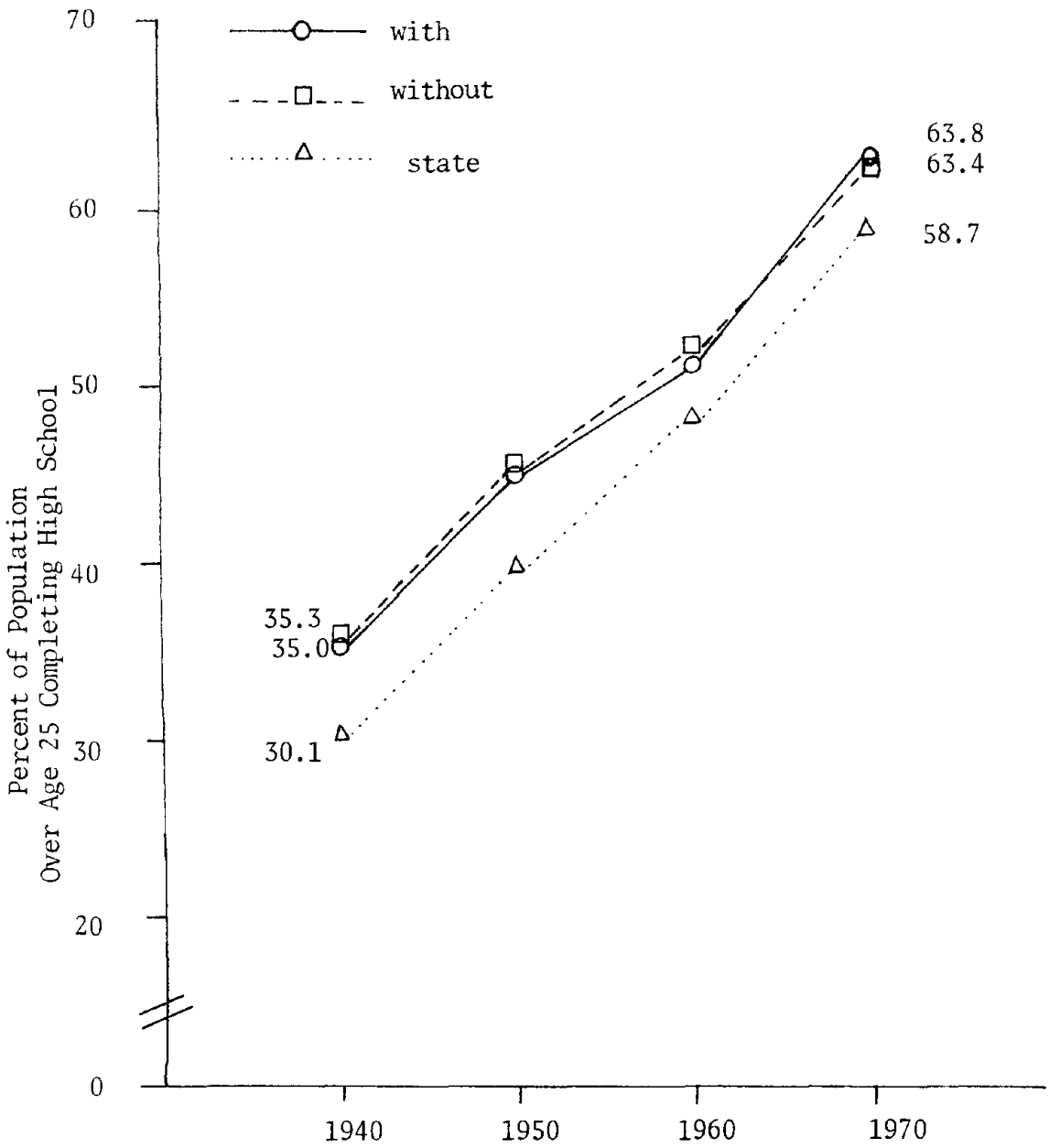


Figure 6. Education, Boise Project Area, With and Without Project: Percent Enrolled in School.

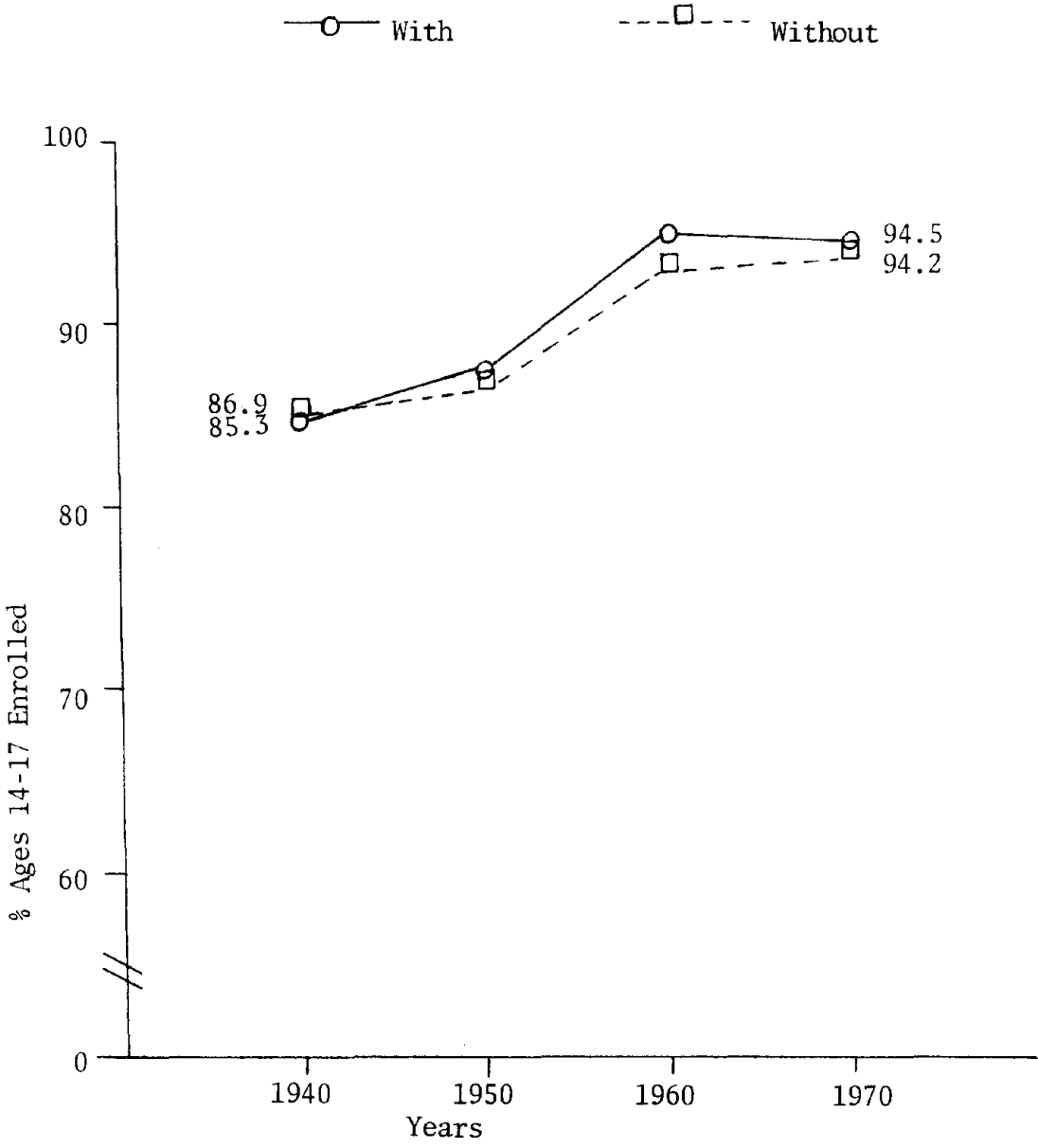
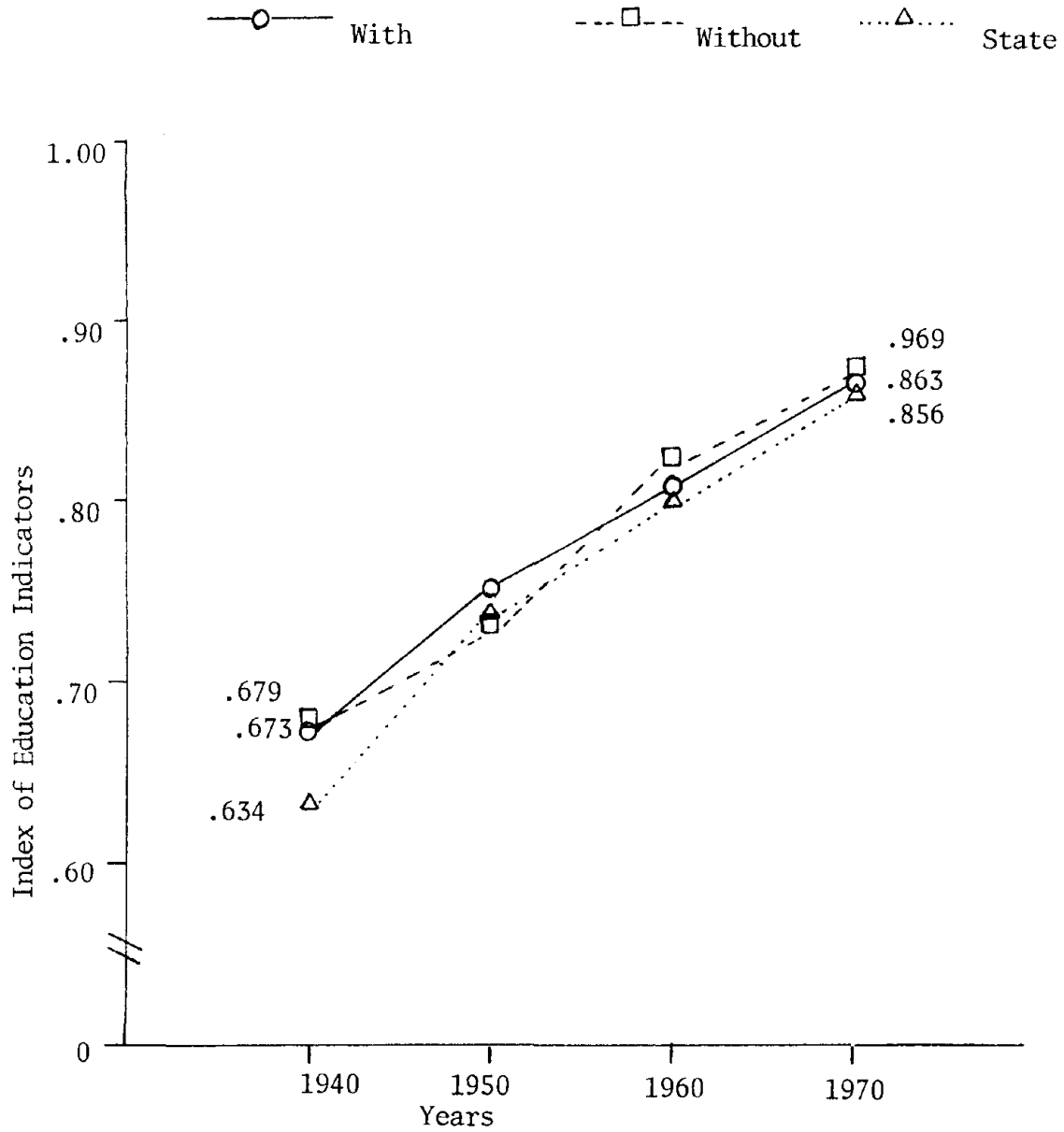


Figure 7. Education Index. Boise Project Area, With and Without Project.



and employment opportunities but also facets such as the distribution of that income among families and the prestige attached to each class of occupation.

With Project. As was pointed out in the Economics Subproject Report (Long, 1977), the income situation in the Project area is good (see Appendix Table 6). We find a rising median family income during the years 1940-70, from \$3,200 to \$9,700 for Ada County and from \$2,700 to \$7,700 in Canyon County. We have based our comparison on State median income and results show Ada County 6 to 16% above the State median while Canyon County has been 12 to 7% below the State median. The overall result for the Project area has been to be at about State median in 1950 (the first year data are available), rising to a little over State median by 1970.

From 1940 to 1960, the number employed as a percent of the labor force has been very close to the average statewide (83% to 94%) for both Counties and consequently for the Project area. However, in 1970 when the State evidently experienced a downturn in employment possibilities, the two-county area continued a slow rise in percent employed, a tribute to the stability of the area.

The rise in median income and job opportunities has apparently been participated in to some extent by families under poverty level income as of 1950. At that time Ada County was below State averages in proportion of families under poverty level (18%) while Canyon was above State average at 30%. By 1960 the gaps had narrowed and by 1970 we find both Counties near the State level of 10%. Since population was growing at the same time, this means an overall decrease in the Project area from 8,500 families under poverty level in 1950 to only 4,400 families under the 1970 poverty level.

Occupational prestige is a two-dimensional concept: (1) the prestige level at any given period and (2) change over time. It has been long established that people value employment not only by income but by the prestige associated with a given occupation and that when there is a choice of occupation one consideration will be chances for advancement. The hierarchy of occupations which we use has been developed and confirmed by a number of studies indicating that white collar jobs have more prestige than blue collar even if white collar income is the same or less, and that within each class certain jobs have more prestige than others. Therefore our measure of occupational prestige consists of white collar as a percentage of blue collar, upper white collar as a percentage of lower white collar and upper blue collar as a percentage of lower blue collar. If we combine all three ratios into an overall ratio for occupational prestige, results for all areas (State, Project, Ada and Canyon Counties) run around 1.20/1.00 indicating an excess of the more prestigious jobs over the less prestigious.

We can also discuss occupation in terms of mobility, that is how much has the chance at a higher prestige job changed over the time period. Looking at the situation that way, the Project area has had slightly less opportunity for white collar jobs than has the State as a whole but within the white collar class there has been somewhat better opportunity for the upper level jobs. Within the blue collar class the project has actually shown a decrease of opportunity for the upper levels. If the change in ratios for the three indicators are averaged, the Project is left in virtually the same situation as the State with minimal change from 1940-1970.

We have separated out farmers, farm managers and farm labor from other occupations and labeled them Class V for identification. The Census has generally reported these groups as part of the lower blue collar group although occasionally farmers and farm managers have appeared in Class I. We feel neither is an accurate way to class farm employed, particularly in Idaho. A "farmer" may mean a low-income, low prestige part-time farmer or it may mean the owner of a number of large farms with capital in millions of dollars.

As has been true both in the U.S. and in Idaho as a whole, farming has been a sharply declining occupation since 1940, dropping from around 33% of the employed in the State to around 11% by 1970. A similar trend has occurred in the Project area, with the percentage decreasing from around 25% in 1940 to about 7% by 1970. Canyon County has traditionally had a greater proportion employed in farm occupations and has followed closely the State trend, dropping from around 37% of all employed persons in 1940 to about 13% in 1970. Ada County has not had a large proportion employed in this class (around 16% in 1940) and by 1970 the group (at 2%) had virtually disappeared as a proportion of employed.

Gains in numbers of employed persons in the Project area over the period 1940-1970 have been 12,195 in Class I, 11,382 in Class II, 11,132 in Class III, 8,205 in Class IV; and a loss of 3,233 in Class V.

All four separate indicators, median income (+), percent of labor force employed (+), families under poverty level (-) and occupational prestige (+) can be combined to form a "formal achievement" index.

The "With Project" Formal Achievement Index follows:

	<u>Ada</u>	<u>Canyon</u>	<u>Project</u>	<u>State</u>
1950	1.039	.910	.996	.956
1960	1.040	.946	1.010	.981
1970	1.092	.974	1.049	1.008

From 1950 (the first year for which all indicators are available) to 1970 there has been a slight rise for the Project area paralleling a similar rise for the State. Ada County has been somewhat above State index while Canyon County has been very slightly below State and about .07 below Ada County.

Much of the preceding material on Formal Achievement also appears in an Economics Subproject Report (Boydston and Nelson, 1977). From that same Economics Report we have abstracted material on income distribution (see Boydston and Nelson for more complete detail).

Gini ratio is an index of income distribution based on percentiles wherein in the equitable situation 10% of the population receive 10% of the income and 90% receive 90% of the income. This standard can then be compared to the actual situation and a ratio between the two established. Gini ratio varies between 0 and 1. With a zero Gini ratio income distribution is perfectly equitable; with a Gini ratio of one it is perfectly inequitable. The larger the ratio the greater the inequity in the distribution of income.

Ratios for the all-Project area generally indicate a more equitable income distribution than was true for the State as a whole. The exception is Canyon County in 1950 when income distribution was approximately the same as for the State.

Gini Ratios

	<u>Year</u>	<u>Ada</u>	<u>Canyon</u>	<u>State</u>
All-Project	1950	.564	.685	.745
Population	1960	.572	.696	.694
	1970	.299	.456	.513

It is also apparent that income in Ada County was more equitably distributed than in Canyon County. Income distribution has improved over the period, somewhat more so in Ada than in Canyon.

Ratios for income distribution were received after our index for formal achievement was constructed. In addition, no Gini ratios were calculated for a without scenerio. For those reasons the Gini ratios were not a part of our index. They could, however, easily incorporated in future uses of the methodology.

Without Project. There were no major changes estimated for the "without Project" scenerio in formal achievement. Unfortunately there were no data available for median income or for families under poverty level for 1940. Beginning in 1950, Ada County was predicted to have a small increase in median family income, from \$3,126 without Project to \$3,250 with Project. In 1960 the increase would be from \$5,753 to

\$5,868. Canyon County was estimated to have experienced similar increases as a result of the Project, from \$2,641 to \$2,768 in 1950. Other years there were essentially no changes. (Figures 8-11, Appendix Table 6).

In 1940 a change of 3% in the percent of labor force employed in Canyon County was suggested by our formula for estimating the "without Project" situation, indicating that the percent employed with Project might well be less than would have occurred in its absence. This could be the result of workers being attracted to the area and then not finding jobs. The impact on the whole Project area is only around 2%. Other years there were no apparent differences between scenerios.

Our estimate also suggests that occupational prestige (the opportunity to have a job that is rated higher socially) would have been somewhat higher in Canyon County in 1940 without Project, possibly a result of a growth in lower prestige jobs associated with construction in the "with Project" scenerio. However, by 1950 the situation would have been reversed with both Ada and Canyon showing a greater occupational prestige index with Project than without, particularly in Canyon County with a .15 change in the occupational prestige index. This was reflected in a .06 change over the Project area. By 1960-70 there were no differences of any size between the with/without situations with people being distributed among occupations in about the same proportions as would have occurred in any case. It should be pointed out that farmers and farm labor are not included in this index since it is not clear what classes they fit. Rather they have been held separate and are discussed under formal achievement with project and under the farm sector.

The "Without Project" Formal Achievement Index follows:

	<u>Ada</u>	<u>Canyon</u>	<u>Project</u>
1950	1.011	.847	.967
1960	1.031	.939	1.006
1970	1.088	.975	1.050

The index for "formal achievement" indicates no major change for the Project area between the with and without scenerios. In 1950 Canyon County without Project would be .06 points less than with Project but other years show no difference of any size. There would still be a discrepancy between the two counties with Ada .16 to .10 points ahead of Canyon County.

Figure 8. Formal Achievement, Boise Project Area, With and Without Project: Median Family Income as a Percent of State Median Income.

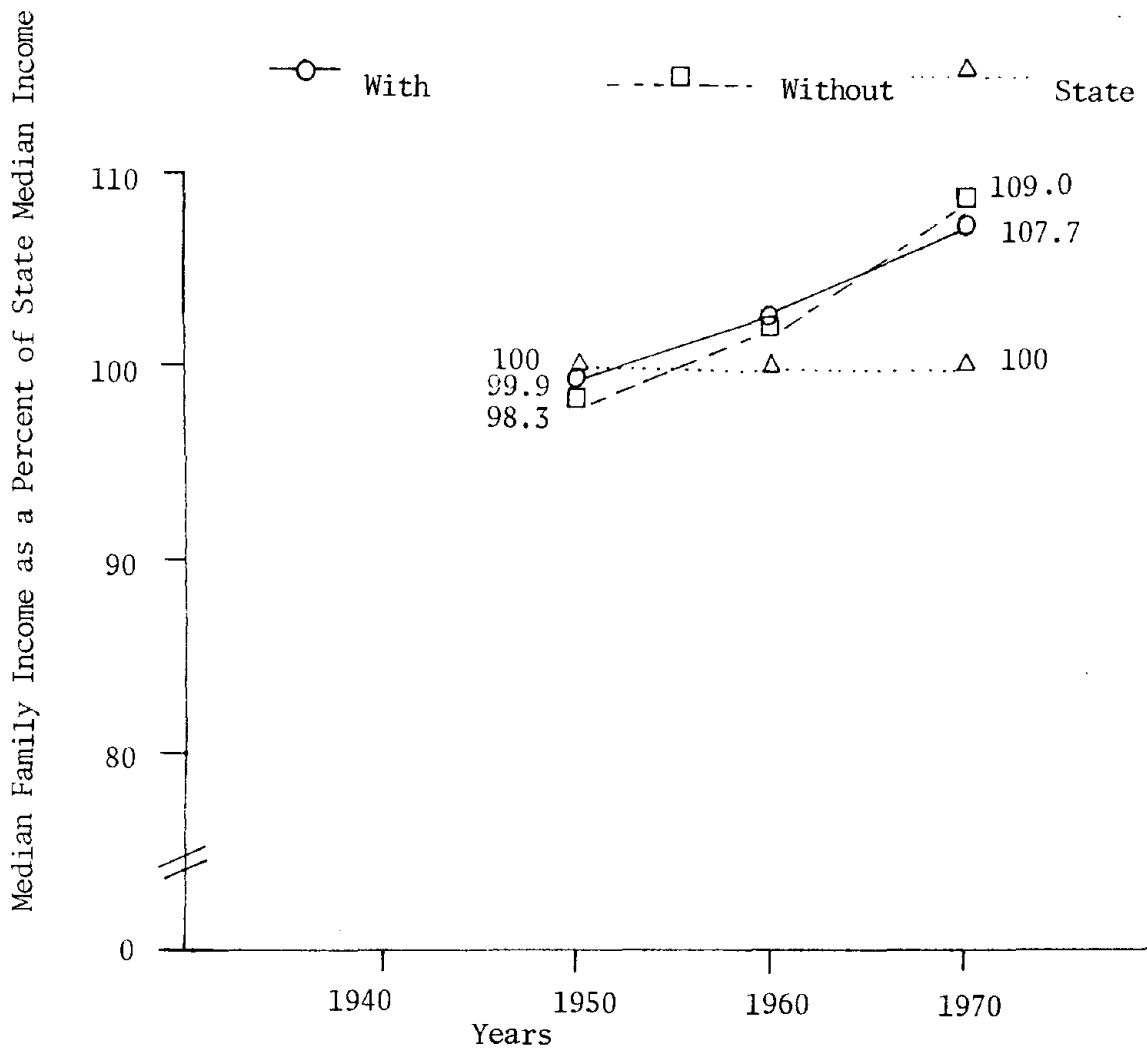


Figure 9. Formal Achievement, Boise Project Area, With and Without Project: Employed as Percent of Labor Force.

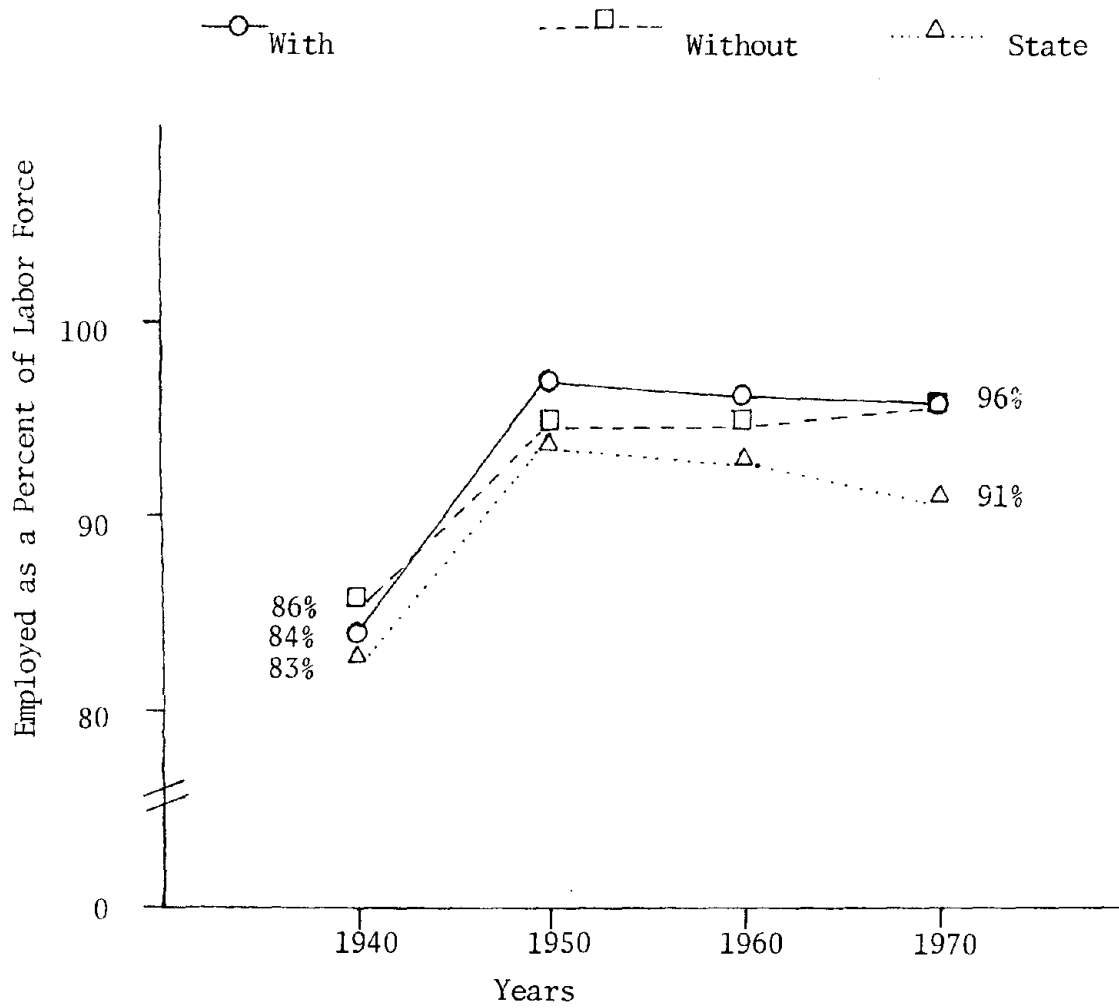


Figure 10. Formal Achievement, Boise Project Area, With and Without Project: Occupational Prestige.

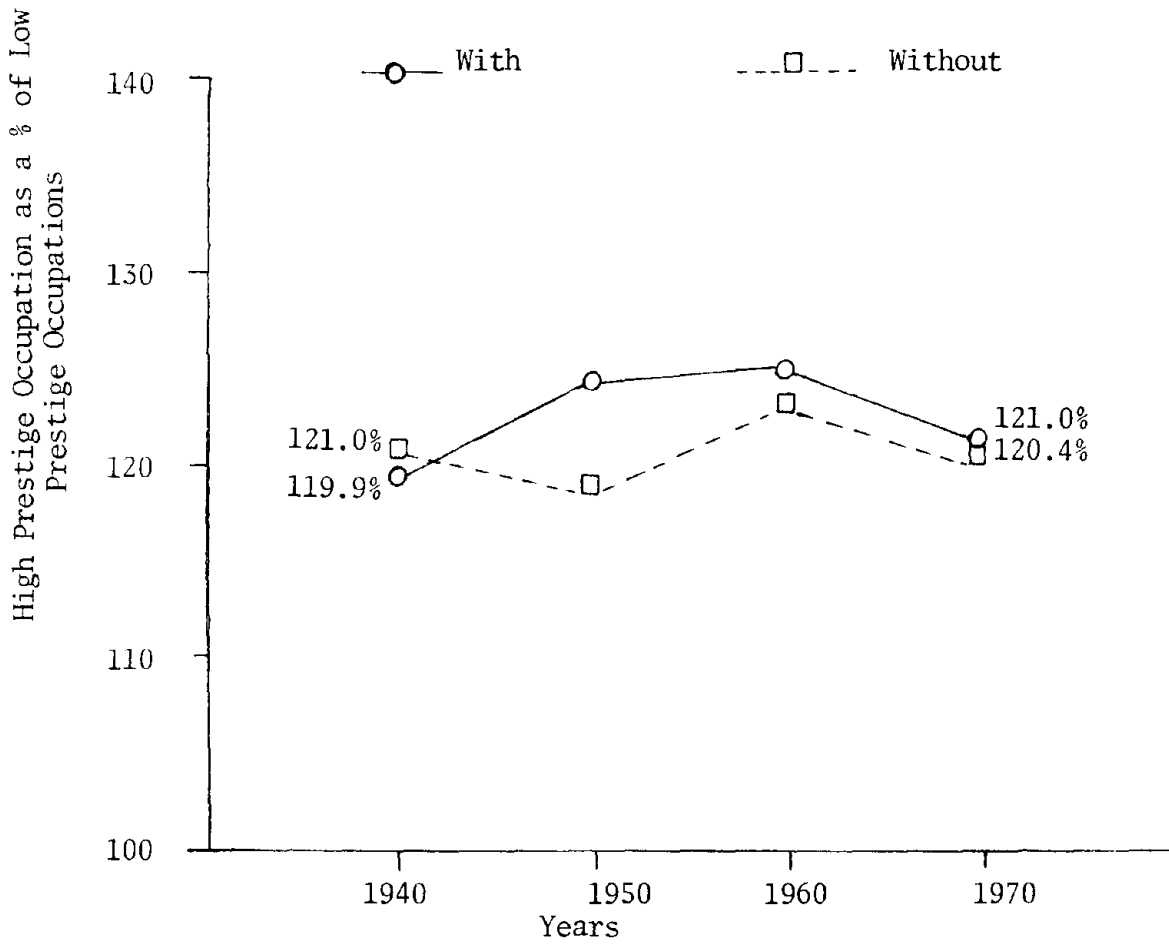
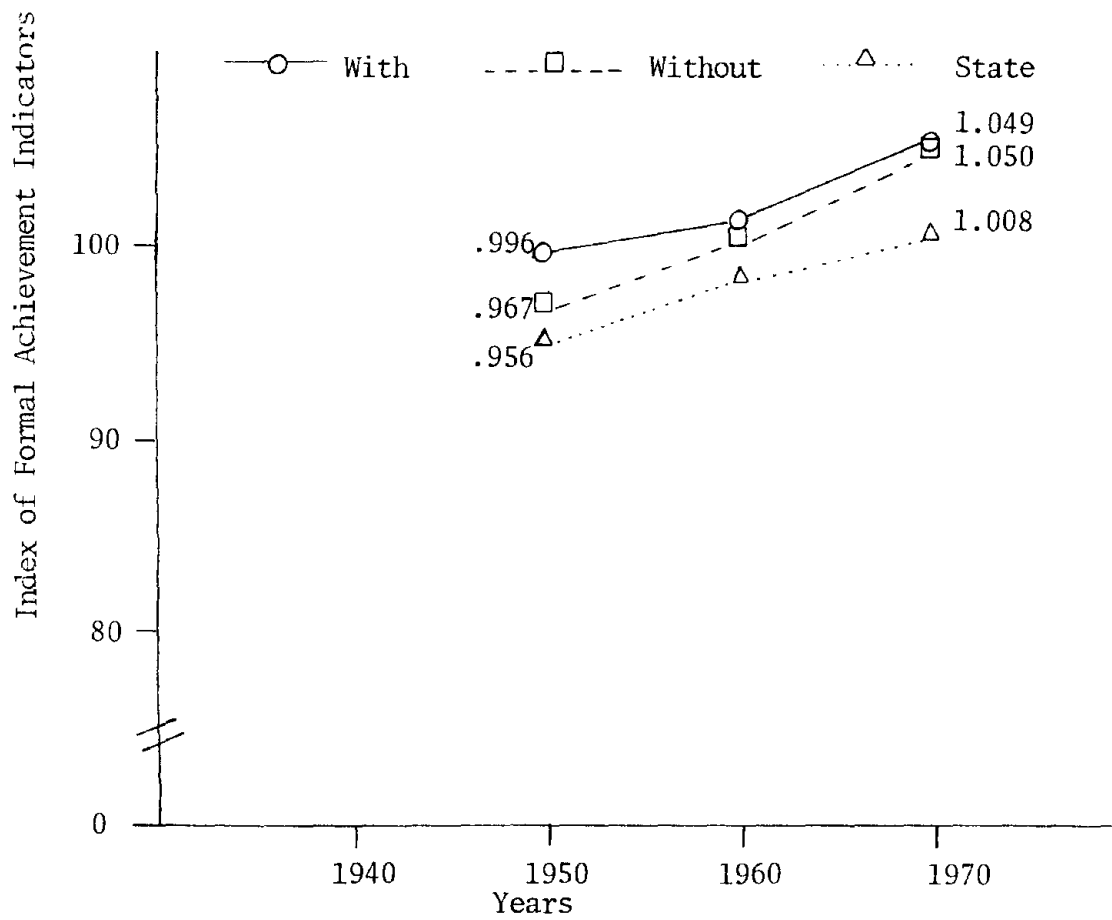


Figure 11. Formal Achievement Index, Boise Project Area, With and Without Project.



Housing and Neighborhood

Indicators in this category consist of the cost of rental housing, percent of housing with all plumbing (a proxy measure of quality), the stability of the neighborhood in terms of owner-occupied units and the instability of the area measured in percent migrant (see Appendix Table 7).

With Project. Median rent was based on median family income for each county. While rent has nearly doubled in the years 1950-70, it has, as a proportion of income, dropped somewhat from 18% to 11% in Ada County and from 19% to 10% in Canyon County. In 1950 the Project area rent was a little higher than State averages but by 1970, there were no discernible differences. There also was very little difference between counties at any period.

Owner-occupied units have increased from around 54% in 1940 to 67% by 1970 for the Project as a whole, approximately the same as for the State. The situation in Ada County was even better with nearly 69% of all housing units owner-occupied by 1970. Canyon had slightly less with 64%.

We attempted to create a measure of instability in terms of migrants but were hampered by a lack of data for 1940 and 1950. For the two periods in which data were recorded, both Ada and Canyon Counties appeared to have about the same proportion migrant as did the State as a whole, with Canyon a little less migrant than Ada. Ada County migrants represented 29% and 24% of the population in 1960, 1970. Canyon County migrants represented 24% and 21% of the population for the same years. These figures compare to rates of 25% and 24% for the State.

Housing quality has also increased during the period with the percent of units reporting all plumbing rising from 47 to 98% in the Project area, somewhat ahead of State percentages. In the earlier years Ada County was ahead of Canyon County by more than 20% but by 1970 differences had essentially disappeared.

Combining these indicators into a housing index creates some problems due to lack of data. We arbitrarily chose to use three indicators only--median rent, owner-occupied units, and units with all plumbing for the years 1950-1970.

The "With Project" Housing Index follows:

	<u>Ada</u>	<u>Canyon</u>	<u>Project</u>	<u>State</u>
1950	.410	.358	.388	.376
1960	.449	.394	.428	.396
1970	.522	.502	.510	.523

This index indicates a general rise in the category of housing with Ada County .05 to .02 points ahead of Canyon and with the Project Area about the same as the State as a whole.

Without Project. Median rent as a proportion of median family income was estimated to show no change without Project. The percentage of owner-occupied units would also be essentially the same as the with Project scenerio (Figures 12-15, Appendix Table 7).

There would likely be a somewhat smaller percentage of houses with all plumbing without Project, 5% less in 1940 to no difference in 1970. Ada would see 5% less in 1940, Canyon 9% less (1940), 5% less (1950). There would still have been a difference between the counties with housing in Ada somewhat better than in Canyon until 1970.

The index of housing shows essentially no difference for the Project area with and without Project.

The "Without Project" Housing Index follows:

	<u>Ada</u>	<u>Canyon</u>	<u>Project</u>
1950	.395	.335	.381
1960	.440	.388	.425
1970	.521	.506	.516

Health

Indicators chosen for "health" were infant mortality, total deaths, deaths from selected respiratory diseases, deaths from heart disease, deaths from accidents other than motor vehicle, and suicides (see Appendix Table 8).

With Project. Infant mortality as a proportion of live births has shown little change for the Project area from 1950 to 1970, running

Figure 12. Housing, Boise Project Area, With and Without Project: Median Rent as a Percent of Median Family Income.

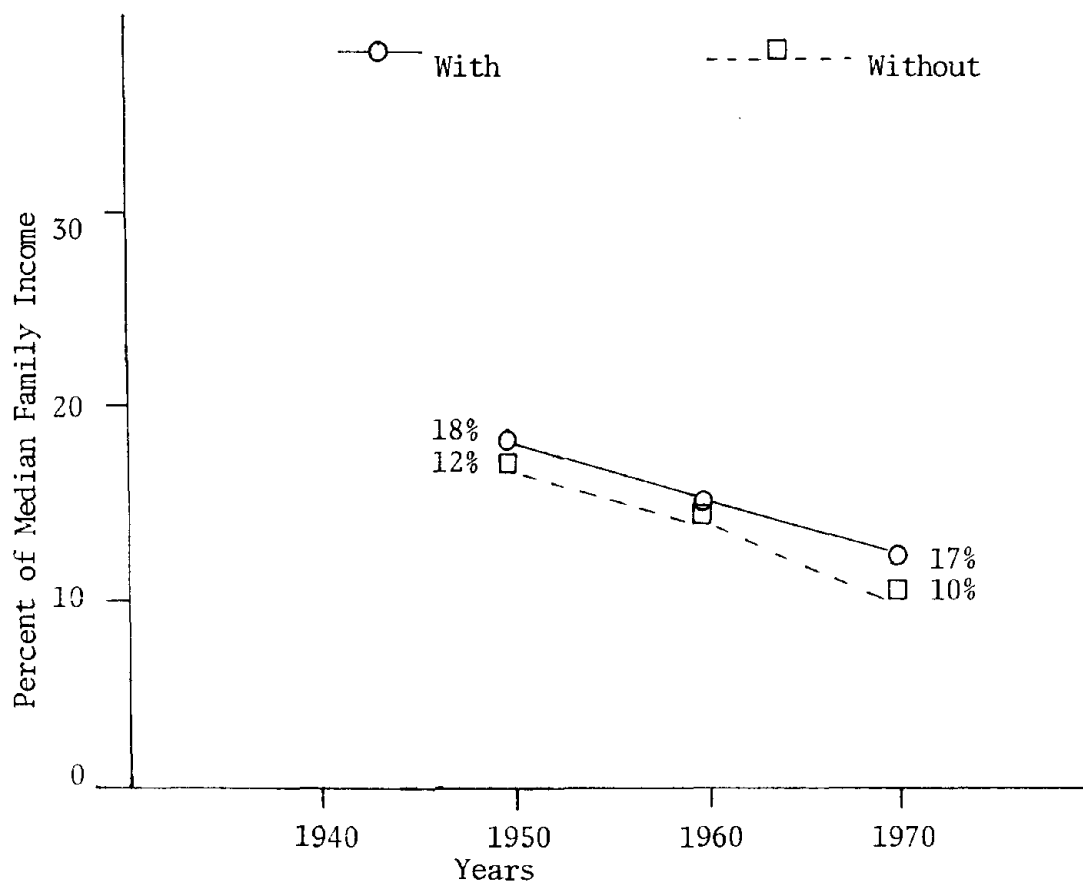


Figure 13. Housing, Boise Project Area, With and Without Project: Owner-Occupied Units.

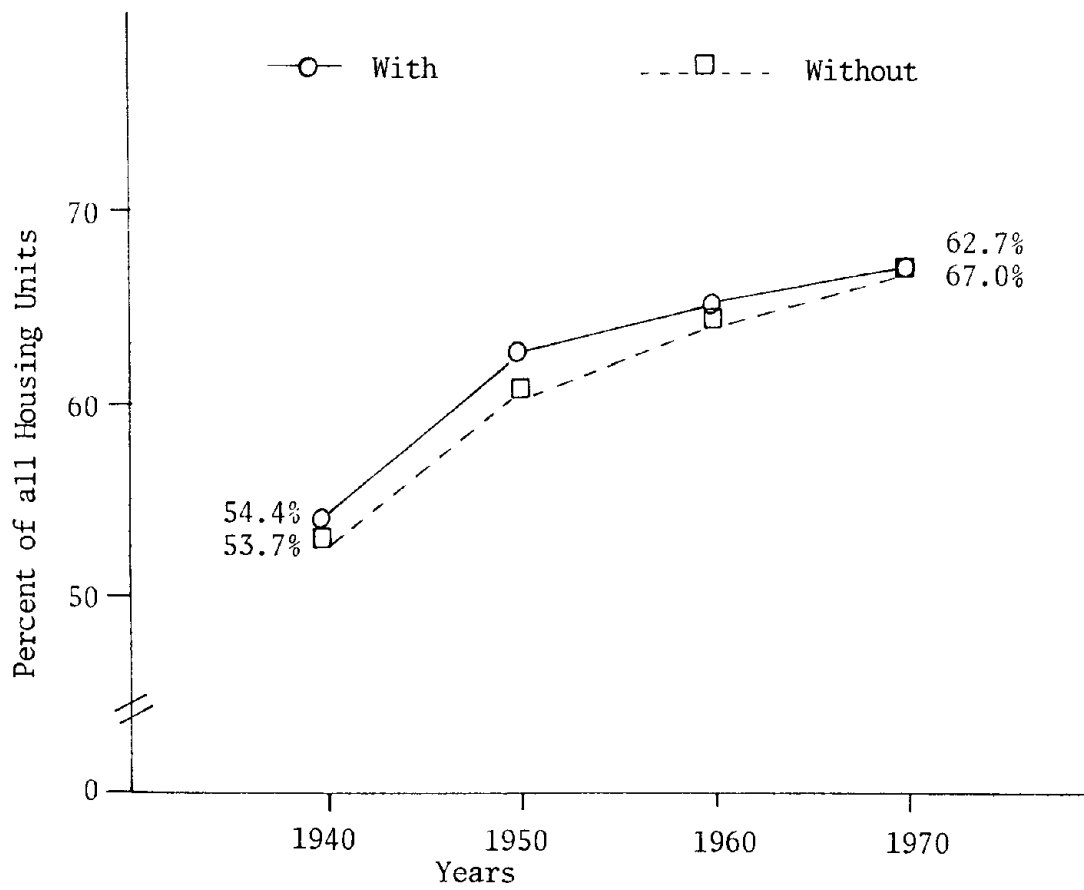


Figure 14. Housing, Boise Project Area, With and Without Project: Units with all Plumbing.

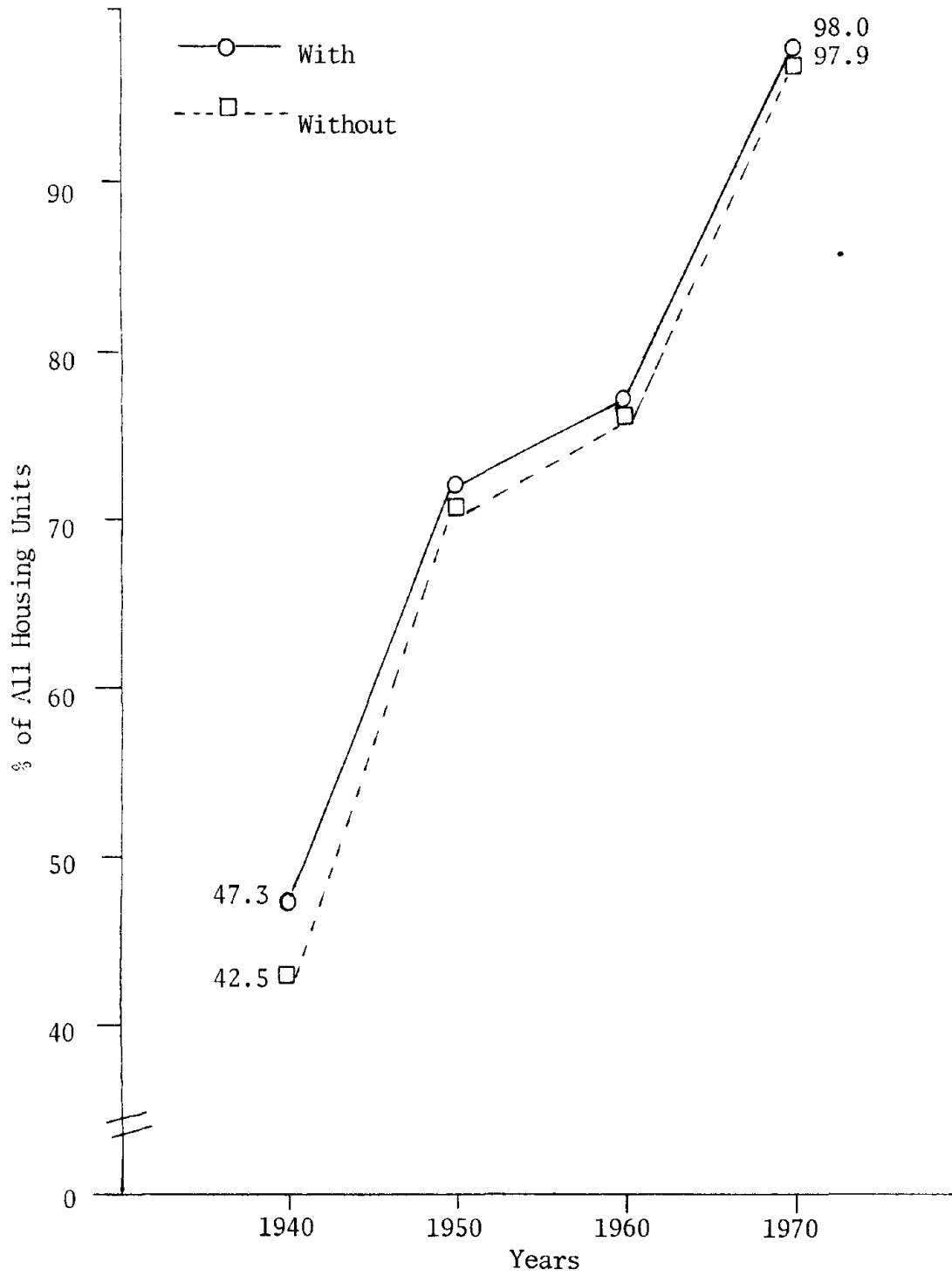
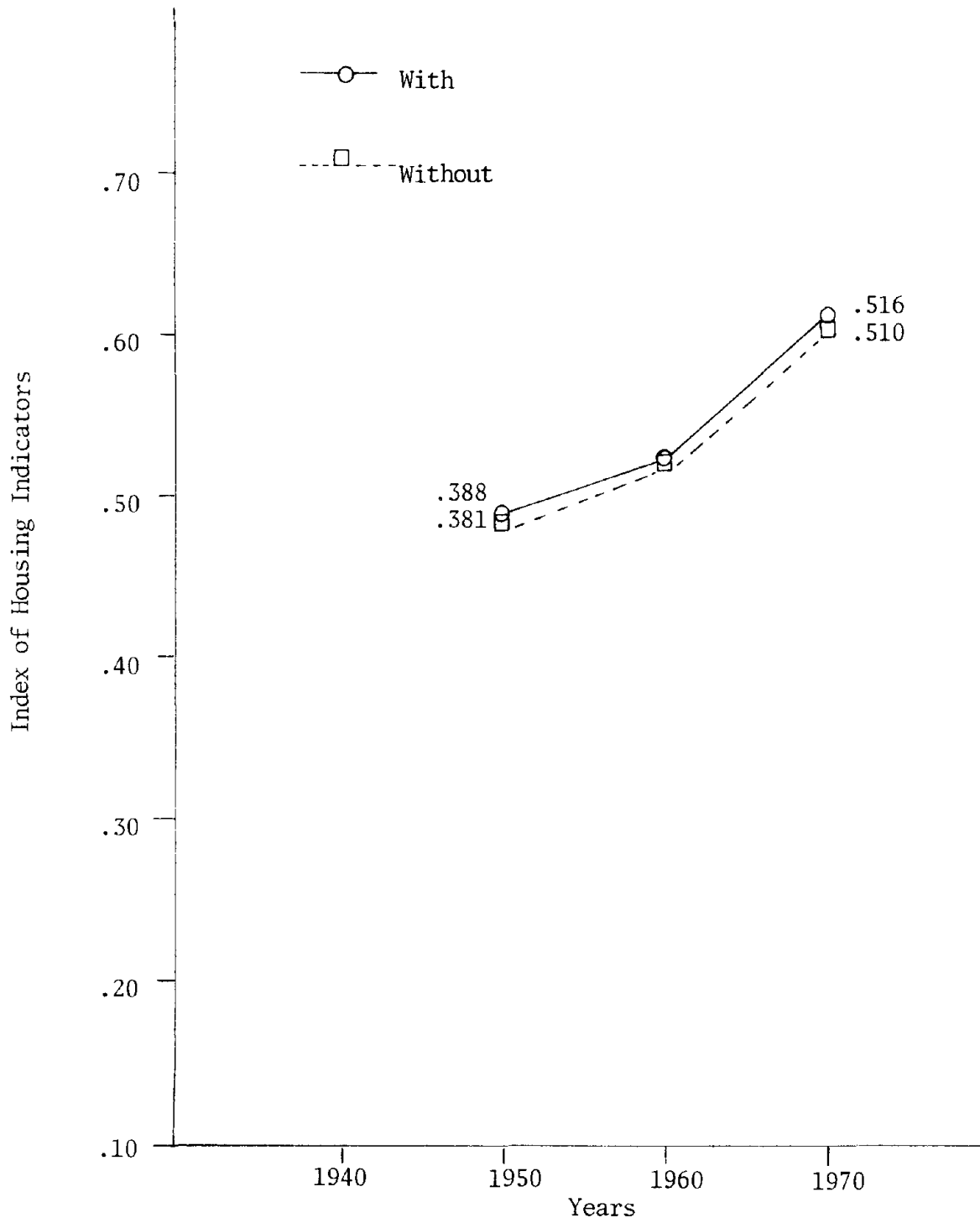


Figure 15. Housing Index, Boise Project Area, With and Without Project.



around two deaths in the first year of life per hundred live births. This was about the same as State rates. There was no difference between counties.

Total death rate did not vary much from 1940 to 1970 nor between Project and State nor between counties, running around 1% of the population in each of the Census years.

All other indicators were based on total deaths.

Deaths from selected respiratory disease--tuberculosis, influenza and pneumonia--have also changed little in the period for which there are data, nor is there much difference between areas.

Deaths from heart disease have risen sharply in all areas, particularly in the period 1940-1950. It is not known how much of this is due to increased stress, how much to an older age structure, and how much to better diagnosis. In the Project area the increase has been from 29% of all deaths in 1940 to 37% in 1960, down to 34% by 1970. Except for 1940 when deaths from heart disease were greater in the Project area than for the State as a whole, there has been little difference between the Project and State. In 1940 Ada County showed 3% more deaths from heart disease than did Canyon; in 1970 the situation was reversed with Canyon showing 3% more than Ada.

Deaths from accidents other than motor accidents as a percentage of all deaths have shown a small decline over the period. This is true for all areas although there have been periodic rises in some decades. In 1940 the accident death rate in Canyon County (at 8% of all deaths) was a few percentage points higher than in Ada (5% of all deaths); the same was true again in 1970 with Canyon accident death rate at 6% of all deaths compared to 3% in Ada.

Suicides were chosen as a rough indicator of mental health. Over the period 1940-1970 there has been little change in the rate and little difference between areas with the rate running around 1 to 3% of all deaths.

All indicators for the Health Index are actually a subtraction from health so the Index is expressed on a negative scale.

The "With Project" Health Index follows:

	<u>Ada</u>	<u>Canyon</u>	<u>Project</u>	<u>State</u>
1950	-.082	-.083	-.082	-.083
1960	-.087	-.083	-.085	-.077
1970	-.073	-.082	-.077	-.083

There has been little change in the Health Index over the period of the Project for which data were available and there has been little difference between areas. It is no surprise that the Health Index does not vary by county; since they are contiguous, health care facilities available in one are usually available to residents of the other. If there were some hazard or a particularly vulnerable group of people specific to one county we would likely see a difference. Such has apparently not been the case.

Without Project. There were no changes indicated in health indicators without Project except fewer deaths from heart disease. Our prediction without Project shows an estimated 20% of all deaths in 1940, 32% of all deaths in 1950 caused by heart disease. This compares to 29% and 36% for the same period with Project. For 1960 and 1970 there were no predicted differences. This change would occur in both Counties with Ada 9% (1940) to 5% (1950) less without Project, Canyon 9% (1940) less without Project. Other years would show no substantial differences. Initially without Project, Ada County would have had a slightly higher percentage of deaths from heart disease than Canyon County, but the situation would be reversed by 1970, the same phenomena as that which actually occurred. (Figures 16-17 and Appendix Table 8).

The Health Index without Project was essentially the same as the with Project index.

The "Without Project" Health Index follows:

	<u>Ada</u>	<u>Canyon</u>	<u>Project</u>
1950	-.072	-.073	-.073
1960	-.083	-.083	-.083
1970	-.075	-.085	-.078

Law Enforcement

Indicators for law enforcement were arrests for violent crimes (murder, rape, and assault), arrests for property crimes (burglary, larceny, forgery and auto theft), and arrests for narcotics. The base for ratios was 1,000's population, which is the base generally used in the FBI Uniform Crime Reports. In addition we have a proxy measure of the efficiency of police agencies in number of arrests as a proportion of reported offenses. Data were available only for 1969 (see Appendix Table 9).

Figure 16. Health, Boise Project Area, With and Without Project: Deaths from Heart Disease.

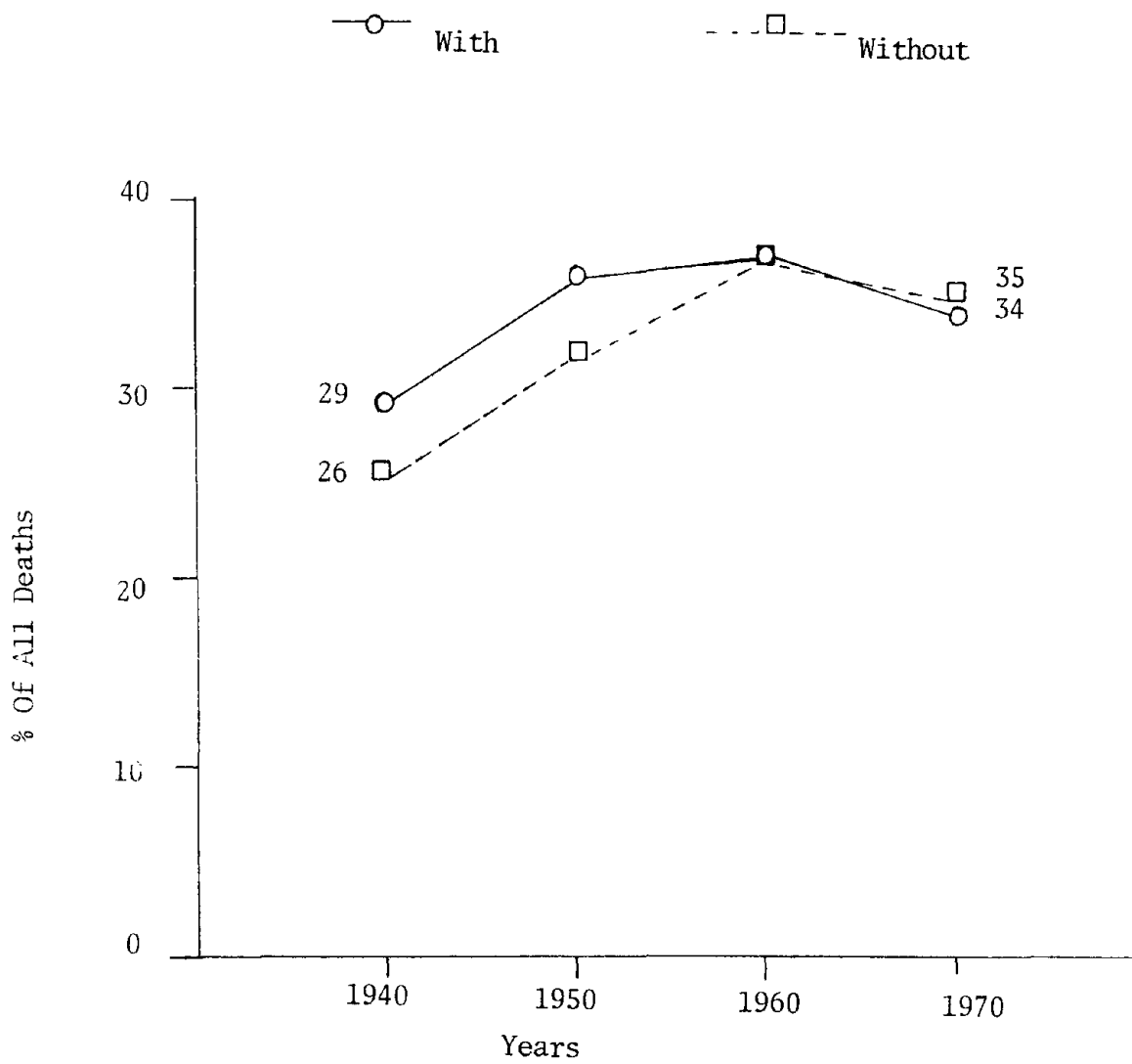
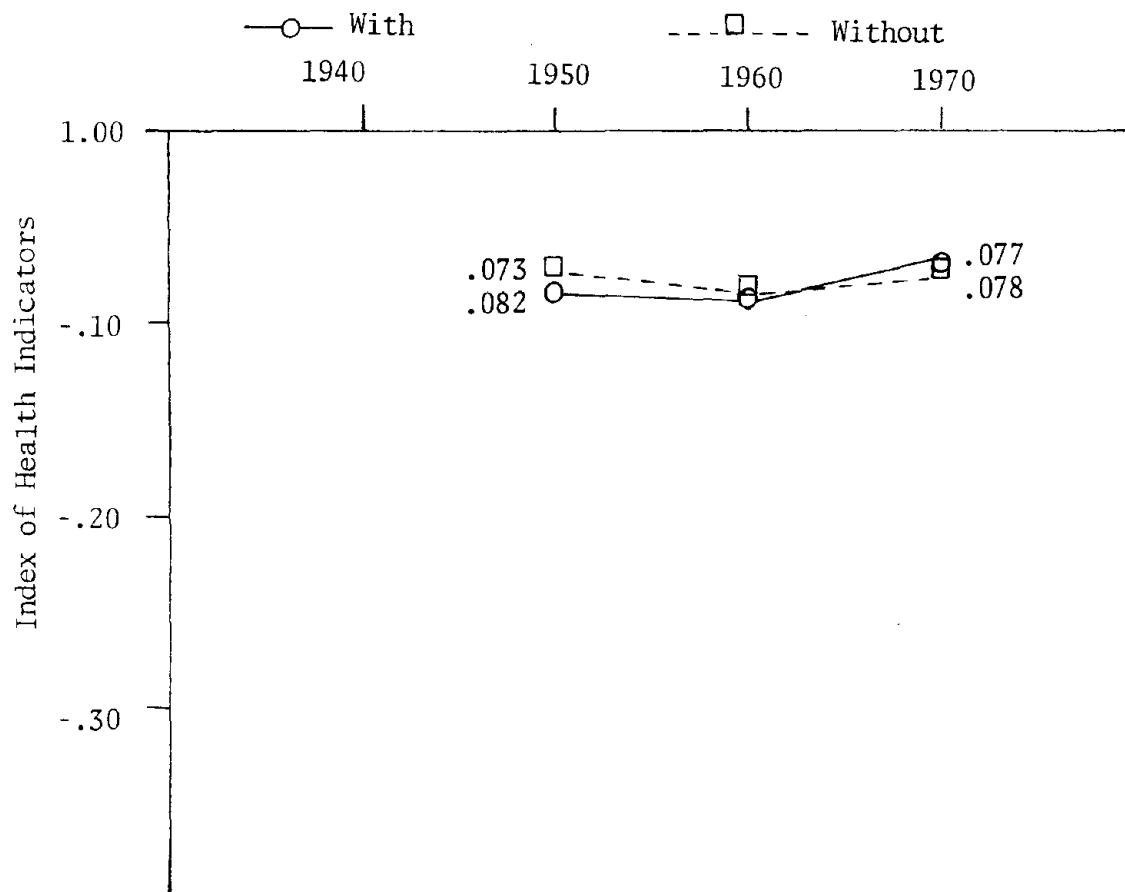


Figure 17. Health Index, Boise Project Area, With and Without Project.



Law enforcement is a category that must be approached with caution. Data have been reported to the FBI on a voluntary basis almost since its creation but are published in the Uniform Crime Reports only by States and by cities over 50,000, which excludes all Idaho cities except Boise. The Idaho Law Enforcement Planning Commission, created in 1969, made the first unified attempt to compile a report of all crimes in Idaho by county and by cities. That report is the basis for our calculations for this study. However, even here we feel some limitations exist:

1. Reporting and record keeping is voluntary and the degree of compliance may vary greatly between jurisdictions. For example, 40 cities keep records on traffic citations but only 33 keep records on felonies committed. Only 34 counties keep a record of felonies committed. (Idaho Law Enforcement Planning Commission, 1969: B-1 and C-1.)

2. The handling of crime may vary with the type of community. Primary type communities may handle much crime on an informal basis with no formal arrests made. People may also be more reluctant to report crimes if they know or may know the offender.

3. The efficiency of the police agency may have something to do with the reporting of crime. When the agency is known to do a good job of solving crimes, people may be encouraged to report; when the results are poor, people may think reporting will do no good. Some agencies encourage the reporting of anything suspicious; others do not want to hear from you unless you are ready to swear out a warrant against the perpetrator. Studies show that often only 1/2 or less of crimes committed against victims are reported to the police. Thus, an increase in crimes reported may mean an increase of confidence in the police agency rather than an actual increase in the incidence of criminal offenses.

4. Crimes are reported from the area in which they occur even though the perpetrators may be from another area or transient. Thus certain vulnerable areas such as those with a high percentage of elderly poor may appear to have a high crime rate.

5. One must be careful with "rates" when working with a small population since a difference of only a few cases can make considerable difference in rates.

With Project. Our formula for creating ratios shows the Project area with twice the State ratio for violent crimes, .71 per 1,000 population compared to .35 per 1,000. Ratios for both counties were also greater than State ratios, with Canyon at 1.08 offenses per 1,000 population, more than twice the ratio in Ada at .51 per 1,000 population.

The rate of property crime was more than three times that reported for the State as a whole, 2.15 per 1,000 population compared to .6 per 1,000. The rate was somewhat higher in Ada than in Canyon.

The arrests for narcotics in the Project area was more than twice the State rate (.92/1,000 compared to .40/1,000). Ada County rate at 1.30 was not only more than three times the State rate but six times that in Canyon County.

Arrests as a percent of reported crimes indicate police in Ada County were somewhat more efficient than those in Canyon, with the average for the Project the same as for the State as a whole.

The index for law enforcement as we have measured it is a negative index.

The "With Project" Law Enforcement Index follows:

	<u>Ada</u>	<u>Canyon</u>	<u>Project</u>	<u>State</u>
1970*	-.955	-.753	-.883	-.275

*Based on 1969 data.

The index for the Project area at -.883 was much over the State index of -.275. Ada County index is .20 points greater than Canyon County.

Without Project. The "Without Project" scenerio would still show crime rates per 1,000 population at more than State averages in all types of crime but slightly less than with Project. The rate without Project over the with Project scenerio would be .11/1,000 less for violent crimes, .03/1,000 less for property crimes, .04/1,000 less for narcotics. There would be no change for arrests/reported offenses. Only the change in violent crime is large enough to be considered substantial. Violent crimes in Canyon County would be .23/1,000 less without Project. Property crimes would be .11/1,000 less in Canyon. Narcotics would be .09/1,000 less in Ada, .05/1,000 less in Canyon. (Figures 18-21, Appendix Table 9).

The "Without Project" Law Enforcement Index follows:

	<u>Ada</u>	<u>Canyon</u>	<u>Project</u>
1970*	-.923	-.655	-.838

*Based on 1969 data.

Figure 18. Law Enforcement, Boise Project Area, Ada and Canyon Counties, With and Without Project: Arrests for Violent Crimes, 1970.

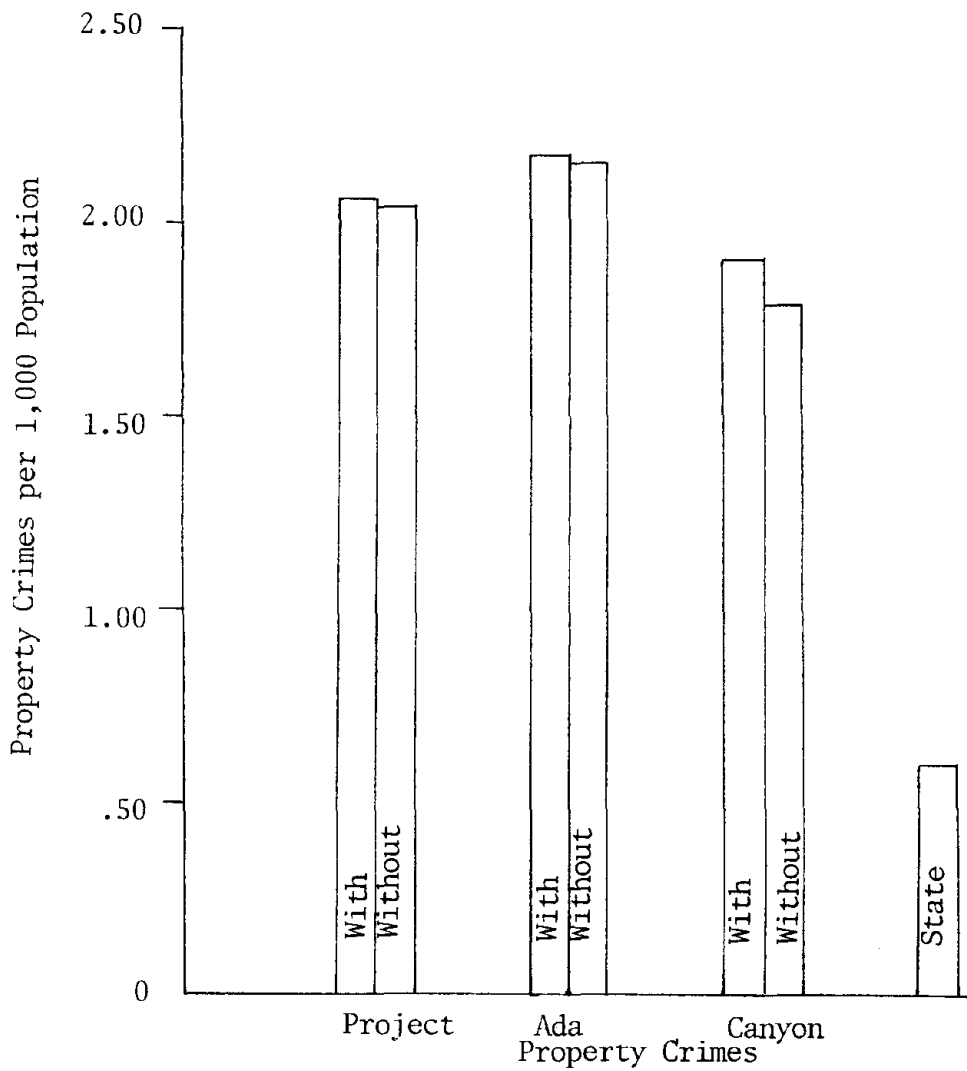


Figure 19. Law Enforcement, Boise Project Area, Ada and Canyon Counties, With and Without Project: Arrests for Property Crimes, 1970.

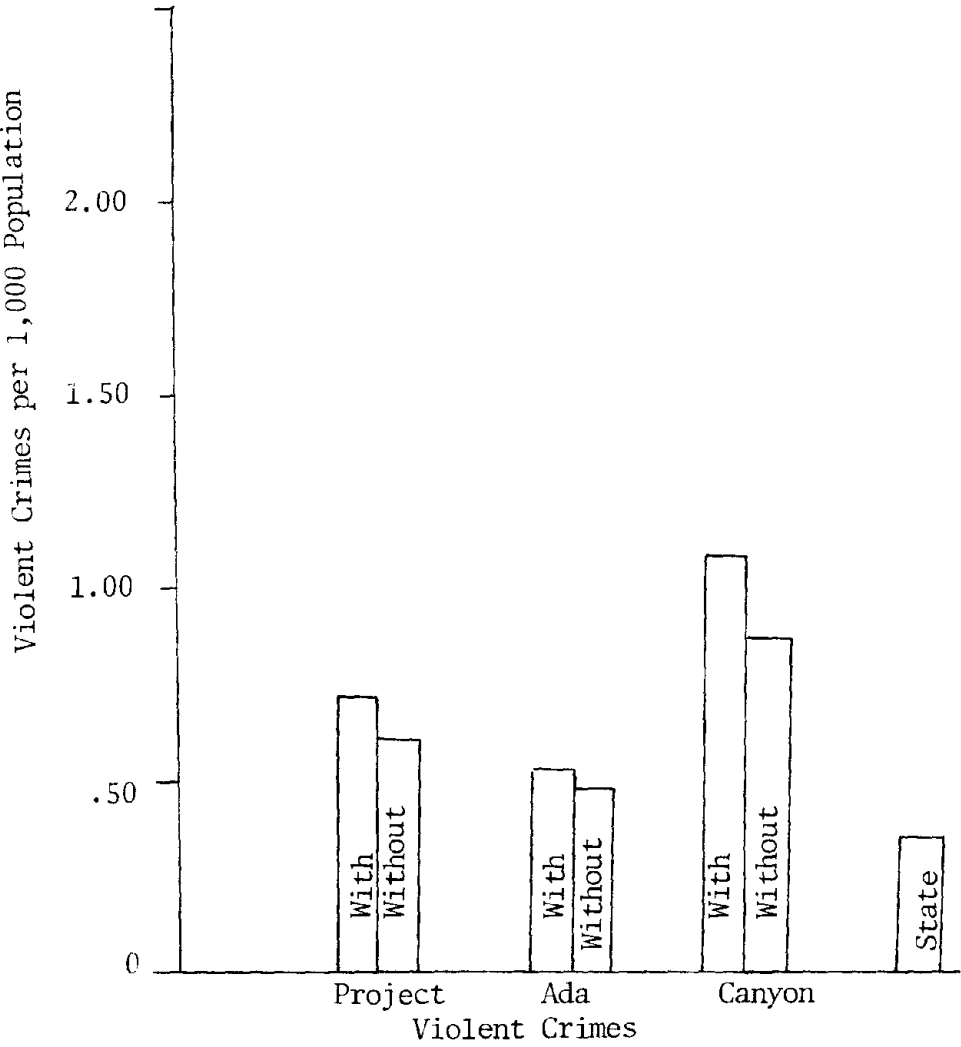


Figure 20. Law Enforcement, Boise Project Area, Ada and Canyon Counties, With and Without Project: Arrests for Narcotics and Drugs, 1970.

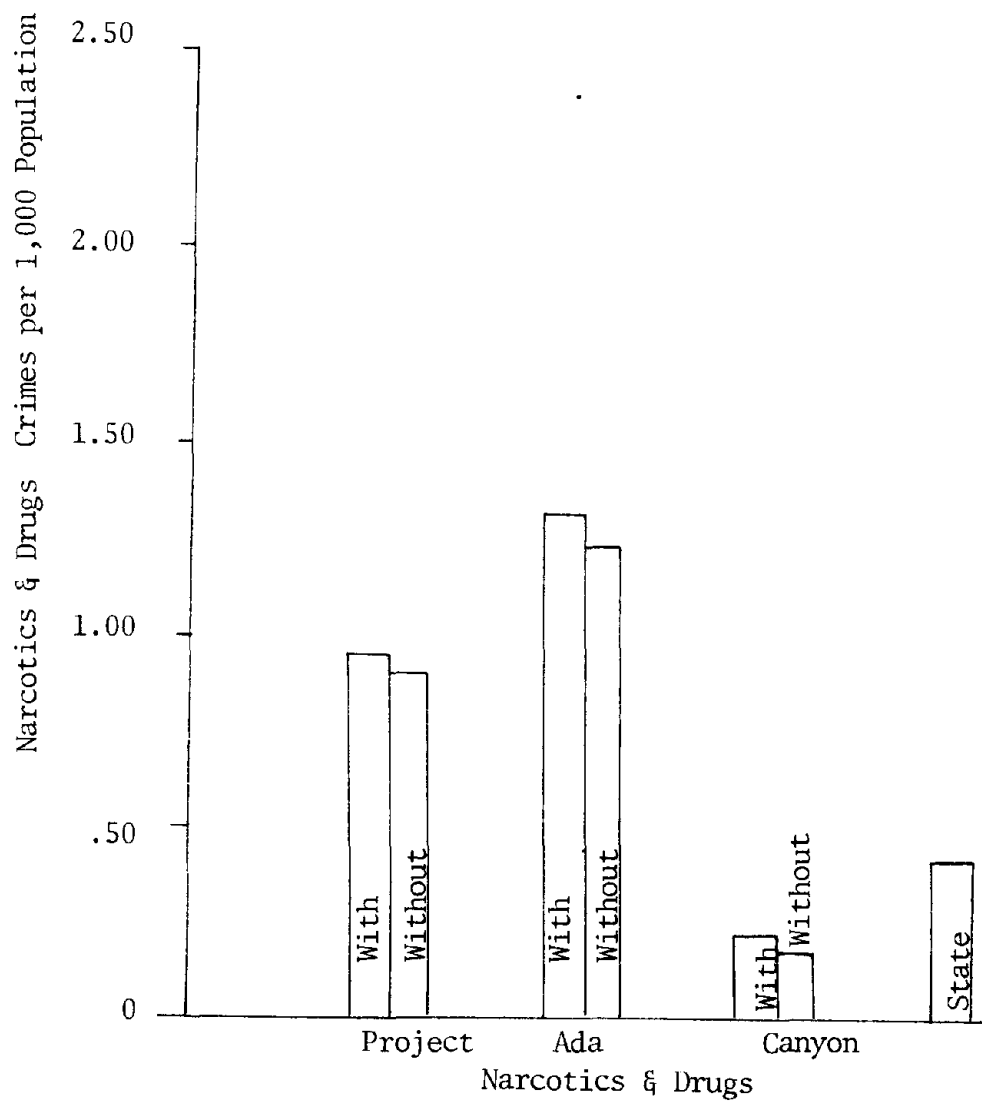
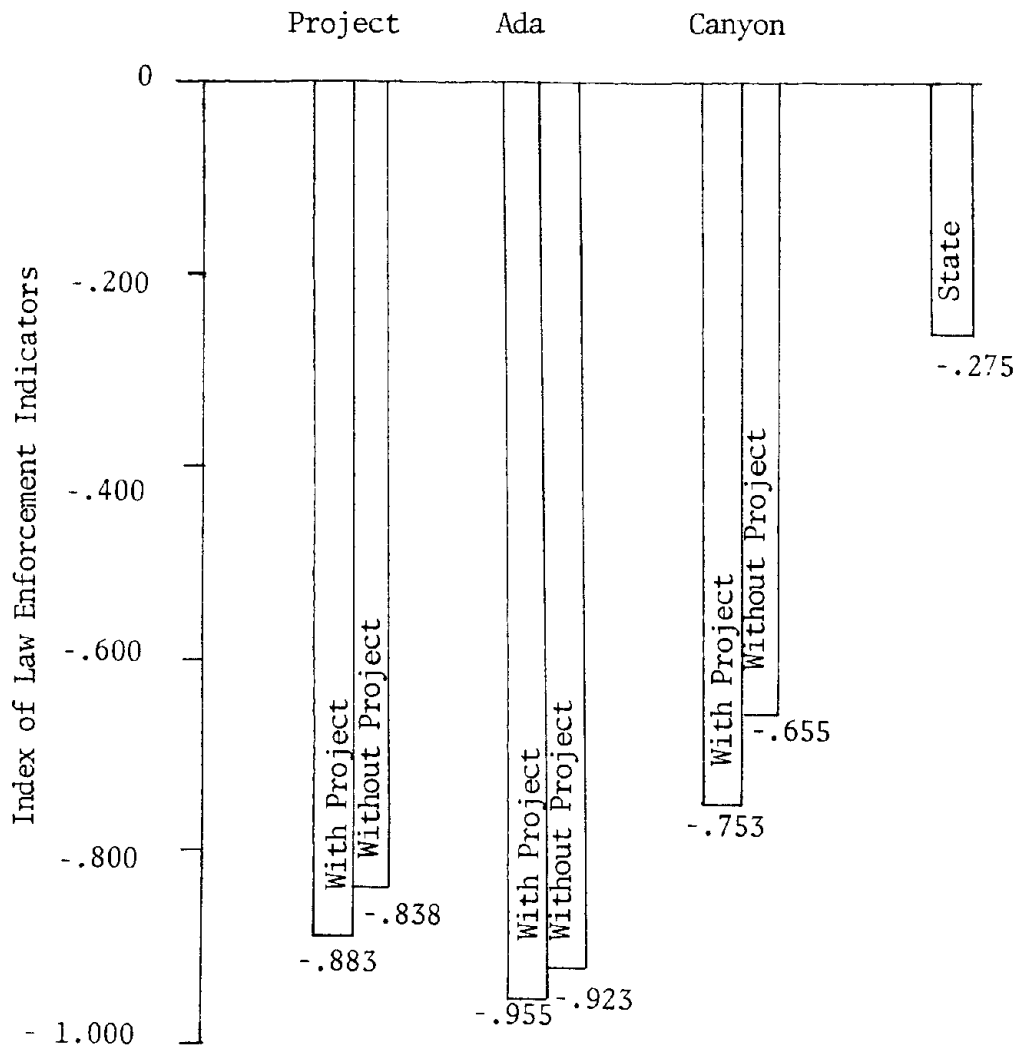


Figure 21. Law Enforcement Index, Boise Project Area and Ada and Canyon Counties, With and Without Project, 1970 (1969).



The Law Enforcement Index without Project is $-.838$ compared to $-.883$ with Project. Ada County index shows $.03$ points improvement over the with Project index; Canyon's index shows $.10$ points improvement over the with Project index.

Accessibility

Indicators selected as measures of accessibility were miles of Federal and State supported roads, miles of all roads and streets, motor vehicle accident deaths per mile of all roads and streets and units of public carriers per 1,000 population. Data on highways were not readily available, especially for earlier years and those that were found tended to vary from one report to another or to not be parallel in classifying roads so that a nonprofessional finds it difficult to make comparisons. However, it is possible to make some statements in regard to accessibility of the Project for the years 1960 and 1970 (see Appendix Table 10).

With Project. It seemed logical that the size of the area would have a great deal to do with how many miles of road were needed so we used area (square miles) as our base. With that in mind, we found Ada County with fewer roads than Canyon County, both State and Federal supported, and all roads and streets. Ada reported about $.1$ miles of State highways per square mile while Canyon reported $.2$. Federally supported highways accounted for another $.1$ miles per square mile in Ada, $.4$ in Canyon. All roads and streets in Ada accounted for $.8$ miles per square mile while in Canyon all roads and streets account for 1.9 miles per square mile. This compared to State totals wherein State supported highways accounted for about $.05$ miles per square mile, Federally supported for $.3$ per square mile and all roads for $.7$ per square mile. The totals for the Project thus indicated three times the miles per square mile of State supported roads as was true for the State as a whole, about the same ratio of Federally supported as the State, nearly twice the ratio of all roads and streets.

As a proxy measure for highway safety quality we used motor vehicle accident deaths per mile of all roads. These rates for both 1960 and 1970 ($.02$ or $.03$ per mile of roads) were somewhat higher than State averages of less than $.01$ death per mile of roads. There was no difference between counties.

Service by public carriers (local and interurban passenger transit, trucking and warehousing facilities) was another aspect of accessibility. The base for this indicator was 1,000's population. From 1950 to 1970, Ada County has shown a decline in the ratio of units of public carriers to population from $.85$ to $.70$ per 1,000 while Canyon has experienced an increase from $.62$ to $.67$. Canyon County was, however, still below the

ratio in Ada in 1970. The totals for the Project as a whole show a lower ratio of public carriers to population than is true for the State, .14 less per 1,000 in 1950, .07 less in 1960, to again .14 less in 1970. While the number of public carriers has grown over that time, population has grown faster, with the result that both in the Project area and in the State there has been a declining ratio. This does not necessarily mean poorer service but may instead indicate consolidation of independent carriers into more economic units.

The "With Project" Accessibility Index follows:

	<u>Ada</u>	<u>Canyon</u>	<u>Project</u>	<u>State</u>
1970	.346	.644	.444	.360

Without Project. There would be no substantial differences in miles of State and Federal supported roads with and without Project for the Project area. Our model suggests, however, that Canyon County would have somewhat less Federally supported roads as well as 4/10 miles less per square mile in terms of all roads and streets without Project. The all-Project area would have 5/10 miles per square mile less of all roads and streets without Project. (Figures 22-26, Appendix Table 10).

There would be no discernible difference in motor vehicle accident deaths per mile of roads, running around 3% to 2% of all deaths.

Our estimate indicates there would be fewer units of public carriers per 1,000 population without Project in 1950 and 1960 (.68 and .73 compared to .75 and .77 with Project), but by 1970 there would be slightly more units per 1,000 population without Project (.72 compared to .69 with Project). This results not from more units without Project but from fewer people. The same situation would hold true for the counties in 1950 and 1960 but in 1970 the "without Project" status shows Canyon with a higher rate of units per population than actually occurred (.81 to .67 with Project), while Ada rates were essentially the same for either status (.70 and .68 units per 1,000 population).

Constructing an index required that we borrow some data from 1960, our rationale being that miles of State supported roads would not likely be any less in 1970.

The "Without Project" Accessibility Index follows:

	<u>Ada</u>	<u>Canyon</u>	<u>Project</u>
1970	.330	.588	.422

Figure 22. Accessibility, Boise Project Area, Ada and Canyon Counties, With and Without Project: Miles of State Supported Roads, 1960.

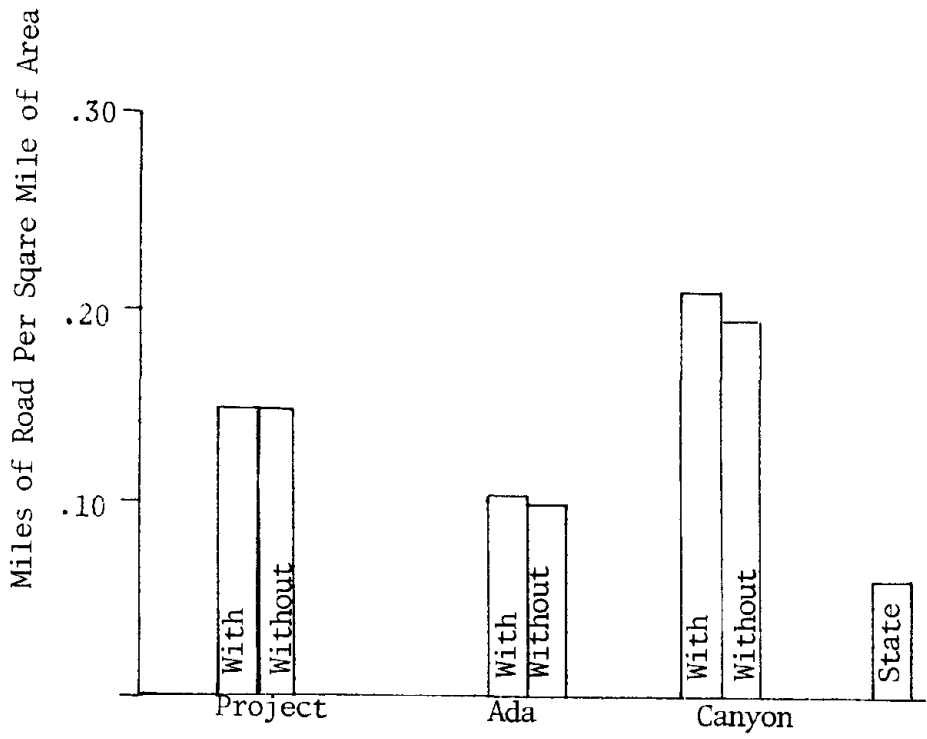


Figure 23. Accessibility, Boise Project Area, Ada and Canyon Counties, With and Without Project: Miles of Federally Supported Roads, 1970.

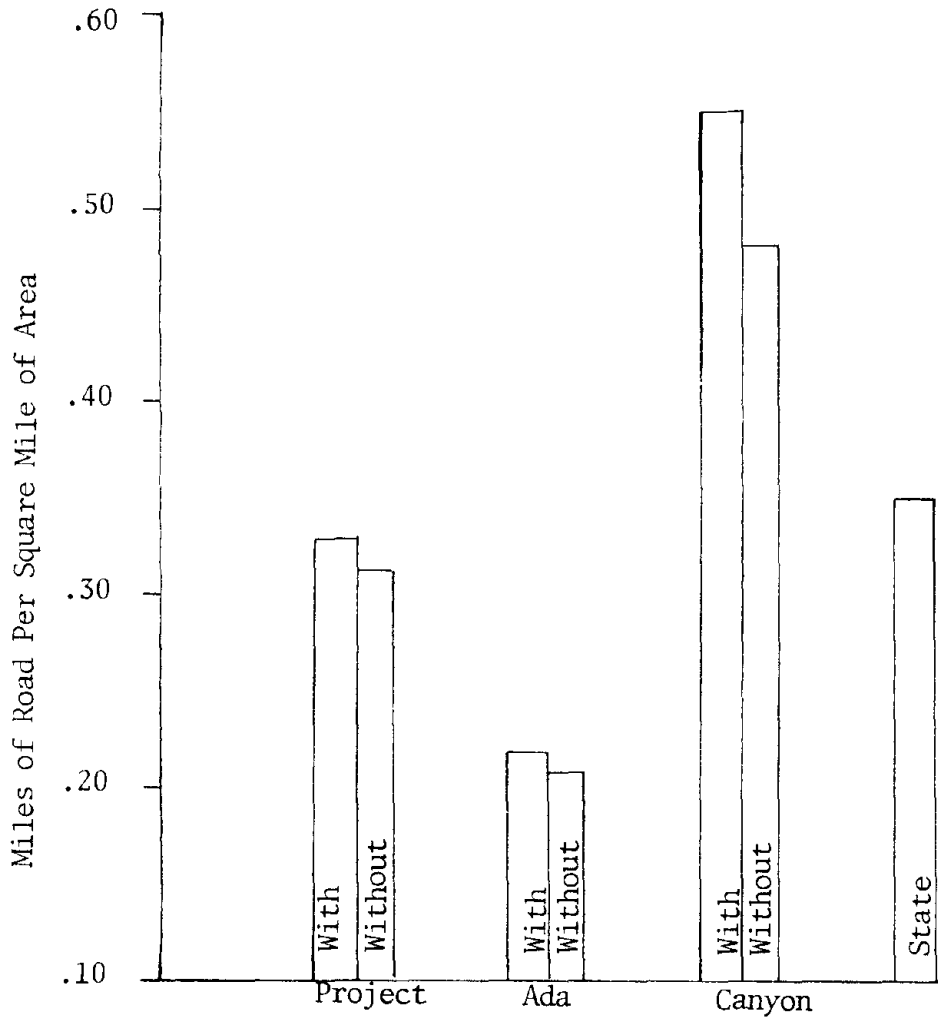


Figure 24. Accessibility, Boise Project Area, Ada and Canyon Counties, With and Without Project: Miles of all Roads and Streets, 1970.

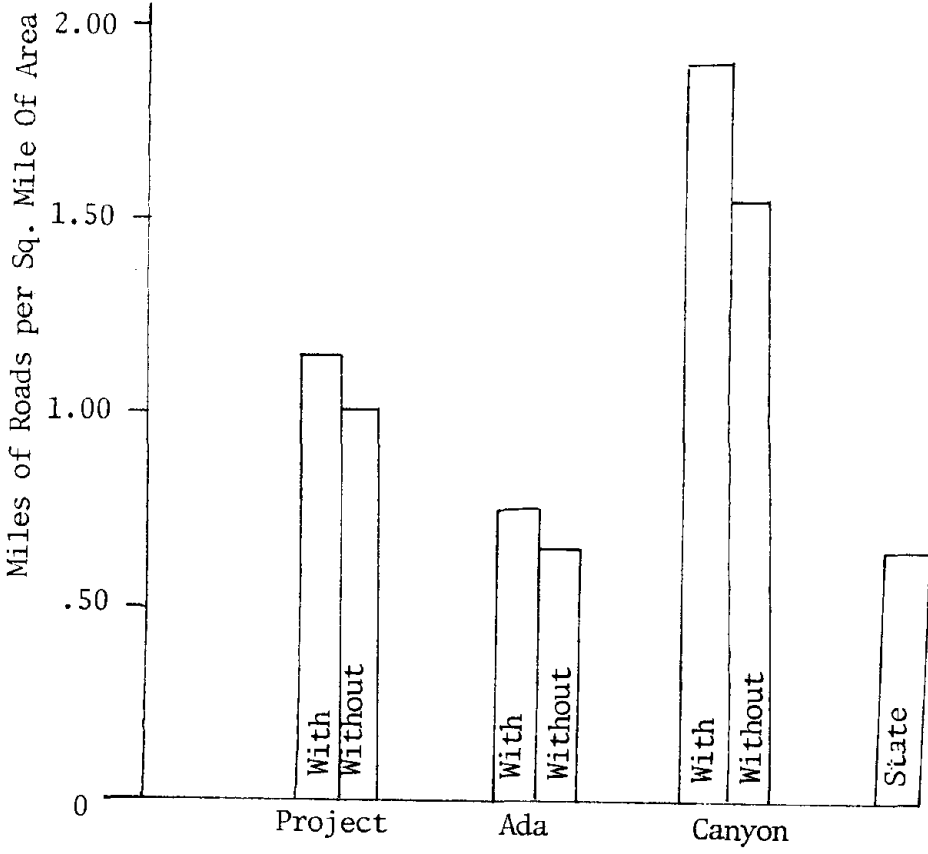


Figure 25. Accessibility, Boise Project Area, With and Without Project: Service by Public Carriers.

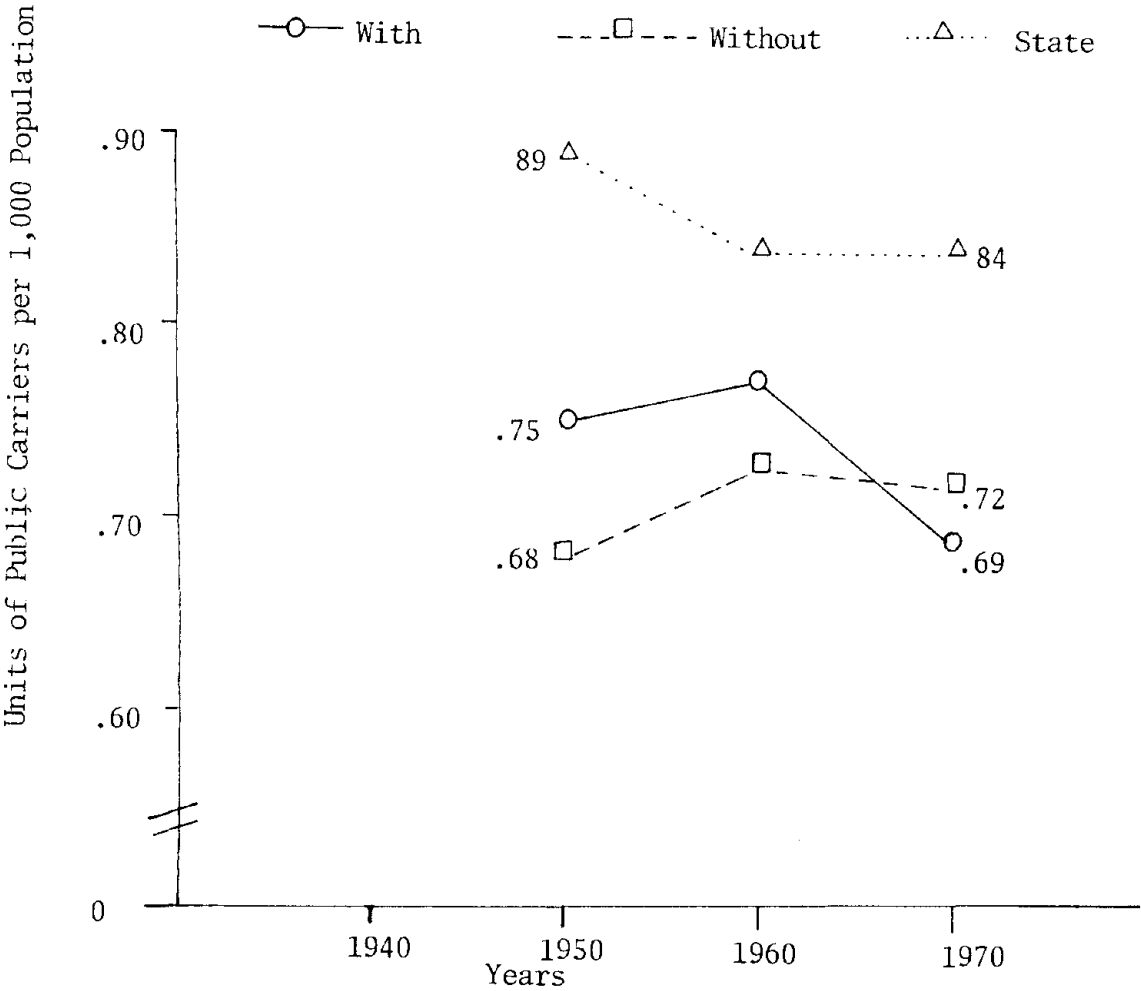
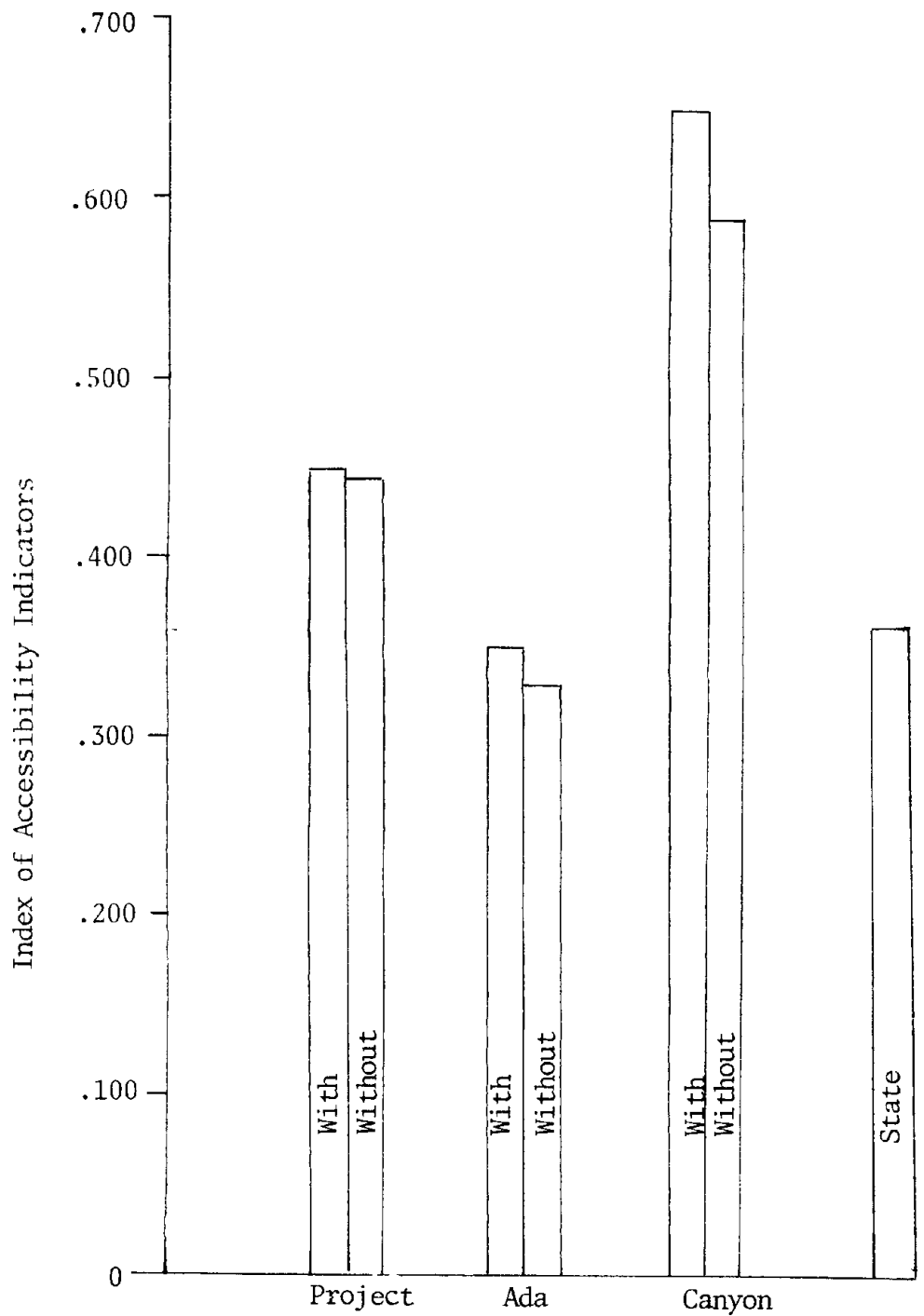


Figure 26. Accessibility Index, Boise Project Area, Ada and Canyon Counties, With and Without Project, 1970.



Our without index shows the project area and Ada County with essentially the same situation with and without. Canyon County, however, would have reduced accessibility from an index of .644 with Project to .588 without Project.

Recreation

Selected measures of recreation were acres of outdoor recreation (land and water), visitor days, and units of indoor recreation facilities. As with accessibility, data were not plentiful on recreation in the Project area, particularly for early years. When data were available the same problems existed of lack of parallel classification as well as some question as to what constitutes recreational facilities. Some reports count all forest service land as available for recreation although some of it may be so remote and inaccessible that it can be reached only by backpacking, if that. Recreation in Idaho is also of such an informal nature that measuring is very difficult. In addition, the concept of recreation as a social value is a recent one.

Leisure has become an increasingly significant part of life in our society, both from the economic aspect and from the social aspect. Leisure time has increased rapidly during the past several decades; longer paid vacations, shorter work weeks and more 3-day weekends have been the primary forms this increase in time has taken. In the early part of the century the Protestant ethic placed a high value on work and success. There is evidence now, however, of a trend towards a high value being placed on recreation for its own sake. A study was recently done in Idaho assessing, among other items, attitudes towards leisure (Carlson and Sargent, 1977). This study indicated that residents of southwest Idaho were more leisure oriented than were those of other sections of the state.

With Project. Space requirements for recreation vary with the type of area and the activity to be carried out there. Making an assessment of the adequacy of space for recreation resulting from the Boise Project, both in the two-county area we have called the Project area for this study and in the larger area in which the reservoirs are located would be a major research project in itself. For purposes of this study we have arbitrarily selected 1/10 acre per person as our hypothetical ideal to serve as a base for ratios of outdoor recreation acreages (land and water). Our formula shows units of outdoor recreation for the State at 20 times our ideal 1/10 acre per person while the Project area ratio was only 2.83 times the ideal (see Appendix Table 11). However, Forest Service land was included in the State total, there was no Forest Service land in the subject counties. Canyon County at a ratio of 4.21 had more than twice the ratio of recreation acres as did Ada County at 2.07.

We have data on visitor days to the specific recreational areas created by the Project. Use was such as to allow every person in the State 2.45 visitor days in 1970; however, 60 to 85% of the use was local. Adjusting for local use allows more than a full week of use for each resident of the two counties.

One other measure of recreation was also available, number of units of indoor recreation as reported in County Business Patterns. Ada County had .31 to .28 such facilities for every 1,000 population, about the same as State averages. Canyon County, however, had only .17 to .16 indoor facilities per 1,000 residents.

The "With Project" Recreation Index follows:

	<u>Ada</u>	<u>Canyon</u>	<u>Project</u>
1970	3.76	2.71	3.39

Our recreation index shows Ada County at 3.76, ahead of Canyon at 2.71. The ratio for the project is 3.39. All are substantially ahead of our hypothetical ideal of 1 unit of indoor recreation per 1,000 people, 1/10 acres of recreation acreage per person and one visitor day per person.

Without Project. For our "without Project" scenerio we did not follow our model throughout since it seemed that recreation would depend not so much on the added population as on the added sites resulting directly from the Project. Therefore we simply subtracted the acres and visitor days specific to the Project from that reported for the with Project scenerio. Indoor recreation without Project was calculated with the procedure used for other categories. (Figures 27-29, Appendix Table 11).

Outdoor recreation acres "without Project" would be only 2.29 times our hypothetical ideal of 1/10 acre per person, compared to 2.83 times with Project. The greater change without Project would occur in Canyon County but the rate per person would still be larger than in Ada County.

Visitor days, we assume, would be nonexistent to the Project-related sites without Project. No data were available for calculating visitor days to the remaining recreation acreages without Project.

Indoor recreation units would be greater over the Project area without Project, not because there would be more units but because there would be fewer people. This would occur mostly in Canyon County where

Figure 27. Recreation, Boise Project Area, With and Without Project: Indoor Recreation Facilities.

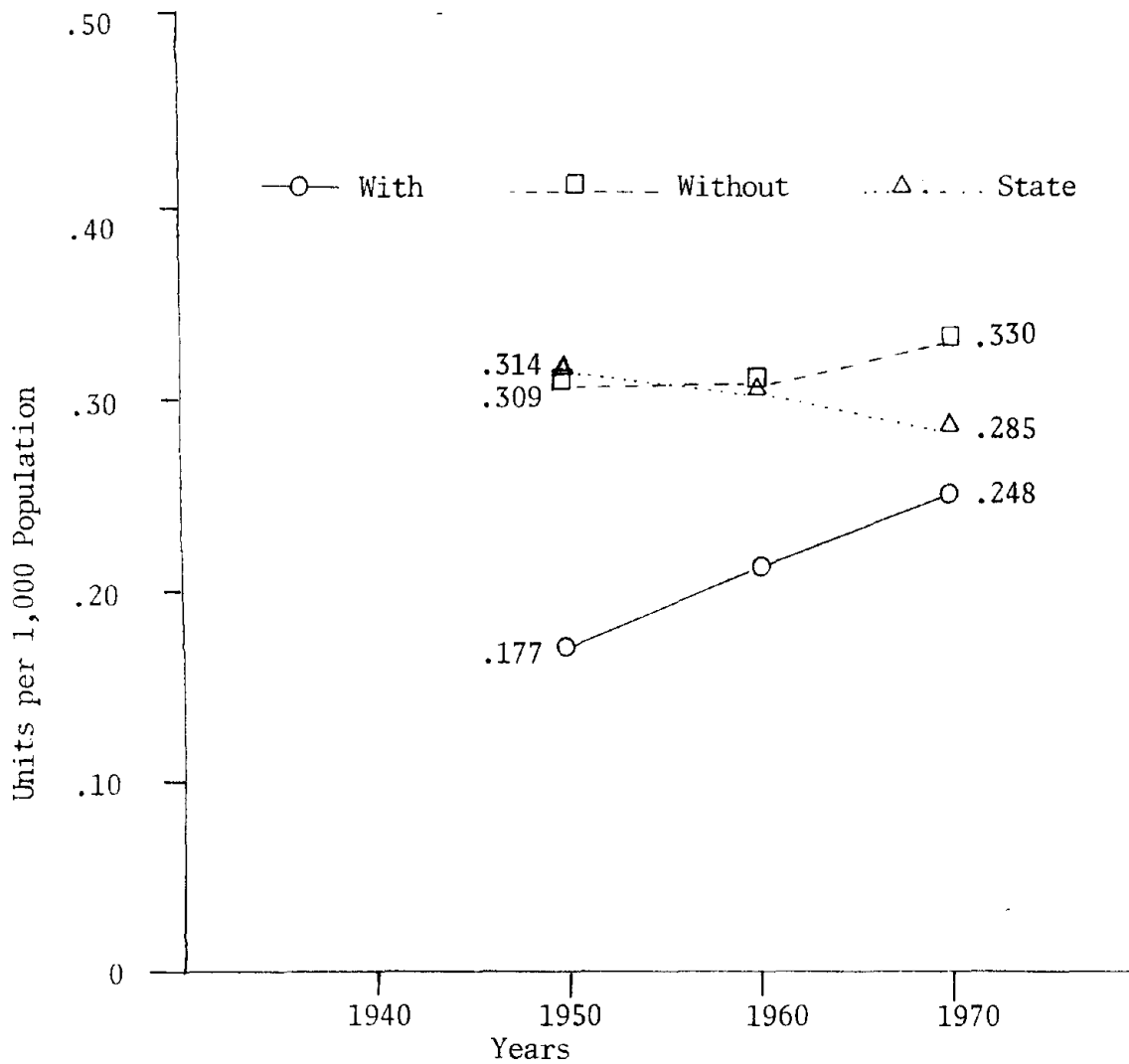


Figure 28. Recreation, Boise Project Area, Ada and Canyon Counties, With and Without Project: Outdoor Recreation Area, (1970).

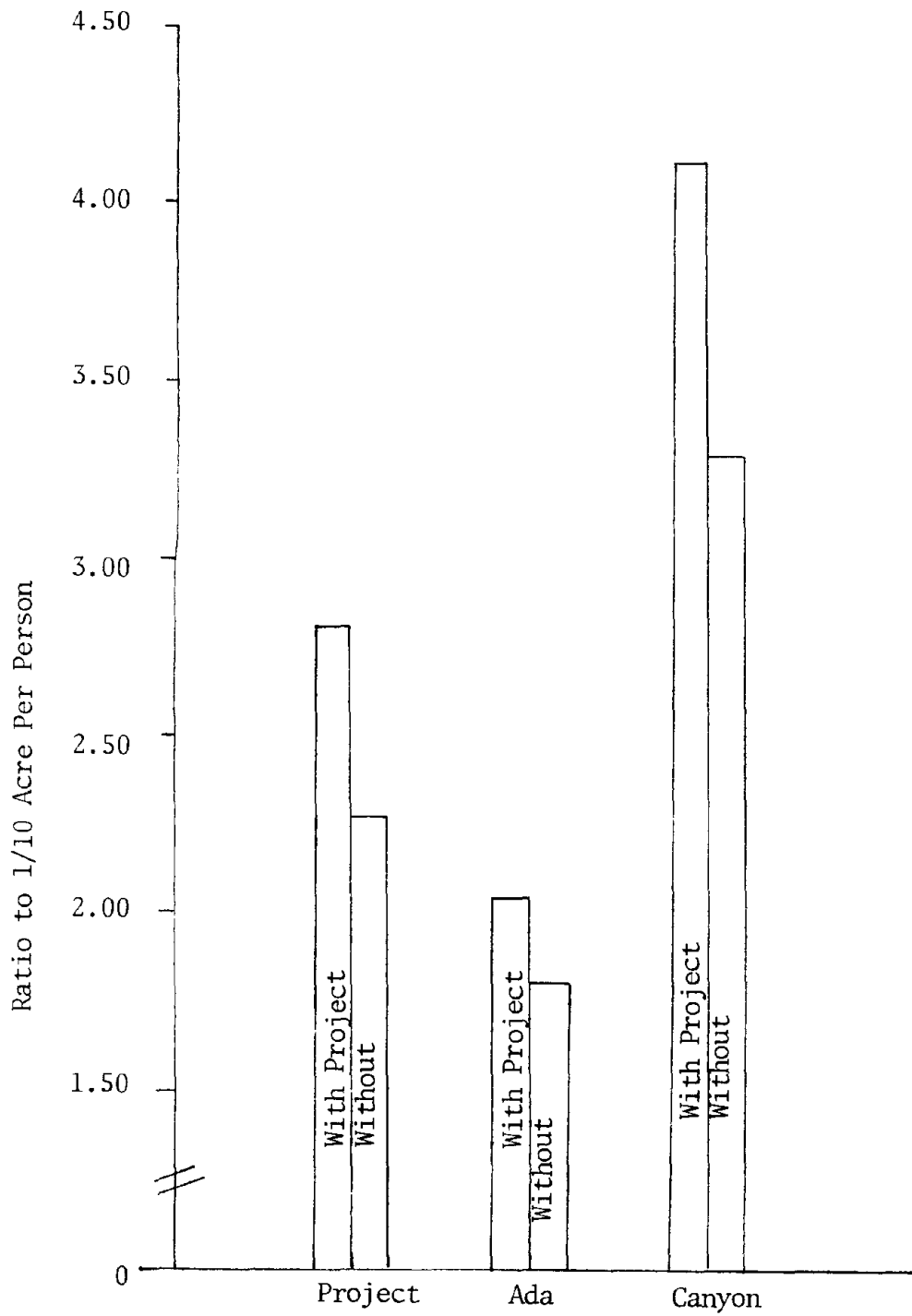
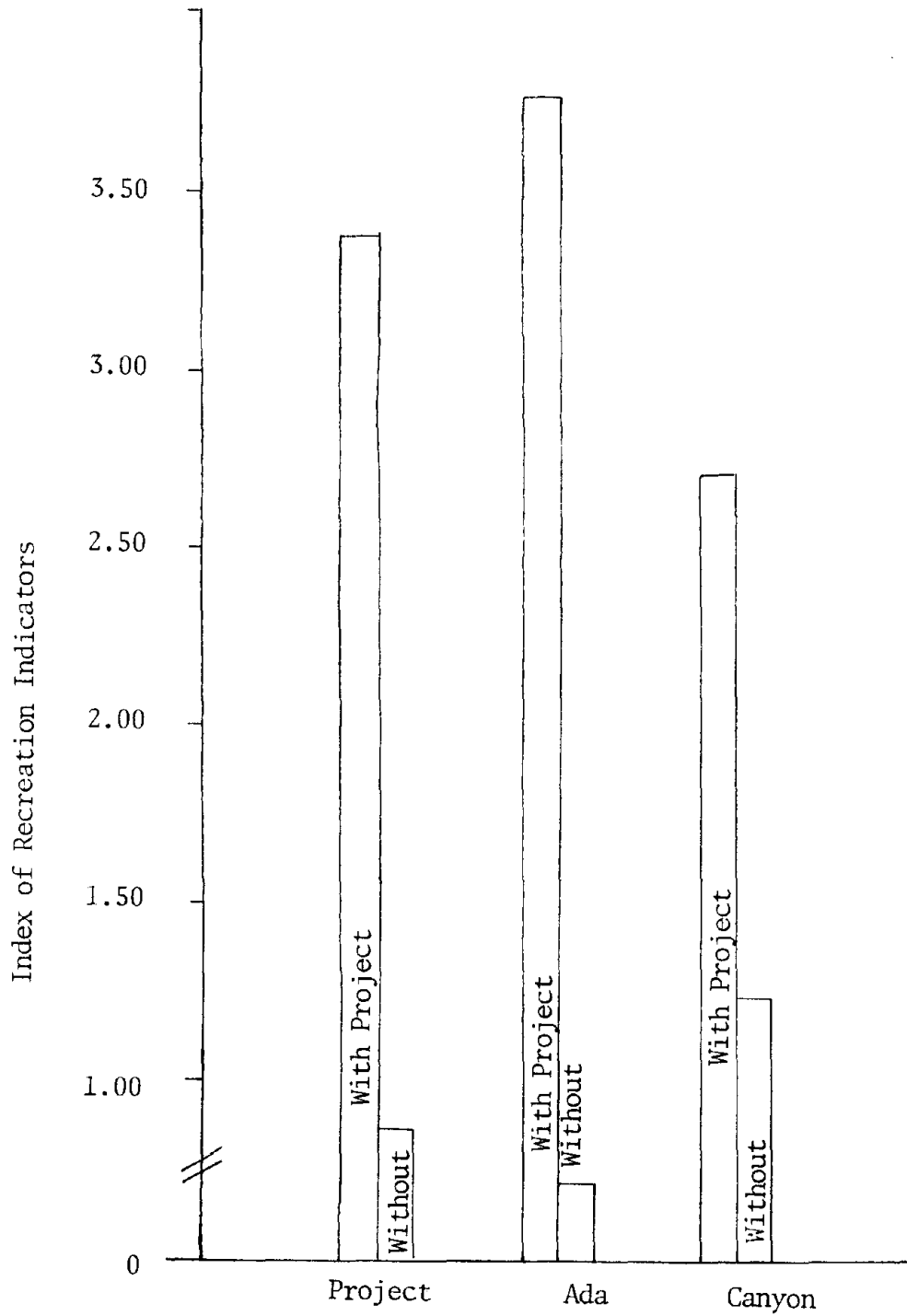


Figure 29. Recreation Index, Boise Project Area, Ada and Canyon Counties, With and Without Project, (1970).



reported units per 1,000 population have run from zero to .16; our without scenerio estimates units at .68 to .42 per 1,000.

The "Without Project" Recreation Index follows:

	<u>Ada</u>	<u>Canyon</u>	<u>Project</u>
1970	.705	1.24	.873

The Recreation Index for the "without" scenerio was substantially less than for the "with" scenerio, .87 without compared to 3.39 with. Ada County received the largest share of the recreation added by the Project (3.05 points) while Canyon was less but still substantial at 1.47 points.

We have not generally tried to assess the impact of Project-related changes at the State level since most were too small to be of any significance. However, if we were to eliminate all the land and water acres available for recreation in the total Project area (not just the two counties) it would decrease the State ratio of our ideal 1/10 acres per person from 20.23 to 19.80, a change of .04 acres per person for the entire State population.

Nonwhite Race and Spanish Language

With Project. The proportion of races other than white in the Project area has been very small (.5% to 1%, 1940-1970) while State averages were from 1 to 2% of the population for the same period (see Appendix Table 12). By 1960-1970 there were a slightly larger percentage of nonwhite in Canyon County than in Ada County, with the greatest number of those in Canyon being Japanese. For the Project area by 1970, there were less than 400 Negroes, about 500 Indians, 150 Chinese, a little over 500 Japanese and slightly less than 600 "other".

In addition to the very small nonwhite population there are data available in 1970 for a section of the population referred to as "Spanish Language". These people comprised 1.5% of the population in Ada County and 6.3% of the population in Canyon County (Appendix Table 12).

While no data were available on how many "Spanish Language" could be classed as migrant, 57% to 65% were new to Ada and Canyon in the last 5 years, compared to 30% and 7% for the county populations.

There were considerably fewer "Spanish Language" aged 14-17 in school (77% Ada and 72% Canyon compared to 95% and 93% for the total populations) and fewer completing high school (58% Ada and 23% Canyon

compared to 77% and 53%). In spite of this, in Ada County the median years of education for this group were indicated as 12.25, nearly the same as for the whole county. For Canyon County, however, the median years for Spanish Language was 6.9, compared to 12.1 for the whole County.

The Spanish Language group was also economically disadvantaged. The percentage employed was 5% less than for the total population in each county. Median income was \$8,266 compared to \$9,709 median for the total population in Ada County--\$5,517 compared to \$7,786 in Canyon County. Families under poverty level represented 13% to 36% of the Spanish Language families while the county total population rates were 9% and 12%.

In Ada County, Spanish Language residents found a greater proportion of jobs in blue collar occupations and in lower levels of white collar occupations, with less than 10% working as farmers or farm labor. In Canyon County, blue collar occupations outnumbered white collar by an even greater percentage and nearly 30% found work as farmers or farm labor compared to 13% of the all-county residents.

Without Project. We estimate no change of any magnitude in the racial makeup of the Project area for the "without" scenerio. Nonwhite people would continue to make up 1 to 2% of the population--approximately the same as their distribution in the State population. (Appendix Table 12).

"Without Project", Spanish Language people would represent about the same proportion of the population as actually occurred. There would be fewer Spanish Languages completing high school, about 30% compared to 36% with Project. The drop in those completing high school would be larger in Ada County (44% down from 58% with Project) but Canyon County would still experience the least percentage, 19% compared to 23% with Project. Associated with this would be about one year less median years of school for the Project area (Spanish Language), most of that in Ada County. There would be little difference between scenerios in the percentage of Spanish Language aged 14-17 enrolled in school, running around 77% in Ada County, 72% in Canyon.

Median income for Spanish Language would be about \$200 per year per family less without Project, primarily in Ada County; Ada County would also have 6% more Spanish Language families under poverty level income without Project. Without Project there would be a few less employed in white collar jobs, a few more in blue collar jobs and a few more employed on farms with most of the impact in Ada County.

It would appear that while the effect of the Project has been to improve slightly the situation of the Spanish Language people, the impact has been evident primarily in Ada County with the situation in Canyon County essentially the same for either scenerio. Since Canyon County Spanish Language with Project were considerable more disadvantaged than were those in Ada County, it appears the Project has done nothing to alleviate their circumstances, but neither has it resulted in deteriorating circumstances.

Summary, Impact of Project on Counties

"With Project" Scenerio

The area in which the Boise Project is located has been a thriving, growing region. Population has grown rapidly and by 1970 represented 24% of the State population. Population has also followed the national trend to increasing urbanization.

The "social indicators" for the Project area have followed State and U.S. trends in general. Education has improved greatly over the period 1940-70. While the Project area has about equalled State accomplishments, there has been a difference between counties. The Education Index for 1970 indicates Ada County has been .04 points above the State Index while Canyon County was .03 points under State Index.

The individual indicators under "Formal Achievement" show improvement in the Project area over the period with a rising median income, a greater percentage of labor force employed, fewer families under poverty level and on the whole an excess of the more prestigious jobs. When all indicators are combined for a "Formal Achievement Index" there has been a small increase in the index over the period for the Project area as a whole, about the same as for the State. Ada County has experienced a somewhat higher index than has Canyon County.

Housing in the Project area has improved since 1940. Median rent as a percentage of median income has decreased somewhat, owner-occupied units have increased considerably, the population has become more stable and housing quality has increased greatly. The Housing Index shows the Project at about the same level as the State, and Ada County very slightly ahead of Canyon County.

Our health indicators show little change over the period 1940-1970, and little difference between areas in infant mortality rates, total death rates and suicides. Deaths from heart disease have risen sharply but generally not more for the Project area than for the State as a whole. Deaths from other accidents have actually declined a little in all areas. The Health Index shows little change over the period and essentially no difference between the Project and State indices.

Law enforcement indicators (1970) show a higher rate of crime in the Project area than was true for the State as a whole. Rates of property crime and narcotics offenses were higher in Ada County than in Canyon but violent crime was higher in Canyon. Police efficiency

as measured by arrests/reported offenses was about the same for all areas.

Accessibility in the Project area has been better than State averages in terms of miles of roads but somewhat less in terms of public carriers. Canyon County had proportionately more roads than Ada but fewer public carriers. Our index of accessibility shows the Project area .15 points ahead of the State Index.

Recreation was in a very good situation in the Project area. While we have been hampered by lack of data it is clear that residents of the area have had good access to outdoor recreation associated with the Project and have made good use of it. Units of indoor recreation facilities were also good in Ada County, somewhat less in Canyon. Our index of recreation facilities indicates Ada's ratios of facilities to population were somewhat higher than Canyon's in spite of a larger population in Ada. Nonwhite races constituted only about 1% of the population. However, another minority group, the so-called Spanish Language, made up about 3% of the population in 1970. This was a disadvantaged group with less education, more mobility, lower income and more families under poverty level, and less prestigious jobs.

Changes as a Result of the Impact of the Project

According to our procedure for estimating the "without Project" scenerio, the greatest impact of the Project has been in sheer population numbers, adding 38,600 to 22,088 to the area's population. Population impact has been greatest in Canyon County. The with Project population was distributed more to farm population and less to urban than we estimate would have been true without Project.

Spanish Language people have seen improved circumstances as a result of the Project, most of those improvements coming in Ada County.

Changes in social indicators can best be summarized by a comparison of indices with and without Project in Table No. 5.

We have generally considered a change in indicators not worth mentioning unless it was at least a change in .05 in the ratios. Since the indices are composites, however, we will consider those changes over .01. With that as a guideline we can state that while there have been some small changes in individual indicators within each category, impacts on indices for the Project have been generally small ones and only for certain years. Among those were education +.019 (1950), formal achievement +.029 (1950), law enforcement -.045 (1970), accessibility +.022 (1970) and recreation +2.517 (1970).

Table 5. Summary of Social Indicator Indices, With and Without Project, Boise Project Area

Category	Year	With	Without	Change
Education	1940	.673	.679	-.006
	1950	.758	.739	.019
	1960	.813	.821	-.008
	1970	.863	.869	-.006
Formal Achievement	1940	--	--	--
	1950	.996	.967	.029
	1960	1.010	1.006	.004
	1970	1.049	1.050	-.001
Housing	1940	--	--	--
	1950	.388	.381	.007
	1960	.428	.425	.003
	1970	.510	.516	-.006
Health	1940	--	--	--
	1950	-.082	-.073	.009
	1960	-.085	-.083	.002
	1970	-.077	-.078	-.001
Law Enforcement	1940	--	--	--
	1950	--	--	--
	1960	--	--	--
	1970	-.083	-.838	.045
Accessibility	1940	--	--	--
	1950	--	--	--
	1960	--	--	--
	1970	.444	.422	.022
Recreation	1940	--	--	--
	1950	--	--	--
	1960	--	--	--
	1970	3.390	.873	2.517

Changes broken down by counties to show the impact of the Project are (with + indicating an improvement as a result of the Project, - a deterioration):

		Ada	Canyon
Education	1950	+0.051	-.012
Formal Achievement	1950	+0.028	+0.063
Housing	1950	+0.015	+0.023
Law Enforcement	1970	-.032	-.098
Accessibility	1970	+0.016	+0.056
Recreation	1970	+3.050	+1.470

Other indices showed no change greater than .01 between scenerios.

The fact that no change is shown for 1940 does not mean changes did not take place in that period but rather that data were too spotty to construct indices for that date in any category other than education. Changes in individual indicators for 1940 where data were available are discussed in the text.

IMPACT OF THE PROJECT ON THE FARM SECTOR

Farm Population and the Structure of Agriculture in the Project Area

With Project

Farm population has not experienced the same growth as the total population in the Boise Project area but rather has decreased 49% between 1930-1970. The greatest change has occurred in Ada County where the decrease has been 56% compared to a decrease of 44% in Canyon County. This compares to a Statewide decrease in farm population of about 50%. The decade 1960-70 accounts for the greatest decreases in farm population in all our study areas. (Table 2, Appendix Tables 2, 3 and 4).

When discussing the changes in the county population in the Project area, it was evident by 1960 that Ada County with nearly twice the population of Canyon County largely determined what we said about the Project as a whole. However, the farm population is the reverse situation; whatever we say about the Project farm population will be greatly influenced by Canyon County with nearly double the farm population of Ada County.

Rural population and farm population are synonymous in the minds of many people but that is not the true case. For census purposes all people living in towns under 2,500 population as well as those in open country are classed as rural. Rural farm residents are those living on 10 or more acres with annual sales of \$50 or more, or less than 10 acres with annual sales of \$250 or more (Rogers and Burdge, 1972:18).

In the Project area the rural population represented 52% (1940) to 29% (1970) of the total population while the farm population represented 31% to 7% of the total population. Although rural population in the Project area has grown somewhat 1940-1970, as a percent of the total Project population it has declined about the same amount as is true over the State. Farm population in the Project area has declined somewhat more than State averages, both in number and in percent of total Project population. The same general trends are occurring over the U.S. In 1970 about 74% of the U.S. was urban, 26% rural. The number of rural people was increasing or holding steady but urban residents were increasing at a faster rate. Farmers now represent 6% of the U.S. population. In 1910 there were 14 million farms; by 1970 the number was down to 3 million; by the year 2000 it is predicted the number will be down to 1 million. However about 30

million of the 84 million labor force in the U.S. is engaged in agriculture related occupations. (U.S. data from Rogers and Burdge, 1972: 19). In the Project area, the rural population has shifted from predominately farm population (62%) in 1940 to predominately rural non-farm (75%) by 1970.

A portion of the rural nonfarm population is accounted for by residents of small towns in the area. Our calculations indicate small towns account for 25 to 16% of the rural nonfarm population, with the balance apparently residing in open county on nonfarm acreages. The population of small towns in the area has grown about 28% from 1940-1970, with those in Ada County experiencing the greatest growth. This will be discussed further under "Rural Nonfarm Sector".

A higher proportion of land area in the Project area was in farms than was true of the State as a whole, according to the 1964 Census of Agriculture (48% in Ada County, 92% in Canyon, 29% in the State). Farms, however, were much smaller than State average of 516 acres for all farms with an average of 191 acres in Ada, 122 in Canyon. There has been a steady increase in farm size, a trend also occurring over the U.S. The average U.S. farm size in 1940 was 174 acres; in 1957, 242 acres, and 1970, 386 acres (Rogers and Burdge, 1972:131). Average irrigated acres per farm in the Project area were much smaller--in 1970, 78 acres in Ada, 62 in Canyon as opposed to 158 acres over the State. Ninety-six percent of the farms in the Project area had some irrigated acres while over the State only 81% had irrigated land. (Appendix Table 13).

Almost all farm operators (96% Ada, 94% Canyon) residing on the farm which they operated in the Project area. There are 38 fewer operators than farms so one would assume a few operators controlled more than one farm. An additional 237 operators apparently lived in town. In Ada County, 41% of the farm operators report working more than 100 days off the farm, in Canyon 32% which was the same as the State average. Tenants account for only 13% to 16% of farm operators, a phenomenon true Statewide also. The average age of farm operators for all areas was around 50 years. The effect of the older farm operators is not known, but Rogers and Burdge (1972:193) report an Iowa study which shows the greatest efficiency in terms of return on capital is reached when farm operators are about 32.

Sixty to seventy percent of the farms in the Project area were Class 1-5 farms (sales over \$2,500 per year) and nearly all of those (97-98%) have some irrigated land. Average size for all land and for irrigated land in Class 1-5 was larger than for all classes of farms together. The number of Class 1-5 farms exceeded the number of operators by 34, most of the differential reported for all farms.

Tenancy ran a little higher than for all farms, Ada County 15% and Canyon County 25%. Almost all farm operators resided on the farm they operated, with about 171 apparently living elsewhere. Not surprisingly, fewer Class 1-5 farmers reported 100 or more days work off the farm than did all classes of farmers; but there were still some, 25% in Ada and 20% in Canyon.

Corporate owned farmland accounted for 44% of the Class 1-5 farmland in Ada County, appearing as 14 corporations averaging around 9,200 acres each; however, none of these reported over 10 shareholders so they were possibly family corporations. Canyon County reported 75 corporations controlling 11% of Class 1-5 farmland (ave. size 467 acres). One corporation had over 10 shareholders and owned 363 acres. Statewide, 15% of Class 1-5 farmland was corporate owned, average size 3,800 acres; sixteen corporations report more than 10 shareholders, average size 6,500 acres. While large corporate landholdings did exist in the Project area, particularly in Ada County, they appeared to be primarily a device for families to farm jointly both for corporate accounting advantages and ease of inheritance.

By extrapolation from the above, we can make a number of statements about the nearly 1,500 Class 6 (sales less than \$2,500) and noncommercial farms in the Project area. This represented 39% (Ada) and 30% (Canyon) of the number of farms, not much different than the State average of 30% of all farms in this class. Almost all Class 6 farms in the Project area had some irrigated land, averaging 18 or 19 acres per farm. Nearly all operators resided on their farm, tenancy was minimal and 67% to 60% of the operators worked more than 100 days off the farm. This exurban segment often does not show up in accounting of farm economics since it contributes little or no value to farm income. It does, however, take up 25,000 acres of irrigated land in the Project area and must be considered in any assessment of population changes since it may well represent nearly 1/3 that population counted as farm population.

We have no way of knowing to what extent migrant workers were counted as farm population. It may depend on whether they were housed on the farm and where they were when the census is taken (and if they were counted at all).

Without Project. Farm population would likely have experienced a sharp decline "with" or "without" Project. However, the project has apparently been able to hold more farm population than would have remained otherwise (Figures 1, 2 and 3, Appendix Tables 2, 3 and 4). The impact of the project on farm population was felt more in Canyon County than in Ada County. Our estimate is that the project added 20,000 to 7,000 people to the farm population in the Project area, 70% to 54% of existing numbers from 1940 to 1970. In Ada County the

impact was 7,000 to 2,300 (64% to 54% of existing population) while in Canyon County it was 20,000 to 6,800 (70% to 54% of existing population). The end result is that by 1970 the farm populations in the two counties were more than twice that which would have been there if the Project had not been developed.

The project impact on the farm population was likely due to several factors. Even though Project benefits did not become significant until after World War II, the Project did provide water essential for maintenance of a subsistence operation during the prewar period. Without the Project many operators with a marginal water supply would have likely lost their farms. In addition, the acreage restrictions placed on farm size by the Bureau of Reclamation slowed down the process of farm acreage expansion. The combination of available water at crucial times and farm size restrictions resulted in a greater number of farmers in both Ada and Canyon Counties than would have been without the Project.

Our model for all estimates in this study was based on the assumption of fewer but larger farms "without Project" than "with Project". This comparison is shown in Appendix Table 15. Our estimate indicates that the number of farms would be reduced in the absence of the Project to about 1/4 those actually existing but at the same time the size of those farms would be 1/2 again as large as occurred.

Based on the 1970 Census only and the data from the control counties, we can make some predictions of changes in the agricultural structure likely "without Project", in addition to fewer but larger farms. There probably would also be a smaller proportion of land in farms although it is difficult to say what land now irrigated would be farmed as dry land. It does not seem likely that without the Project there would be any significant change in the percentage of tenant farmers nor in the average age of farm operators. A few less operators might reside on the farm operated. However, fewer farm operators would report working more than 100 days off farm, mostly because other jobs would not be as readily available.

Probably without the Project a higher proportion of farms would be in Class 1-5 and these would be much larger than actually occurred. Nearly all would contain some irrigated lands and nearly all operators would live on the farm as they do now. Possibly fewer would report 100 days off-farm work. If there were any change in the corporate aspect of farming it possibly would be in the direction of fewer but larger corporate farms in Canyon County. On the other hand strictly following the pattern set by the control County, Cassia, indications are for more but smaller corporate farms in Ada County.

Data from the control counties allows us to set up a model for predicting changes in Class 6 and noncommercial farms "without Project".

There likely would be fewer of the small exurban farms, especially in Ada County. Possibly fewer of those in Ada County would have irrigated land, but size would be about double that actually existing for both counties. Possibly a slightly smaller proportion of operators would reside on the farm they operate and fewer would work more than 100 days off their farm, particularly in Canyon County. Thus, while there might be fewer but larger exurban farms "without Project", there would be an increase in the proportion of farmers trying to support themselves solely on the earnings of these small farms.

Social Indicators, Farm Sector

Our discussion of social indicators for the farm sector will be a great deal briefer than for the counties as a whole since data are very limited. Only the categories of education, formal achievement, and housing can be covered. However, in Weiner's Los Angeles study referred to earlier those three categories were found to explain 88% of the variance in the ratings given to neighborhoods by their residents.

Education

With Project. Educational attainments as measured by median years of school and number completing high school have improved over the time period for the farm population as well as for the counties. In 1940 the level of attainment for farm people in Ada County was somewhat below that for the county as a whole but with the gap closing by 1970. However, the Ada all-county residents still counted a greater percentage completing high school than was true of the Ada farm population, probably a reflection of the greater incidence of professional personnel in nonfarm occupations in Ada County. In Canyon County the educational level of farm residents was below that of all-county residents in 1940 but by 1970 it had reached slightly higher levels. (Appendix Tables 14, 15 and 16).

For the Project area the level of farm education has been below that of the all-Project total population in the earlier years but by 1970 the gap had lessened or disappeared. Education levels have been approximate to state levels for farm residents.

The U.S. trend has been for the urban residents to be better educated than rural residents. In 1970, urban adults averaged 12.3 years of school while rural nonfarm residents averaged 8.8 years of school and in 1950, 8.4. This compared with the Project area average for farm population of 12.2 (1970), 11.2 (1960) and 9.9 (1950). Thus farm residents in the Project area have had a much higher level of attainment

than was true over the U.S. farm population. Dropout rates for farm students have also averaged much higher for rural people than for urban over the U.S. Comparable data is not available for the Project area. (U.S. data from Rogers and Burdge, 1972:232-243.)

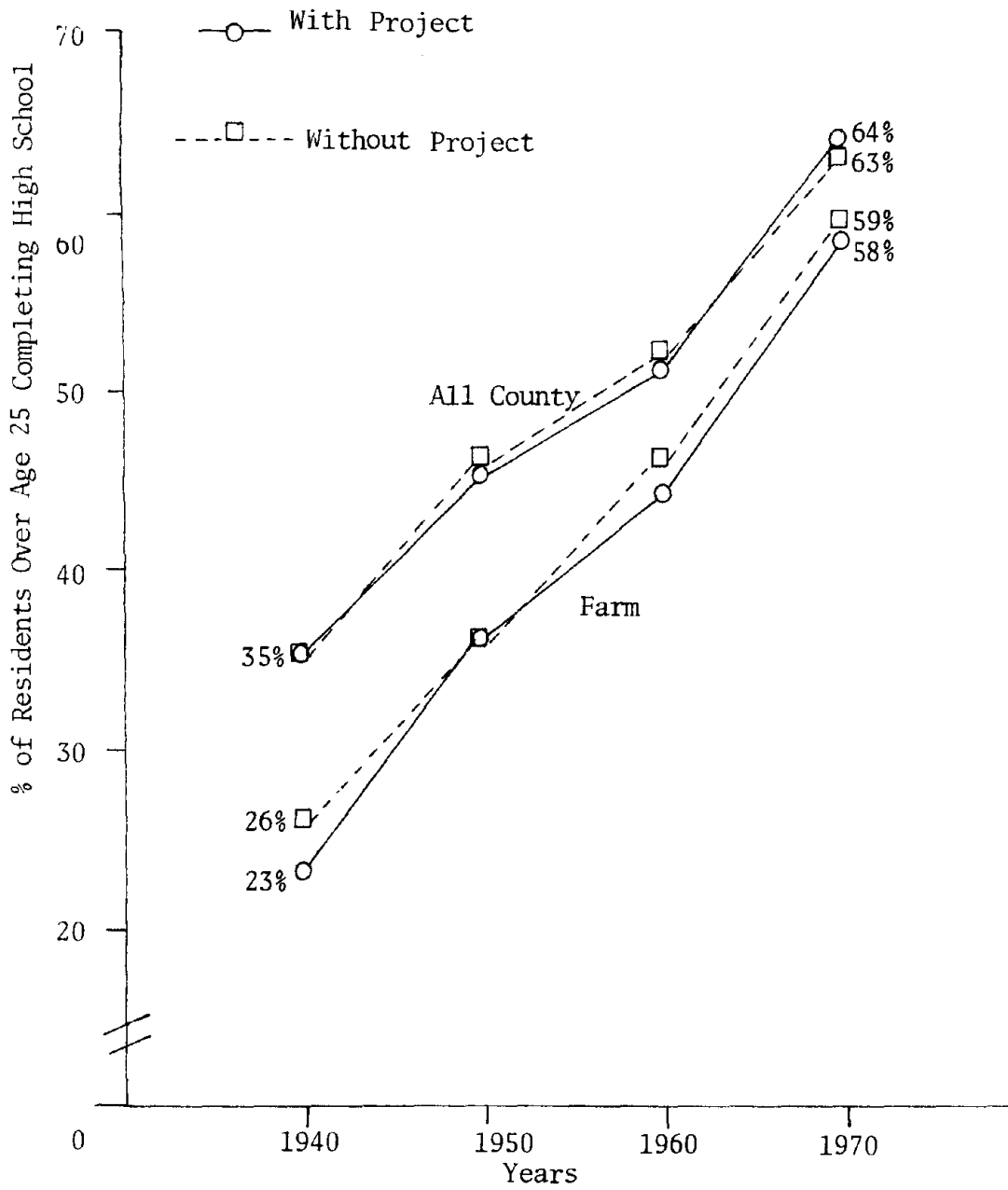
Without Project. We predict no large changes in the educational level of the farm population "without Project" (see Figure 30). In one period, 1950, our model suggests that Ada County (farm) might have had about 1 year higher median years of school "without Project" than "with Project". Either scenerio would show farm population for the Project area at less than county medians in the earlier years but by 1970 there is essentially no difference. (Appendix Tables 14, 15 and 16).

Formal Achievement

With Project. Over the U.S. as a whole, in 1970, about 30% of the farm families were classed as under poverty level as opposed to 24% of the rural nonfarm and 13% of the urban families. In addition, many of the rural poor are likely to be unemployed or under-employed (Rogers and Burdge, 1972:377). The situation was much different in the Boise Project area with farm families median income greater than the median for farm families over the state, \$4,080 compared to \$2,144 in 1960, \$8,357 to \$7,584 in 1970. Additionally, median farm family income nearly equalled the median income for the total population of the area. Unemployment for the farm sector apparently was a problem only in 1940. Since that time the percent of labor force employed has been as good as, or better than for the area population as a whole. In 1960, 34% of farm families in the Project area were classed as under poverty level as opposed to 21% of the total population in this area so classed. By 1970, this was 8% compared to 10% for the general area population and 14% for the state farm population. (Appendix Tables 14, 15 and 16).

Not all farm population are farmers; in the period 1940-1970, 1/3 to 2/3 of those employed in the Project area farm were classed by the census as having occupations other than farming. This includes farm wives who work off the farm as well as part-time farmers with another job or those with a full-time occupation other than farming but a farm residence. In Ada County, 60% to 40% of the farm labor force has been employed on farms; in Canyon County, 77 to 46%. What of the other portion who find work off the farm--have they had access to the more prestigious occupations or have they had to settle for the more menial jobs? Generally the largest percentage of off-farm employed in the Project area has been in Class III, craftsmen, operatives, and transport workers. Class III together with Class IV, service workers, private household workers and laborers, make up the blue collar class; 14 to 25% of the farm employed (1940-1970) in the Project area has found jobs in the blue collar class. This compares to a U.S. figure of 84% of part-time

Figure 30. Farm Education, Boise Project Area, With and Without Project, Percent Completing High School.



farmers working in relatively low-status blue collar jobs (Rogers and Burdge, 1972:138). (Appendix Tables 14, 15 and 16).

In a preceding section, we discussed income distribution in terms of Gini ratios. Ratios for the Project area total population generally indicated a more equitable income distribution than was true for the state as a whole. A similar situation held for the rural farm sector:

	<u>Year</u>	<u>Gini Ratios</u>		
		<u>Ada</u>	<u>Canyon</u>	<u>State</u>
Rural Farm Population	1950	.691	.655	.761
	1960	.736	.755	.730
	1970	.389	.387	.512

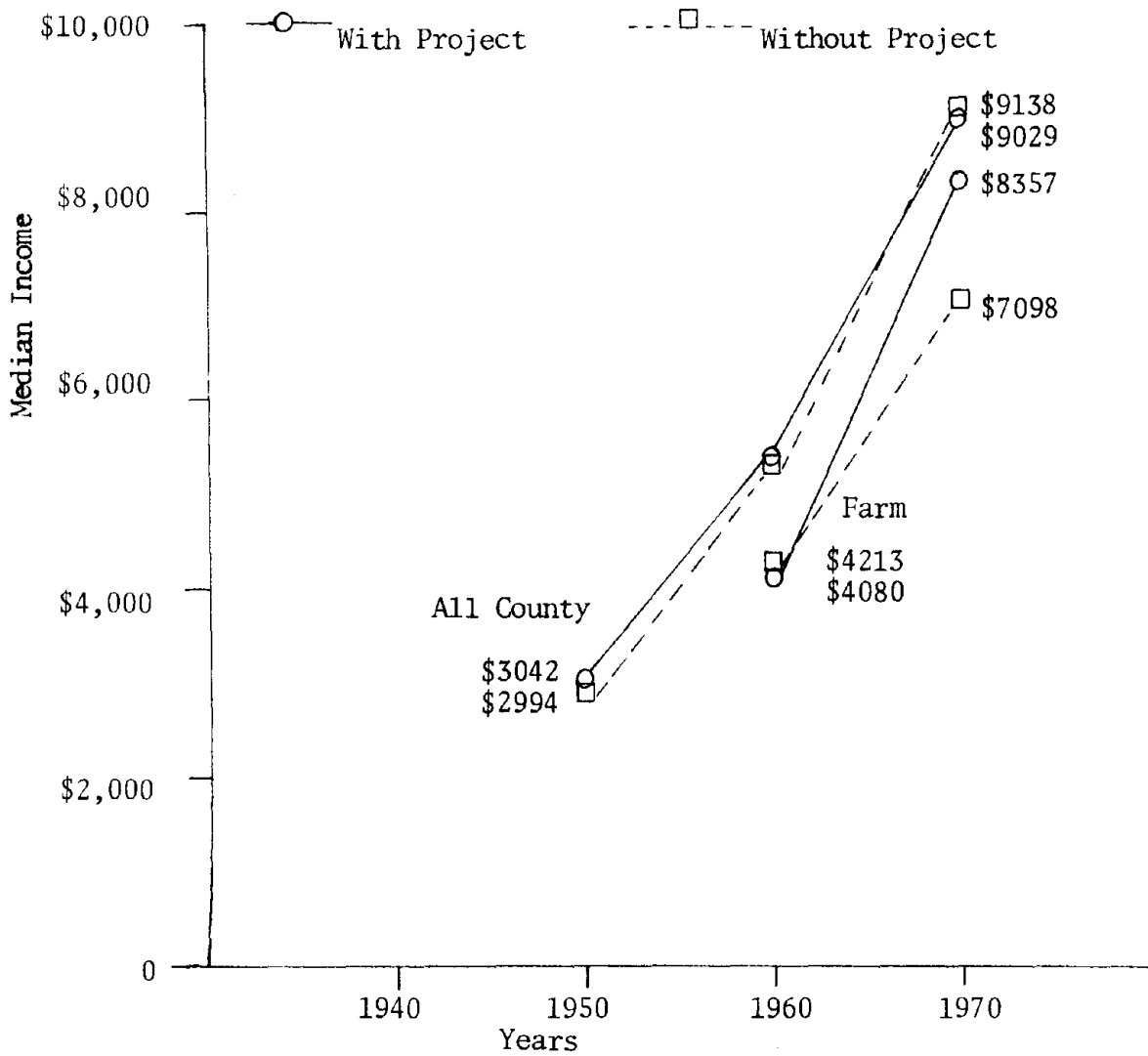
In 1950 and again in 1970 the Project rural farm population experienced more equitable income distribution than did the Statewide farm population. In 1960, however, the differences in distributions were small. Ada and Canyon rural farm incomes have been distributed about the same, with some deterioration in equality between 1950-1960 but a substantial improvement, 1960-1970.

Incomes have been distributed less equitably for the rural farm population than for all-county population in Ada for all years. However, Canyon rural farm is distributed more equitably than all-county in 1950 and again in 1970.

Without Project. Interestingly, our model suggests that in 1960 (the first year for which data were available) Ada County farm population would have had a higher median income "without Project" than with (\$5,018 to \$4,325). The opposite is true in Canyon with a "with Project" median of \$3,950 and a "without" median of \$3,505. By 1970 we see no difference in median income for Ada County farm families; Canyon farm families "without Project" would, however, continue to be much below the "with Project" median for farm families (\$6,431 to \$8,300) and the effect on the Project area would be about \$1,250 less per year "without Project" (see Figure 31). For all years and all scenerios, the median income for the farm population would be less than county-wide, but would improve over the years 1960-1970. The improvement would be greatest "with Project" and in Ada County. (Appendix Tables 14, 15 and 16).

The percent employed among the farm population would show no large change "without Project", other than in 1940 when our model suggests that the situation would be much better among the farm population "without Project" (93 to 95% employed compared to 74% in the actual situation). Other years show no difference between scenerios.

Figure 31. Farm Income, Boise Project Area, With and Without Project: Median Farm Family Income.



For the one year that data are available on the number of families under poverty level, our estimate is that "without Project" there would be a 5% increase in Ada County and a 14% increase in Canyon. "With Project" the situation in Ada County is slightly better than in Canyon; "without Project" the same situation would likely be true with somewhat more families under poverty level in Canyon.

Possibly one of the biggest changes in farm population as a result of the Project would be a predicted shift in the occupation structure, with an estimated 17 to 13% more of the employed of the Project area employed as farmers and farm labor "without Project" than actually occurred "with Project" (see Figure 32). There would have been proportionately less employed in the other classes "without Project", with the change spread fairly evenly over Classes I, II, and IV. Class III "without Project" would have had about 5% fewer employees than was the case "with Project", particularly in Canyon County. (Appendix Tables 14, 15 and 16).

Farmers and farm labor do not figure into our index of occupational prestige which means this index applies only to the portion of the farm population employed off-farm. Our estimates are that "with" or "without" Project these jobs would have been predominately blue collar, but upper blue collar. As we have said previously, people do not generally object to the lower-prestige jobs if the associated income is sufficient to off-set or if the other choice is unemployment. Our estimate is that, in 1940 the occupational prestige of the off-farm employed would have been slightly more "without Project". In succeeding periods there was apparently better occupational prestige "with Project". (Figure 33, Appendix Tables 14, 15 and 16).

The remainder of the farm population constitutes dependents--children, elderly, nonemployed wives and a few unemployed. The farm population dependency rate "without Project" is estimated at 69 to 61%, about 2 to 4% higher than that "with Project".

Housing

With Project. Data are available on farm housing only for years 1940 and 1970, so no complete assessment can be made. In that span of time housing for farm population has improved dramatically. Owner-occupied units have increased from 59% to 82% and units with all plumbing have increased from 52% to 98% in the Project farm area. Owner-occupied units in the Project farm area run a higher ratio of all units than do those in the all-Project area, not an unusual situation as farm housing is not often rental housing. Units with all plumbing (farm) were also 5% greater than in the all-Project area in 1940, no difference in 1970. (Appendix Tables 14, 15 and 16).

Figure 32. Farm and Nonfarm Occupations of Farm Residents, Boise Project Area, With and Without Project.

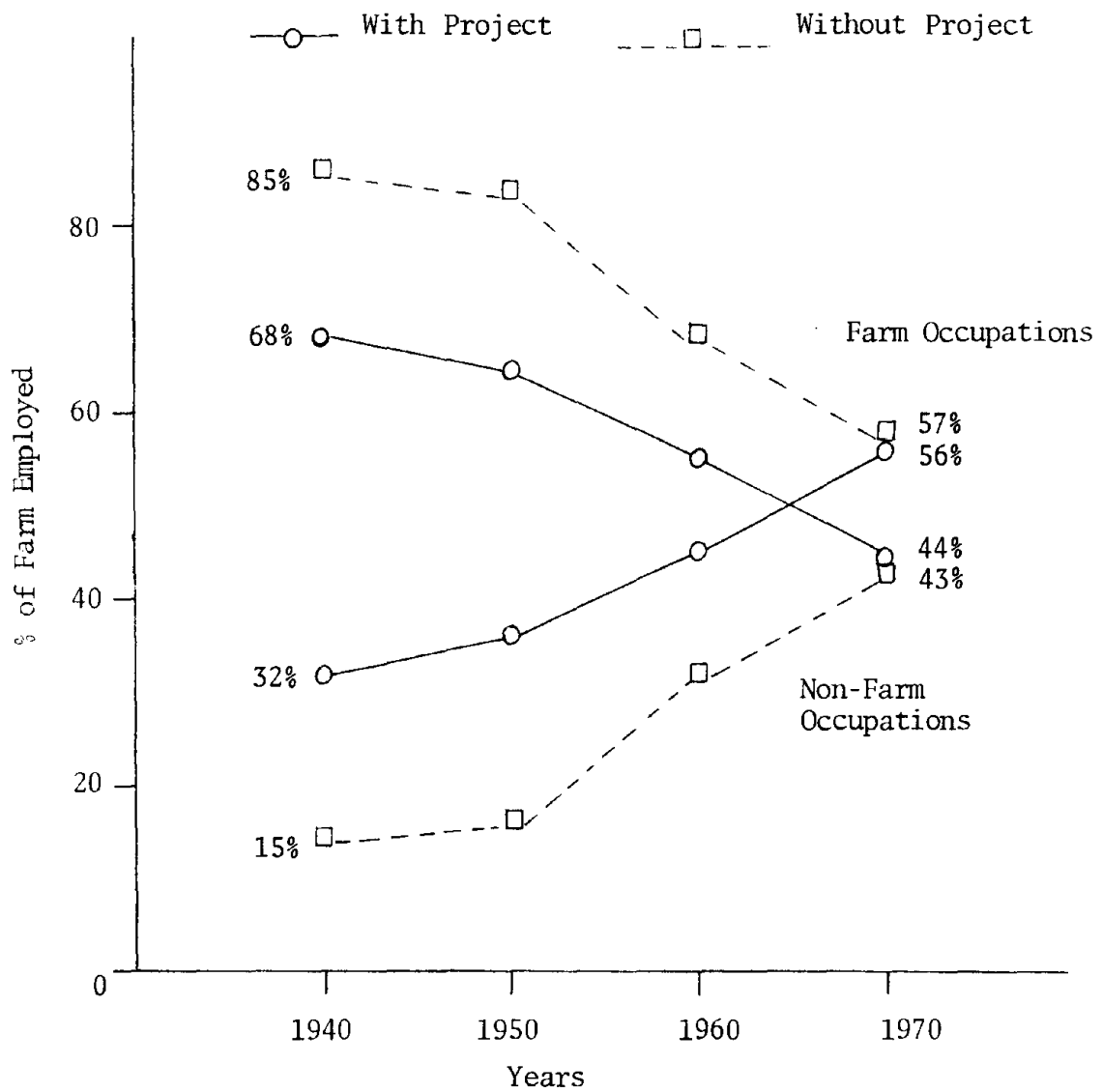
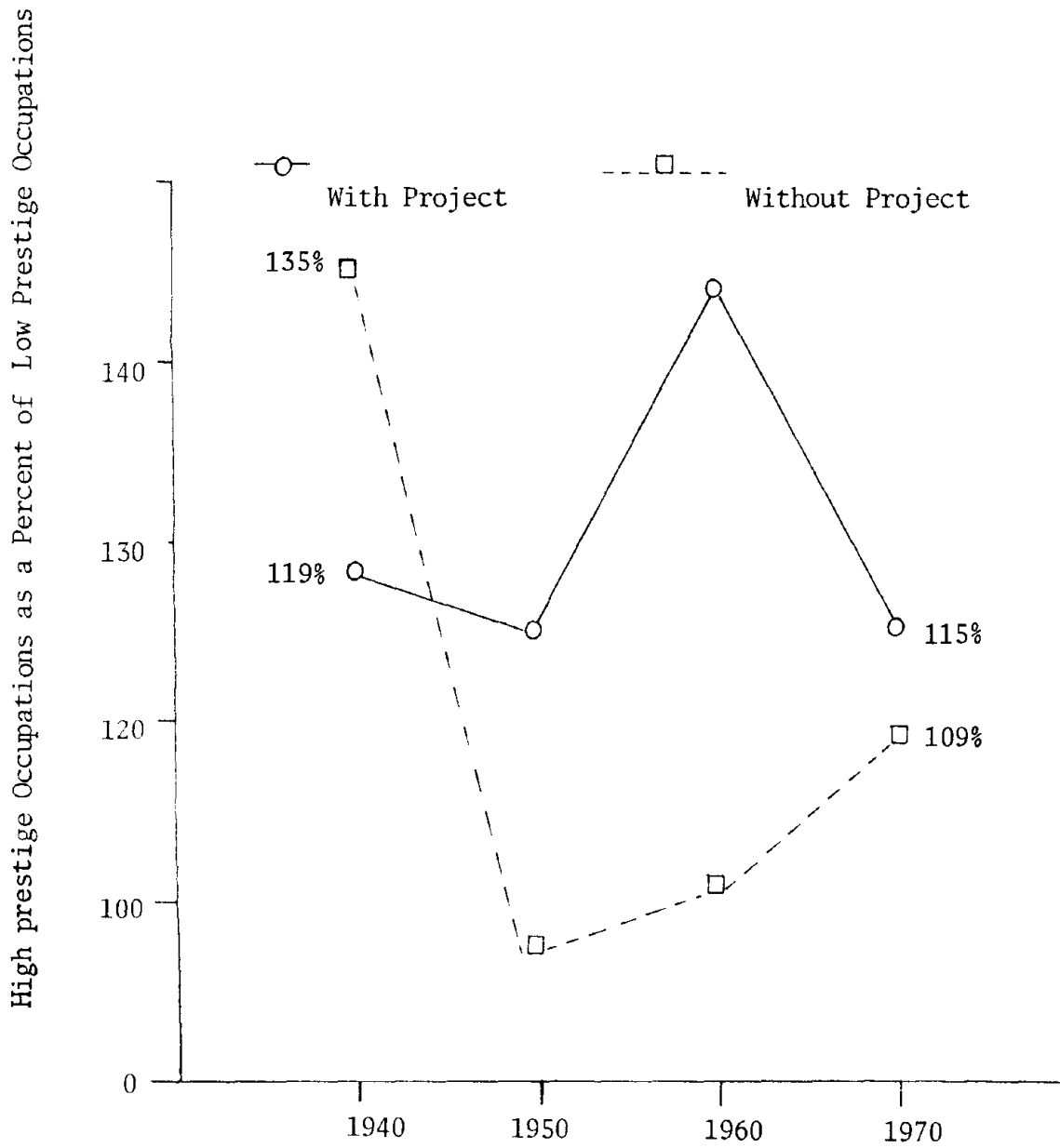


Figure 33. Occupational Prestige, Farm, Boise Project Area, With and Without Project (Nonfarm Occupations).



Ada County (farm) has seen the greatest improvement with owner-occupied units increasing 28% and units with all plumbing increasing 72%. Canyon (farm) has run a little less increase at 19% and 47%, with the result that in 1970 the percentage of owner-occupied units in Canyon were less than in Ada but units with all plumbing in Canyon were about the same as Ada.

In both counties owner-occupied units have been greater for the farm area than for the all-county area. Units with all plumbing in 1940 were much less for Ada County farm than for all-county while in Canyon the percentage was higher for farm than for all-county. By 1970 there were no differences.

In the U.S. as a whole, it is estimated that 35% of the substandard housing is located in rural areas (Rogers and Burdge, 1972:388). That does not appear to be the case in the Boise Project area.

Without Project. Farm housing "without Project" would likely not be quite as good as "with Project". There probably would be 5% to 6% fewer owner-occupied houses. There would be a dramatic change in the percent of units with all plumbing in 1940, down from 52% "with Project" to only 12% "without Project"; by 1970 there would be no difference (Figure 34, Appendix Tables 14, 15 and 16).

By counties, predicted change in owner-occupied units (farm) would occur in Canyon in 1940 with a 9% increase resulting from the Project. The same change is predicted to occur in Ada by 1970, with a 12% increase in owner-occupied farm units over the "without Project" situation.

Units with all plumbing (farm) would be less "without Project" in 1940 with Ada County having 12% less and Canyon 59% less. By 1970 there would be no difference.

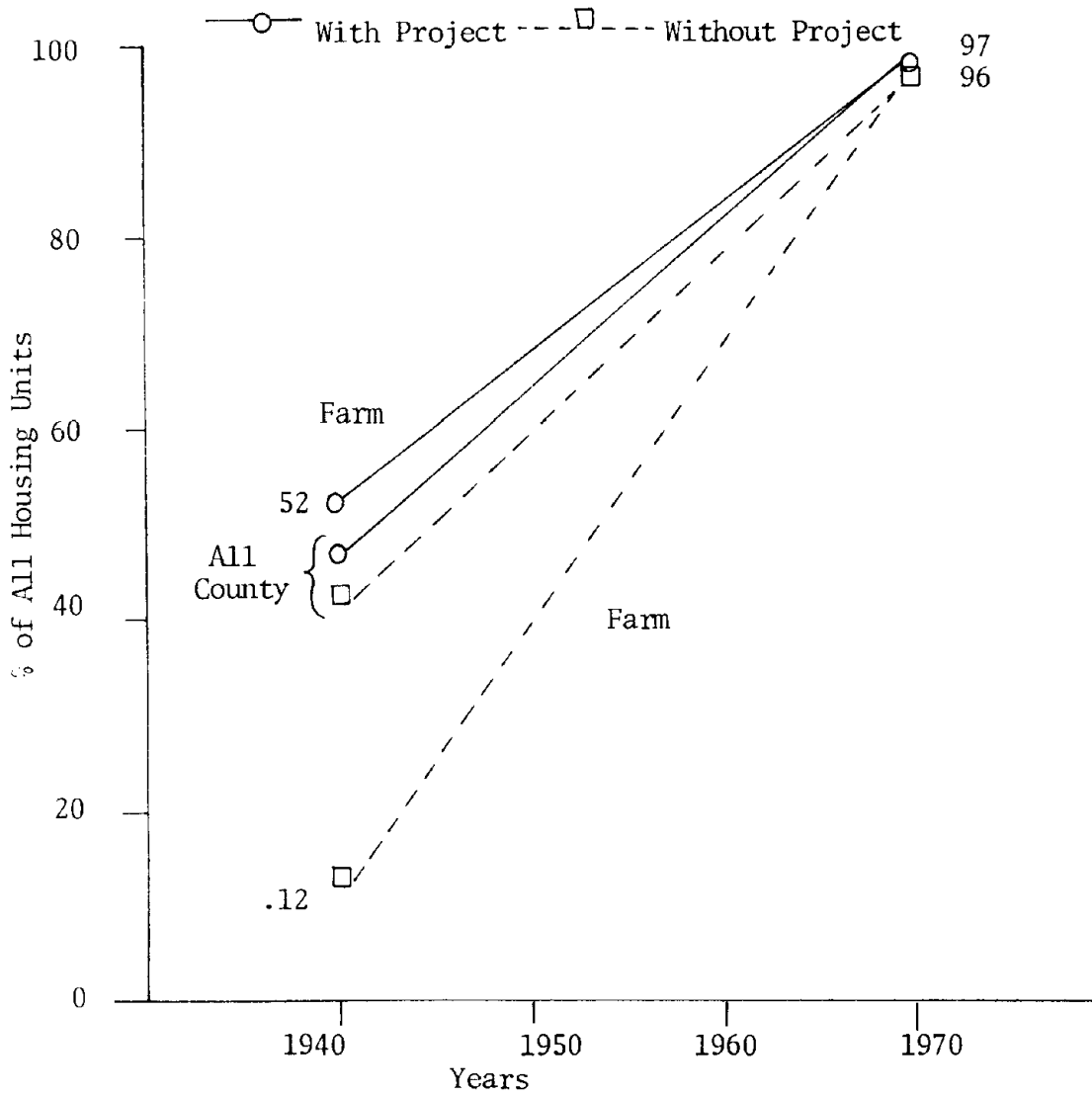
Summary, Impact of the Project on the Farm Sector

The "With Project" Scenerio (Farm)

We find sharp decreases in population in the farm sector at a time when other populations in the area were experiencing rapid growth. Farms in the Project area were smaller than state averages and were nearly all irrigated. Most farm operators resided on their farm but a number operated more than one farm. Corporations controlled nearly 1/2 the farmland in Ada County but only a small amount in Canyon. About 1/3 of the farms in the Project area were Class 6 or noncommercial.

Social indicators show some differences between the farm population

Figure 34. Farm Housing, Boise Project Area, With and Without Project: Units With All Plumbing.



and all-county populations. Education levels have been lower in the farm sector in early years but by 1970 there were no differences from the county levels and Project farm levels were better than U.S. levels. Formal achievement for farm residents has been equal to that for all-county with similar median income, employment percentages and occupational prestige. The proportion of the farm population actually employed on the farm has decreased sharply since 1940 while there has been an increase in those employed in other occupations, particularly in Class III, craftsmen, foremen, and transport. In 1960 there were more farm families than county families classed as under poverty level income but by 1970 there were fewer farm families than all-county families so classed. There were many fewer farm families under poverty level than was true of the U.S. farm families. Housing has improved over the period so that by 1970 there was no difference in quality of farm housing compared to all-county housing.

Changes as a Result of the Impact of the Project, Farm Sector

The impact of the project on farm population was estimated to be 20,000 to 7,000 people, or 70 to 54% of the existing farm population. This is the largest percent impact on any sector. In spite of the impact of the Project, farm population has declined sharply over the period, but not as sharply as would have occurred "without Project". Farm population impact has occurred more in Canyon County than in Ada County.

The Project has resulted in more but smaller irrigated farms than we estimate "without Project". More of these were Class 6 and fewer are Class 1-5 than we believe would have been true "without Project".

No attempt was made to create indices for each of the social indicators. Since data on farm population were not available for all categories and time periods we felt comparisons between indices would not be valid.

Educational levels (farm) show little change as a result of the Project. Farm educational achievements were less than all-county in the early years, partially as a result of the Project, but by 1970 there were no differences. The improvement during the period apparently had no association with the Project but was part of the educational improvement over the state.

The Project has resulted in higher median farm family income than would have occurred otherwise. While income has improved steadily over the period it was still less than for all-Project. Percent employed has been unaffected by the Project except possibly in 1940 when there may have been a higher rate of unemployment associated with the Project.

In 1970 the Project was estimated to be responsible for reducing the number of farm families under poverty level, particularly in Canyon County. Occupational prestige of the farm employed (off-farm) was somewhat lower as a result of the Project with the greater proportion of jobs in lower prestige blue collar occupations. The impact on occupation structure was apparently a shift to proportionately more of the farm population employed in nonfarm occupations and fewer as farmers and farm labor. While the Project certainly allowed a greater number of farmers in the area, it also created jobs in other sectors which provided the opportunity for more off-farm work.

The Project has apparently been responsible for improvements in farm housing. Estimated changes in farm housing units with all plumbing as a result of the Project have been dramatic with an increase of 40% such units in 1940. The greatest impact was in Canyon but improvements occurred in Ada.

The impact on farm population, while small, can be summarized as more people, more off-farm employment, higher income, fewer families under poverty, less occupational prestige, better housing.

IMPACT OF THE PROJECT ON THE RURAL NONFARM SECTOR

Population

With Project. In addition to the farm population there is a sizeable rural nonfarm population in the two counties. This includes towns under 2,500 and residents in open country on less than 10-acre tracts. Ada County has experienced a higher number of rural nonfarm residents, holding around 13,000 for 1940 and 1950, rising to around 20,000 by 1960-1970. At the same time the number of rural nonfarm residents in Canyon County rose from around 4,000 in 1940 to over 18,000 in 1970. As a proportion of the county population this represents a drop of 8% in Ada County and a rise in Canyon County of nearly 18%. (Appendix Table 4).

Without Project. There would be a smaller population in the rural nonfarm sector in numbers of people "without Project", down from 17,338 residents to a predicted 11,954 in 1940, down from 38,301 to a predicted 31,286 in 1970. However, the population would be about the same proportion of the all-county population as actually occurred, around 1/5. (Appendix Table 4).

The impact of the Project on Ada County rural nonfarm would be an increase of about 2,000 or 16 to 10% of the existing rural nonfarm population. The impact on Canyon County rural nonfarm population would be an increase ranging from about 75% of the existing population in 1940 to about 26% in 1970.

Rural nonfarm populations did "with Project" increase during the period 1940-1970 in contrast to the farm population which in spite of the Project experienced a sharp decrease in population. The same phenomena would have occurred "without Project".

Social Indicators, Rural Nonfarm Sector

So little data were available on rural nonfarm that only a sketch of the social indicators can be made. As with the farm sector no attempt was made to create an index for each indicator.

Education

With Project. In terms of median years of education the rural nonfarm population has run slightly behind the all-Project population, especially in 1950 when the median was 9.8 years (rural nonfarm)

compared to 11.3 years for all-Project. By 1970 the medians were approximately the same and indicated an improving situation for all sectors. (Appendix Tables 14, 15 and 16).

The same trends have held for both counties rural nonfarm population. In Ada County the rural nonfarm median years of school has been greater than that for the farm population until 1970. In Canyon County in 1950 and 1960, the rural nonfarm median was actually lower than that for the farm population. At all periods, the median has been higher for Ada rural nonfarm than for Canyon rural nonfarm.

The percent completing high school has increased from 1940 to 1970 but it has been less for the rural nonfarm sector than for the all-Project. Those completing high school has been about the same as for the farm population except in 1940 when there were more completing high school in the rural nonfarm sector.

Ada County rural nonfarm has had less completing high school than the all-county average. Except for 1940, the rates are about the same as for the farm population. In Canyon County the rates of completion for rural nonfarm are less than for all-county but also less than for the farm population.

Without Project. Median years of school is predicted to have been slightly higher "without Project" than "with Project" for the rural nonfarm populations. In Ada County there appeared to be no difference in educational attainment resulting from the Project. Our model suggests, however, that in Canyon County rural nonfarm educational levels may have suffered somewhat in the earlier years as a result of the Project. Median years of school (Canyon rural nonfarm) were 8.6 (1940), 9.9 (1950) compared to an estimated 9.3 and 10.4 "without Project". By 1960, the median years "with Project" had reached 11.0, well ahead of our estimated "without Project" median of 10.5 years. By 1970 there were no apparent differences. (Appendix Tables 14, 15 and 16).

The percent completing high school in the rural nonfarm sector is predicted to be not much different "without Project", with perhaps a slightly higher proportion completing high school for the "without" scenerio. Again this would result primarily from the situation in Canyon where the estimated "without" percentage completing high school is 19% (1940) to 5% (1960) greater than the "with" situation. Thus, the impact of the Project on the rural nonfarm population in Canyon County was apparently that of lowering educational levels slightly in the early years. This may be because farm employed and blue collar workers account for an estimated 65 to 84% of the new employees in Canyon rural nonfarm resulting from the Project and these groups typically have less education.

Formal Achievement

With Project. While median income for rural nonfarm residents has risen since 1950 it has consistently run about \$700 less per year than for the all-Project population. This has been true in Ada County where the rural nonfarm median income has run from \$2,471 in 1950 to \$9,205 in 1970. In Canyon, however, the rise has been somewhat less than in Ada, from \$2,291 to \$7,500, and somewhat less than all-county median except in 1960 when it is reported as \$6,898 for rural nonfarm, compared to \$4,596 for all-county. (Appendix Tables 14, 15 and 16).

Median income for rural nonfarm has generally been greater than for the farm sector with the exception of 1970 in Canyon County where the rural nonfarm was \$7,500 compared to \$8,300 for the farm sector.

The percent of the rural nonfarm labor force employed has been about the same as, or a little less than, the all-Project population for all years except 1940 when the percent reported was 75% compared to 84% for all-county. The same situation holds within each county with no great difference between counties, nor any great difference from the farm sectors.

Data for families under poverty level income was available only for 1970. In that year, 12% of the rural nonfarm families were so classified compared to 10% in the all-Project population and 8% of the farm families. In Ada County there was little difference between rural nonfarm, farm and all-county families under poverty level income--all running around 10%. In Canyon County the rural nonfarm poverty rate was 15% compared to 12% in the all-county and 7% in the farm sector.

Occupational prestige has varied over the period as the situation has varied by counties. Ada County rural nonfarm rated less than all-county in 1940-1960, about the same in 1970. Canyon County rural nonfarm has rated higher than all-county except in 1950 when the ratios are about the same. Canyon rural nonfarm occupational prestige has been consistently higher than that for Ada County rural nonfarm. All occupational prestige ratios are over 1.00 indicating a margin of the more prestigious jobs.

Housing

With Project. As with farm housing, data on rural nonfarm housing were available only for 1940 and 1970. Housing in the rural nonfarm Project area has generally been as good as in the all-Project area. Improvements since 1940 have been dramatic with an increase of 8% in owner-occupied units and 47% in units with all plumbing. (Appendix Tables 14, 15 and 16).

Ada County has experienced improvements of 11% in owner-occupied units and 56% in units with all plumbing while Canyon has experienced improvements of 12% and 24%. This results in a slightly higher percentage of Ada County rural nonfarm units owner-occupied than in the all-county area and the same percentage with all plumbing as the all-county area. Canyon rural nonfarm has somewhat fewer units owner-occupied and slightly fewer with all plumbing than is true of Canyon all-county.

Without Project. "Without Project", the percent of units owner-occupied (Project rural nonfarm) would likely be about the same as the "with Project" scenerio. Units with all plumbing probably would have been an estimated 39% in 1940, compared to an actual 49%. By 1970 there would be no difference between scenerios. (Appendix Tables 14, 15 and 16).

Ada County rural nonfarm housing was predicated to have experienced no change as a result of the Project. Canyon County rural nonfarm housing experienced no change in owner-occupied units but was estimated to have had a rate of 26% units with all plumbing in 1940 "without Project" compared to an actual rate of 70%. By 1970 there would be no difference.

Project Impact on Small Towns

The rural nonfarm population includes towns under 2,500 population as well as residences in open country with acreage too small to be considered farms. These towns in the Project area were Meridian and Kuna in Ada County and Parma, Wilder, Melba, Middleton and Notus in Canyon. There may be others not designated in the census. These towns represented around 15% of the rural nonfarm population in Ada County but 58 (1940) to 17% (1970) of the rural nonfarm population in Canyon.

From 1940-1970, three of these towns, Meridian, Middleton and Notus, have gained population at a rate greater than that for the counties and for the state. By 1970, Meridian had reached a population of 2,616 and could no longer be considered as rural nonfarm population. The remaining towns all grew less than county averages. A study by Hamilton (1971) indicates that of 29 towns in Idaho with populations 1,000 - 2,500, 11 gained population but 18 lost in the decade 1960-70. Total change for cities this size in Idaho was 10.8% increase. Two-thirds of those towns under 1,000 population declined in population for a total change of -1.1%.

Towns in the Project area over 1,000 population grew by an average of 13.9% (1960-1970) while those under 1,000 grew by 9.9%. Thus while the growth is distributed unevenly over these towns and three (Parma, Wilder and Notus) lost population in that decade, the average growth

rate for all towns in the Project area is better than over the state as a whole.

How much of this growth in town population was due to the impact of the Boise Project? If we assume the distribution of the rural non-farm population between towns and open country would be the same "without" as "with" Project, the Project can be seen as contributing 300-500 people per census year to small towns in Ada County, 800 to 2,000 in Canyon. In 1970 the contribution of the Project to Ada County towns was estimated at about 375, nearly 1/2 the growth in that decade. The contribution to Canyon County towns in 1970 was estimated at 789 which exceeded the growth for the decade by 600 people. Thus we can assume there would have been a decrease of 600 in small town population "without Project". A similar situation was predicted for other decades "without Project" with Ada County small towns increasing in population less than they did "with Project" and Canyon County towns actually losing considerable population "without Project".

No other census data were available for small towns.

Summary, Rural Nonfarm Sector

Summary, "With Project"

Rural nonfarm population increased over the period 1940-1970, in Canyon County more so than in Ada so that by 1970 rural nonfarm populations were nearly equal in the two counties at around 20,000 each.

Education in the rural nonfarm sector has been at a lower level than that of the Project total population in terms of both median years of school and percent completing high school. In Ada County the level of both median years and percent completing high school has been about the same as or better than that for the farm population. In Canyon County, however, there have been at several periods less median years of school and percent completing high school that was true for the farm population, which in turn was less than the all-county rates. By 1970 these differences were very small.

Median income for the rural nonfarm sector has been less than that for the all-Project population, but generally more than for farm population. Ada County rural nonfarm median income has been greater than that in Canyon County. Percent employed has been about the same for all sectors except in 1940 when apparently both rural nonfarm and farm suffered more unemployment than the all-Project population. Families under poverty level income outnumber those in other sectors in 1970, especially in Canyon County. Occupational prestige has been the same as or lower than all-county in Ada, the same as or higher than

all-county in Canyon. The largest proportion of rural nonfarm employed worked in Class III occupations, craftsmen, operatives and transport. Generally there were more employed in blue collar occupations and fewer in white collar occupations than for the all-Project populations.

Housing in the Project area rural nonfarm has been essentially the same as for the all-Project area. However, within each county, Ada County rural nonfarm had more owner-occupied units than all-county while Canyon rural nonfarm had less than all-county.

Impact of the Project, Rural Nonfarm

Impact of the Project on rural nonfarm population is estimated to have added 5,000 to 7,000 residents, with the largest impact in Canyon. Growth in population numbers has been greater than would have occurred "without Project".

The Project has had little impact on the educational level in the Ada County rural nonfarm sector but appears to have been somewhat detrimental to Canyon County rural nonfarm educational level in early years, both in terms of median years of school and percent completing high school.

The Project has added to the median income of rural nonfarm residents and generally has had no effect on percent employed. Until 1970, occupational prestige was lower than might have been the case "without Project" but still was above 1.00 indicating a balance of more prestigious jobs. There were more employed in Class V, farmers and farm labors than would likely have been true "without Project".

Rural nonfarm housing has improved as a result of the Project in terms of units with all plumbing. This is particularly true in Canyon County.

Small towns in the Project area have grown at greater than state rates for similar size towns; the Project apparently accounts for a portion of that growth. "Without Project" some of the small towns in Canyon County may actually have lost population.

IMPACT OF THE PROJECT ON URBAN AREAS

With the data assembled for all-county, farm and rural nonfarm it was possible to infer certain characteristics about the urban population of the area. In addition, some census data were available. (See Table 3, Appendix Table 3).

While urban populations would have continued to grow in number and in proportion to county populations "with" or "without" Project, our estimates suggest that "without Project" the proportion of the population with urban residence would be greater than actually occurred. "With Project" the percent urban ranged from 48% (1940) to 71% (1970); our "without" prediction ranges from 70% to 76%. Estimated effects are most noticeable in Canyon County. Thus the Project may be said to have contributed somewhat to slowing down the proportionate concentration of people in urban centers at the expense of the rural area. It is interesting to note that more than 1/3 of the population impact of the project occurred in urban areas but increased urban population only by 1/5 to a little over 1/20 as other forces became more operative in urban growth.

Ada County's urban population is almost entirely in the city of Boise with a small balance consisting of the urban fringe around Boise. Between 1960-1970 a large portion of this fringe was annexed, increasing Boise's population by 44,457. Canyon County's urban population is entirely located in Nampa, Caldwell and fringes. Small portions of these fringe areas have been annexed, accounting for about 155 population increase in 1960, 2,600 in 1970.

Census data on the three cities allows us to make some statements about the social indicator status of the urban area. Education levels were generally higher in urban areas than for the all-county populations, although by 1970 the difference was very small. One exception is the number enrolled in school: in Boise in 1950-60, the dropout rate of 14-17 year olds was somewhat higher than for Ada County; in 1970 Nampa experienced a higher dropout rate of this age group (15%) than did Canyon County (7%).

Median income for the urban areas has been higher than state median. Unemployment has been less in Boise than in Ada County as a whole, but Nampa and Caldwell experienced more unemployment than Canyon County as a whole until 1970. The proportion of families under poverty level was much higher for Boise in 1950 than in Ada County (32% to 18%). Other years it was about the same for either area. Nampa and Caldwell had more families under poverty level in 1950 than did Canyon County as a whole but somewhat fewer in 1960-1970.

The percentage of the population migrant in Nampa and Caldwell was somewhat over county rates in 1960-1970.

As would be expected, there was a greater proportion of nonfarming occupations than for the counties as a whole. However, in Class III, craftsmen, foremen and transport, there was a smaller percentage of city residents so employed than was true of the all-county populations.

It is generally assumed that most crime is committed within urban areas and that may be true of actual numbers--however, crime rates for Boise, Nampa and Caldwell were less than for the all-county area. Comparable arrest rates per 1,000 population are:

	<u>Boise</u>	<u>Ada</u>	<u>Nampa and Caldwell</u>	<u>Canyon</u>
Violent Crimes	.213	.509	.543	1.082
Property Crimes	1.360	2.286	1.571	1.902
Narcotics	1.147	1.304	.114	.213

We could also by inference from county, farm and nonfarm estimates "without Project", make a number of predictions about the urban situation in the "without Project" scenerio. However, in the absence of any major impact on any of the indicators which can be assigned to the Project, this exercise does not seem worthwhile for this particular study. The urban sector could, however, be a crucial aspect of the impact of a Project in future uses of the methodology.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The most significant apparent impact of the Project has been on population numbers, adding an estimated 38,000 to 22,000 residents over the period 1940-1970. While the increase in population has been spread fairly evenly over all sectors (farm, rural nonfarm and urban) the greatest proportional impact has been on the farm population. In spite of the Project, farm population has declined sharply over the period but not as much as would have occurred "without Project".

The Project has apparently had little impact on education, with levels rising over the time of the study but with little or none attributable to the Project. Income has been somewhat greater for all segments "with Project" and there has been little effect on percent employed. Fewer families were classed as under poverty level income than might be the case "without Project". Occupational prestige has generally experienced no change overall but has been somewhat less for rural nonfarm and farm. While there has been growth in numbers in all occupations the only major percent change is in Class V, farmers and farm laborers. As a result of the Project, there are more employed in Class V in the all-county populations and the rural nonfarm populations; however, a smaller percentage of the farm population was employed on-farm and a larger percentage was employed off-farm.

Housing for the whole area has been unaffected by the Project except for an improvement in quality in 1940. Farm housing was improved dramatically and rural nonfarm saw a substantial improvement also. Health was unaffected by the Project except for a predicted small increase in heart disease in 1940 and 1950. Our estimates indicated that the increased population associated with the Project has brought with it small increases in all types of crime, particularly violent crime. Accessibility was estimated to have been impacted slightly by the Project with the only substantial change being more miles of roads per square mile of area.

Improved water-based recreation directly related to Boise Project reservoirs appears to be the greatest social impact of the Project, particularly in outdoor recreation. Indoor recreation suffered somewhat as population grew faster than facilities, but the deficiency was more than compensated by the additional outdoor opportunities.

Conclusions

The apparent social impacts of the Project have not been major, with some positive benefits balanced out by some negative impacts. It should

be pointed out, however, that over the Project area the situation is generally good at present and rising trends have been experienced over the period 1940-1970. While the Project has apparently not contributed substantially to that situation, neither has it detracted from it. Thus, we have a situation of considerable economic change (according to the Economic Subproject Report, Long, 1977) with less social change. Either the social indicators we have chosen are not responsive to population changes or it requires a much larger increment of population change to produce social change than it does to produce economic change. It is also possible that much of the impact took place before 1950 but cannot be determined due to deficiencies in available data.

The results of this study cannot necessarily be generalized to all such projects. This particular area is so confounded by other factors that the impact of the Project is overwhelmed. We do feel our methodology could be used to measure other projects and could be adapted for forward projection.

We also feel that objective indicators used in this study may not accurately reflect the true impact of the Project; rather it may be necessary to use subjective measures as well to reach the real question of whether or not the quality of life has improved as a result of the Project.

One question to be answered by this study was "Have the criteria set forth in Principles and Standards been met? (See page 4 & 5 for discussion). We have accomplished a partial display of benefits and adverse effects, as far as data availability allows. This allows us to state that apparently the Project has met in a minimal way some of the criteria set out, such as an increase in regional income and a better balance of urban/rural population. Employment opportunities have increased but so has the population to match. Improved recreation is one of the major benefits of the Project. One statement from Principals and Standards need special comment:

These beneficial effects will occur when populations are stabilized or otherwise increased through in-migration resulting from the plan. (Water Resources Council, 1971).

We know of no studies which indicate this assumption is necessarily valid and the present study does little to add to the validity. Population changes per se cannot be assumed to automatically bring other benefits.

Recommendations

There are several suggestions we can make to improve the analyses of the impacts of public-funded projects:

1. In connection with each project, a long range monitoring process should be begun from the planning stage onward. This should include the gathering of essential data. While there is no way to know what elements

will be uppermost in citizen concern in the future, such efforts can be begun on the basis of present concerns.

2. Measurement should be conducted on other Projects in other areas to validate our procedures and perhaps to escape the confounding factors present in this study. Analyses of more recent Projects would avoid some of the problems with data availability for early years of the Project.

3. Future studies should include subjective measures as well as objective. This should particularly be a part of any monitoring process as described in (1). One cannot go back in time to ask questions of people no longer alive and those who have lived through the period may be unable to recall accurately what they felt at an earlier time.

4. We suggest the Principals and Standards be revised to be more concise and specific in those items considered to be social benefits. Those items labeled "social" should be clearly sociological phenomena and not merely a restatement of economic or environmental objectives. Such items should also be concepts that are measurable and should be comprehensive enough to cover the totality of "quality of life".

We also feel a definite accounting system should be set up with uniform criteria. A quantitative model adapted for computer would be desirable so that assessment can be made with probability statistics rather than the judgment of researchers. A scheme should also be developed for summarizing benefits and detriments and allowing trade-offs so that the overall situation can be measured.

FORMULATING A SOCIAL QUALITY INDEX

The difficulty in sorting out the impacts of the Project in the preceding discussion points up the need for some type of summarizing device. We had originally planned to develop a Social Quality Index for all areas and periods "with" and "without" Project as an efficient means of making a quantitative assessment of the impact of the Project. The scarcity of data and lack of parallel data have forced us to cancel most of that aspect of our study. However, we do wish to present the methodology and an example for possible future use.

The concept of a Social Quality Index consists of an aggregation of category indices (education, housing, etc.). Since categories have been shown in a number of studies to not be of equal importance to "quality of life", a weight was developed to be applied to each category index. Weights were originally taken from a study by Weiner (1973) (see page 8) but were adjusted with Idaho data from a study by Carlson (1974). We felt that weights so developed were more relevant to this specific project.

In the Carlson study, residents over a statewide sample were asked to rank from one to four the items of highest priority in terms of the welfare of the people of the state. These items were education, national defense, space exploration, wise use of natural resources, health and welfare programs, pollution control, crime prevention and control, energy development, transportation and others. Residents were also asked to rank the same items from one to four in terms of their lowest priority. A number of items were thus left unranked by each respondent.

Using the above data, our method was to use the means for the relevant items from the high priority rankings. Then since that mean was computed on the basis of high priority rankings only, an "interest" factor was introduced which was a function of the number of times the item was ranked high rather than being given a low rank or not ranked at all. A general "importance" score was computed by multiplying the ranking mean by the interest score. This resulted in a weighted score based on consideration of both the average high priority rank and the number of people ranking the item. After "importance" was calculated for each item, the scores were standardized by dividing other scores by the education score, thus setting education at 1.000 as Weiner had done. Categories were chosen which resemble, if not parallel, the study done by Weiner. Recreation per se was not a part of the priority rankings, but there were three items under natural resources which relate to recreation, specifically "develop campgrounds," "forests for recreation," and "lakes for recreation." We combined these three items and averaged to arrive at a mean for recreation.

	<u>Mean</u>	<u>Interest</u>	<u>Importance</u>	<u>(Weight)</u>
Education	3.22	.779	2.51	1.000
Health	2.20	.327	.719	.286
Crime (Law Enforcement)	2.09	.466	.974	.388
Transportation (Accessibility)	1.82	.288	.524	.209
Recreation	2.19	.154	.337	.134

Since we have no data on formal achievement or housing, we have used the weights derived by Weiner, .438 and .442 respectively.

Weighted category indices were then combined to form an overall Index of Social Quality for each county and for the Project area, "with" and "without" Project. Data were available to do this only for 1970.

Application of this procedure produces the results in Table 6. From this it appears that the impact of the Project by 1970 was apparently minimal. Such as it was, the impact was greater in Ada than in Canyon County. The impact possibly was much greater in early years and may have been greater for farm and rural nonfarm sectors for which no indices could be constructed.

Table 6. The Weighted Social Quality Index, Boise Project Area, Ada and Canyon Counties, With and Without Project, 1970.

Weights	Indicator	<u>With Project</u>			<u>Without Project</u>		
		Ada	Canyon	Project	Ada	Canyon	Project
1.000	Education	.895	.823	.863	.889	.829	.869
.438	Formal Achievement	.478	.426	.446	.467	.427	.460
.442	Housing	.231	.222	.225	.230	.224	.228
.286	Health	-.021	-.023	-.022	-.021	-.024	-.022
.388	Law Enforcement	-.371	-.292	-.343	-.358	-.254	-.325
.209	Accessibility	.072	.135	.093	.069	.123	.088
.134	Recreation	.504	.363	.454	.094	.166	.177
Social Quality Index		1.788	1.655	1.716	1.379	1.491	1.415
÷ by number of Categories (7)		.255	.236	.245	.197	.213	.202
Impact of the Project in Index Points		.058	.023	.043			

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Appendix Table 1. Comparison of Data From Project Counties "With Project" and Data From Control Counties.

	Years	Ada With Project	Cassia	Canyon With Project	Gooding
Total Population	1940	50,401	14,430	40,987	9,257
	1950	70,649	14,629	53,597	11,101
	1960	93,146	16,121	57,662	9,544
	1970	112,230	17,017	61,288	8,645
Farm Population	1940	11,356	7,072	17,143	4,968
	1950	9,236	6,009	17,270	4,279
	1960	7,065	5,230	13,682	3,764
	1970	4,275	4,444	8,271	2,940
Farm Population as Percent of Total Population	1940	23%	49%	42%	54%
	1950	13%	41%	32%	39%
	1960	8%	32%	24%	39%
	1970	4%	26%	14%	34%
Farm Population as Percent of Total Rural Population	1940	47%	78%	80%	74%
	1950	41%	69%	64%	53%
	1960	25%	61%	50%	55%
	1970	17%	50%	31%	49%
Ratio Nonfarm Population to Farm Population (1.00)	1940	3.44	1.04	1.39	.85
	1950	6.65	1.44	2.10	.99
	1960	12.23	2.08	3.21	1.53
	1970	25.25	2.83	6.40	1.94
Average Persons Per Farm	1940	4.22	5.46	4.72	4.94
	1950	3.69	4.82	4.33	4.02
	1960	3.49	4.58	4.03	4.13
	1970	2.56	4.93	2.96	3.97
Average Irrigated Acres Per Farm	1940	46	75	41	70
	1950	48	87	43	81
	1960	62	105	52	103
	1970	78	211	62	108
Acres Available for Irrigation	1940	102,304	49,451	172,196	60,439
	1950	103,462	74,568	196,901	91,138
	1960	105,070	78,300	224,798	95,700
	1970	98,581	76,386	234,475	93,360

*Source: Nelson and Warnick, 1976: Appendix

Appendix Table 2. Population, Boise Project Area, "With" and "Without" Project.

	Year	With Project			State ¹	Estimated Without Project		
		Ada ¹	Canyon ¹	Project		Ada	Canyon	Project
Population	1910	29,088	*25,232	54,320	325,594			
	1920	35,213	26,932	62,145	431,866			
	1930	37,925	30,930	68,855	445,032			
	1940	50,401	40,987	91,388	524,873	35,505	17,281	52,786
	1950	70,649	53,597	124,246	588,637	59,125	21,839	80,963
	1960	93,146	57,662	150,808	667,191	82,979	33,497	116,476
	1970	112,230	61,288	173,518	712,567	103,340	48,090	151,430
Farm Population	1910	**6,980	**14,570	**21,550				
	1920	**8,209	**10,551	**18,760				
	1930	9,731	14,707	24,438				
	1940	11,356	17,143	28,499	200,016	4,054	4,398	8,952
	1950	9,236	17,270	26,506	164,960	4,493	5,008	9,501
	1960	7,065	13,682	20,746	132,771	3,661	4,168	7,829
	1970	4,275	8,271	12,546	93,708	1,954	3,782	5,736

*Includes an area later in Payette County

**Estimated as a % of rural population (Ada 52.9%, Canyon 82.9%).

1. Source - U.S. Census of Population Idaho

Appendix Table 3. Estimated Impact of Boise Project on Population and on Farm Population

	Year	Ada		Canyon		Project	
		Impact of Project	% of Actual Population	Impact of Project	% of Actual Population	Impact of Project	% of Actual Population
Population	1940	14,896	29.6	23,706	57.8	38,602	43.2
	1950	11,525	16.3	31,758	59.3	43,283	34.8
	1960	10,481	11.2	24,165	41.9	34,646	22.9
	1970	8,890	7.9	13,198	21.4	22,088	12.7
Farm Population	1940	7,302	64.3	12,745	74.3	20,047	70.3
	1950	4,743	51.4	12,262	71.0	17,005	64.2
	1960	3,403	48.2	9,514	69.5	12,917	62.3
	1970	2,321	54.3	4,489	54.3	6,810	54.3

Appendix Table 4. Population Distribution, Boise Project Area, "With" and "Without" Project.

	Year	With Project			State	Estimated Without Project		
		Ada	Canyon	Project		Ada	Canyon	Project
% Urban	1940	48	47	48	34	58	65	70
	1950	68	50	60	43	72	64	70
	1960	70	52	63	48	73	72	73
	1970	78	57	71	54	81	64	76
% Farm	1940	23	42	31	38	11	25	16
	1950	13	32	21	28	8	23	12
	1960	8	24	14	20	4	12	7
	1970	4	14	7	13	2	8	4
% Rural Nonfarm	1940	26	11	19	28	30	7	23
	1950	19	18	18	29	19	13	17
	1960	22	24	23	32	22	15	20
	1970	18	29	22	33	17	28	21
% Total Rural	1940	52	53	50	66	42	32	39
	1950	42	50	40	57	26	36	29
	1960	30	48	37	52	27	28	27
	1970	22	43	29	46	19	36	24

Appendix Table 5. Education, Boise Project, "With" and "Without" Project

Indicators	Value	Year	With Project			State ¹	Estimated Without Project		
			Ada ¹	Canyon ¹	Project		Ada	Canyon	Project
Median Years of School Completed	+	1940	10.3	9.1	9.8	8.9	10.1	9.3	9.82
		1950	12.0	10.3	11.3	10.6	10.4	10.4	10.36
		1960	12.2	10.8	11.7	11.8	12.1	10.9	11.79
		1970	12.5	12.1	12.1	12.3	12.5	12.1	12.35
(1) Ratio: Median Years of School Base: 12 Years School	+	1940	.858	.758	.817	.742	.841	.772	.818
		1950	1.000	.858	.942	.883	.862	.868	.864
		1960	1.017	.900	.975	.983	1.012	.909	.982
		1970	1.042	1.008	1.008	1.025	1.040	1.005	1.029
(2) Ratio: Over Age 25 Completing 4+ Years High School Base: Population over age 25	+	1940	.391	.295	.350	.301	.374	.306	.353
		1950	.495	.386	.449	.399	.476	.395	.456
		1960	.572	.418	.513	.485	.561	.424	.521
		1970	.695	.534	.638	.587	.684	.535	.634
(3) Ratio: Age 14-17 Enrolled in School Base: Pop. Age 14-17	+	1940	.877	.828	.853	.858	.875	.853	.867
		1950	.901	.862	.882	.885	.907	.879	.898
		1960	.974	.919	.951	.931	.970	.936	.959
		1970	.949	.928	.942	.957	.944	.946	.945
Education Index Based on (1), (2), and (3)		1940	.709	.627	.673	.634	.697	.644	.679
		1950	.799	.702	.758	.722	.748	.714	.739
		1960	.854	.746	.813	.800	.848	.756	.821
		1970	.895	.883	.863	.856	.889	.829	.869

1. Source: U.S. Census of Population

Appendix Table 6. Formal Achievement, Boise Project, "With" and "Without" Project

Indicator	Value	Year	With Project			State	Estimated Without Project		
			Ada	Canyon	Project		Ada	Canyon	Project
Median Family Income-Dollars		1940	-	-	-	-	-	-	-
		1950	3,250	2,768	3,042	3,046	3,126	2,640	2,994
		1960	5,868	4,596	5,383	5,259	5,755	4,488	5,390
		1970	9,708	7,786	9,029	8,381	9,695	7,940	9,138
(1)									
Ratio: Median Family Income	+	1940	-	-	-	-	-	-	-
		1950	1.067	.909	.999	1.000	1.026	.867	.983
Base: State Median Family Income		1960	1.116	.874	1.024	1.000	1.094	.853	1.025
		1970	1.158	.929	1.077	1.000	1.157	.947	1.090
(2)									
Ratio: Employed	+	1940	.848	.827	.839	.829	.852	.861	.855
Base: Labor Force		1950	.953	.934	.942	.944	.957	.951	.956
		1960	.947	.947	.947	.927	.952	.958	.954
		1970	.957	.952	.955	.912	.958	.964	.960
(3)									
Ratio: Families Under Poverty Level	-	1940	-	-	-	-	-	-	-
		1950	.184	.299	.226	.258	.201	.312	.226
Base: # Families		1960	.162	.277	.206	.208	.167	.288	.202
		1970	.086	.123	.099	.109	.090	.137	.105
(4)									
Occupational Prestige	+								
(a) Ratio: White Collar to Blue Collar		1940	1.357	.845	1.144	.818	1.294	.974	1.162
		1950	1.291	.810	1.101	.805	1.241	.415	1.066
		1960	1.254	.957	1.152	.863	1.186	1.057	1.147
		1970	1.431	.819	1.194	.895	1.382	.829	1.187
(b) Ratio: High White Collar to Low White Collar		1940	.831	1.291	.951	1.413	.891	1.426	.995
		1950	.935	.942	.937	1.147	.961	1.194	1.000
		1960	.996	1.049	1.011	1.198	1.008	1.137	1.037
		1970	1.017	1.071	1.031	1.335	1.019	1.128	1.045
(c) Ratio: High Blue Collar to Low Blue Collar		1940	1.511	1.492	1.503	1.410	1.477	1.420	1.459
		1950	1.613	1.808	1.687	1.592	1.554	1.492	1.535
		1960	1.411	1.878	1.570	1.608	1.450	1.688	1.518
		1970	1.292	1.605	1.404	1.433	1.320	1.497	1.379
Occupational Prestige Index		1940	1.233	1.209	1.199	1.214	1.221	1.240	1.205
		1950	1.280	1.187	1.242	1.181	1.252	1.034	1.200
Based on (4a) (4b) and (4c)		1960	1.220	1.295	1.245	1.223	1.215	1.294	1.234
		1970	1.247	1.165	1.210	1.221	1.240	1.151	1.204
Formal Achievement Index. Based on (1), (2), (3) and (4)		1940	-	-	-	-	-	-	-
		1950	1.039	.910	.996	.956	1.011	.847	.967
		1960	1.040	.946	1.010	.981	1.031	.939	1.006
		1970	1.092	.974	1.049	1.008	1.088	.975	1.050

Appendix Table 7. Housing and Neighborhood, Boise Project Area, "With" and "Without" Project

Indicator	Value	Year	With Project				Estimated Without Project		
			Ada ¹	Canyon ¹	Project	State ¹	Ada	Canyon	Project
(1)									
Ratio: Median Rent	-	1940	-	-	-	-	-	-	-
Base: Median Family Income		1950	.177	.190	.183	.142	.172	.171	.172
		1960	.139	.151	.146	.148	.141	.156	.145
		1970	.105	.103	.119	.100	.104	.097	.102
(2)									
Ratio: Owner-Occupied Units	+	1940	.540	.550	.544	.537	.541	.529	.537
Base: # Units		1950	.629	.621	.625	.655	.616	.589	.618
		1960	.677	.626	.658	.612	.666	.623	.654
		1970	.687	.639	.670	.701	.684	.646	.672
(3)									
Ratio: Migrant	+	1960	.288	.243		.252			
Base: Population		1970	.239	.214		.242			
(4)									
Ratio: Housing Units + With All Plumbing		1940	.529	.399	.473	.364	.480	.310	.425
Base: # Units		1950	.778	.643	.722	.616	.740	.588	.706
		1960	.809	.708	.771	.726	.795	.697	.767
		1970	.985	.970	.980	.968	.983	.970	.979
Housing Index Based on (1), (2) and (4)		1940	-	-	-	-	-	-	-
		1950	.410	.358	.388	.376	.395	.335	.381
		1960	.449	.394	.428	.396	.440	.388	.425
		1970	.522	.502	.510	.523	.521	.506	.516

1. Source: U.S. Census of Housing and U.S. Census of Population.

Appendix Table 8. Health, Physical and Mental, and Safety, Boise Project Area, "With" and "Without" Project

Indicator	Value	Year	Ada ¹	Canyon ¹	Project	State	Ada	Canyon	Project
(1)									
Ratio: Infant Mortality	-	1940	-	-	-	.04	-	-	-
Base: Live Births		1950	.02	.02	.02	.03	.02	.01	.02
		1960	.02	.03	.03	.02	.02	.03	.02
		1970	.02	.02	.02	.02	.02	.02	.02
(2)									
Ratio: Total Deaths	-	1940	.01	.01	.01	.01	.01	.01	.01
Base: Population		1950	.01	.01	.01	.01	.01	.01	.01
		1960	.01	.01	.01	.01	.01	.01	.01
		1970	.01	.01	.01	.01	.01	.01	.01
(3)									
Ratio: Deaths, Selected Respiratory Disease	-	1940	-	-	-	.09	-	-	-
Base: Total Deaths		1950	.04	.03	.03	.04	.04	.04	.04
		1960	.03	.04	.04	.02	.03	.04	.03
		1970	.03	.03	.03	.04	.03	.04	.03
(4)									
Ratio: Deaths, Heart Disease	-	1940	.30	.27	.29	.15	.21	.18	.26
Base: Total Deaths		1950	.36	.37	.36	.34	.31	.35	.32
		1960	.37	.37	.37	.37	.36	.38	.37
		1970	.33	.36	.34	.36	.34	.38	.35
(5)									
Ratio: Accidents - Other than Motor Vehicle	-	1940	.05	.08	.06	.07	.04	.07	.05
Base: Total Deaths		1950	.05	.05	.05	.06	.04	.02	.04
		1960	.06	.04	.05	.03	.06	.04	.05
		1970	.03	.06	.04	.05	.03	.05	.04
(6)									
Ratio: Suicides	-	1940	.03	.03	.03	.02	.03	.01	.02
Base: Total Deaths		1950	.01	.02	.01	.01	.01	.01	.01
		1960	.02	.01	.01	.01	.02	.01	.02
		1970	.02	.01	.02	.02	.02	.01	.02
Health Index Based on (1), (2), (3), (4), (5) and (6)									
	-	1940	-	-	-	-	-	-	-
		1950	-.082	-.083	-.082	-.083	-.072	-.073	-.073
		1960	-.087	-.083	-.085	-.077	-.083	-.083	-.083
		1970	-.073	-.082	-.077	-.083	-.075	-.085	-.078

1. Source. Vital Statistics, Mortality.

Appendix Table 9. Law Enforcement, Boise Project Area, "With" and "Without" Project

Indicator	Value	Year	With Project			State ¹	Estimated Without Project		
			Ada ¹	Canyon ¹	Project		Ada	Canyon	Project
(1) Ratio: # Violent Crimes Base: 1,000 Popu- lation	-	1969	.51	1.08	.71	.35	.49	.85	.60
(2) Ratio: # Property Crimes Base: 1,000 Popu- lation	-	1969	2.29	1.90	2.15	.60	2.27	1.79	2.12
(3) Ratio: Narcotics and Drugs Base: 1,000 Popu- lation	-	1969	1.30	.21	.92	.40	1.21	.16	.88
(4) Ratio: Arrests Base: Crimes Reported	+	1969	.28	.18	.25	.25	.28	.18	.25
Law Enforcement Index Based on (1), (2), (3) and (4)	-		-.955	-.753	-.883	-.275	-.923	-.655	-.838

1. Source: Law Enforcement Planning Commission, Inventory of City and County Police Agencies.

Appendix Table 10. Accessibility, Boise Project Area, "With" and "Without" Project

Indicator	Value	Year	With Project			State	Estimated Without Project		
			Ada	Canyon	Project		Ada	Canyon	Project
(1) Ratio: Miles - State ¹ Supported Roads Base: Sq. Miles	+	1960	.11	.22	.15	.06	.10	.19	.14
		1970	-	-	-	.06	-	-	-
(2) Ratio: Miles - Fed. ¹ Supported Roads Base: Sq. Miles	+	1960	.11	.39	.21	.25	.11	.32	.19
		1970	.12	.45	.23	.25	.11	.38	.21
(3) Ratio: Miles - All ¹ Roads and Streets Base: Sq. Miles	+	1960	-	-	-	-	-	-	-
		1970	.77	1.90	1.17	.66	.73	1.54	1.02
(4) Ratio: Units of ² Public Carriers Base: 1,000 Pop.	+	1950	.85	.62	.75	.89	.75	.51	.68
		1960	.76	.78	.77	.84	.71	.78	.73
		1970	.70	.67	.69	.84	.68	.81	.72
(5) Ratio: Deaths from ³ Motor Vehicle Accidents Base: Miles All Roads	-	1960	.03	.03	.03	.002	.03	.02	.02
		1970	.03	.02	.02	.003	.03	.02	.02
Accessibility Index		1970	.346	.644	.444	.360	.330	.588	.422

Sources: 1. Highway Statistics, Department of Transportation, Idaho.
 2. County Business Patterns
 3. Vital Statistics, Mortality.

Appendix Table 11. Recreation, Boise Project Area, "With" and "Without" Project.

Indicator	Year	With Project			State	Estimated Without Project		
		Ada	Canyon	Project		Ada	Canyon	Project
(1) Ratio: Indoor ¹ . Recreation Units Base: 1,000's Population	1950	.311	-	.177	.314	.394	.677	.309
	1960	.246	.174	.218	.307	.277	.524	.301
	1970	.285	.163	.248	.285	.295	.416	.330
(2) Ratio: Outdoor ² . Recreation Acres, Land and Water Base: 1/10 acre per Person	1970	2.07	4.21	2.83	*20.23	1.82	3.29	2.29
(3) Ratio: Visitor ³ . Days - Specific to Project Base: 1,000's Population	1970	11.15	4.68	8.86	2.45	-	-	-
(3a) Ratio: Visitor Days - Specific to Project, Local Use Base: 1,000's Population	1970	8.92	3.75	7.09	-	-	-	-
Recreation Index Based on (1), (2) and (3a)	1970	3.76	2.71	3.39	-	.705	1.24	.873

* Includes Forest Service Lands.

- Source: 1. County Business Patterns, U.S. Census
 2. Idaho Outdoor Recreation - Idaho Department of Parks and Recreation.
 3. Land and Water Resource Accomplishments, Bureau of Rec.

Appendix Table 12. Race and Spanish Language, Boise Project Area, "With" and "Without" Project

	Year	With Project			State	Estimated Without Project		
		Ada ¹	Canyon ¹	Project		Ada	Canyon	Project
% Nonwhite Race	1940	.5%	.5%		1.0%	.4%	.4%	
Base: Population	1950	.9%	1.0%		1.3%	.9%	.5%	
	1960	.7%	1.6%		1.5%	.7%	1.1%	
	1970	1.0%	1.7%		1.9%	1.0%	1.4%	
<u>Spanish Language</u>								
% of Population	1970	1.5%	6.3%	3.2%		2.0%	6.8%	3.5%
% New to County in 5 years	1970	57%	65%	62%				
% 14-17 in School	1970	77%	72%	74%		77%	71%	74%
% Completing High School+	1970	58%	23%	36%		44%	19%	30%
Median Years School	1970	12.25	6.9	8.5		11.4	7.0	7.3
% Employed/Labor Force	1970	92%	95%	91%		96%	92%	94%
Median Income	1970	\$8,266	\$5,517	\$6,355		\$8,090	\$5,592	\$6,560
% Med. Income/State Median	1970	99%	66%	76%		97%	67%	78%
% Families Under Poverty Level	1970	13%	36%	28%		19%	37%	29%
% Employed, Class I	1970	17%	10%	7%		14%	9%	12%
Class II	1970	25%	8%	14%		20%	7%	14%
Class III	1970	21%	34%	29%		27%	36%	34%
Class IV	1970	27%	19%	22%		25%	19%	23%
Class V	1970	10%	30%	22%		14%	29%	24%

1. Source: U.S. Census of Population

Appendix Table 13. Average Size Farm and Number of Farms, Boise Project Area, "With" and "Without" Project.

	Year	With Project			State	Estimated Without Project		
		Ada	Canyon	Project		Ada	Canyon	Project
# Irrigated Farms	1940	2,689	3,631	6,320	29,898	659	863	1,522
	1950	2,405	3,873	6,278	29,413	857	1,125	1,982
	1960	2,023	3,312	5,335	25,383	746	929	1,675
	1970	1,601	2,673	4,274	16,758	362	864	1,226
Ave. Irrigated Acres Per Farm	1940	46	41	43	63	75	70	72
	1950	48	43	45	73	87	81	84
	1960	62	52	56	102	105	103	104
	1970	78	62	88	158	211	108	138

1. Sources: U.S. Census of Agriculture and County-City Data Book.

Appendix Table 14. Social Indicators, Boise Project Area, "With" and "Without" Project, All-County, Farm, and Rural Nonfarm.

Indicator	Year	With Project			Estimated Without Project		
		All-County	Farm	Rural Nonfarm	All-County	Farm	Rural Nonfarm
Education:							
Median Yrs. School (Years)	1940	9.8	8.6	9.3	9.8	8.9	9.5
	1950	11.3	9.9	9.8	10.4	10.3	10.5
	1960	11.7	11.2	11.1	11.8	11.0	11.4
	1970	12.1	12.2	12.2	12.4	12.2	12.0
% Completing High School	1940	35	23	29	35	26	33
	1950	45	36	36	46	36	40
	1960	51	44	42	52	46	46
	1970	64	58	57	63	59	56
Median Family Income	1950	\$3,042		\$2,305	\$2,994		\$2,306
	1960	5,383	\$4,080	6,023	5,390	\$4,213	5,357
	1970	9,029	8,357	8,403	9,138	7,098	8,225
% Labor Force Employed	1940	84	74	75	86	94	78
	1950	94	98	93	96	99	96
	1960	94	98	95	95	98	95
	1970	96	98	97	96	98	96
% Families Under Poverty	1960	21	34		20		
	1970	10	8	12	11	19	
Occupational Prestige:							
(a) Ratio: White Collar to Blue Collar	1940	1.144	.434	.826	1.162	.648	.793
	1950	1.101	.765	.698	1.066	.842	.701
	1960	1.152	.661	.743	1.147	.585	.748
	1970	1.194	.966	.906	1.187	1.016	.913
(b) Ratio: High White Collar to Low White Collar	1940	.951	2.076	1.177	.995	1.635	1.324
	1950	.937	.840	.990	1.000	.948	1.183
	1960	1.011	.905	1.085	1.037	1.111	1.115
	1970	1.031	1.220	1.227	1.045	1.262	1.175
(c) Ratio: High Blue Collar to Low Blue Collar	1940	1.503	1.069	1.558	1.459	1.776	1.628
	1950	1.687	1.841	1.766	1.535	1.128	1.819
	1960	1.570	2.464	1.818	1.518	1.329	1.673
	1970	1.404	1.260	1.958	1.379	.983	1.791
Occupational Prestige Index Based on (4a), (4b) and (4c)	1940	1.199	1.193	1.187	1.205	1.353	1.248
	1950	1.242	1.149	1.151	1.200	.973	1.234
	1960	1.245	1.343	1.215	1.234	1.008	1.179
	1970	1.210	1.149	1.367	1.204	1.087	1.293
Housing:							
% Owner-Occupied Units	1940	54	59	59	54	54	60
	1950	67	82	67	67	76	66
	1960	67	82	67	67	76	66
	1970	67	82	67	67	76	66
% Units With Plumbing	1940	47	52	49	42	12	39
	1970	98	98	96	98	97	96

Appendix Table 15. Social Indicators, Ada County, "With" and "Without" Project, All-County, Farm and Nonfarm

Indicator	Year	With Project			Estimated Without Project		
		All-County	Farm	Rural Nonfarm	All-County	Farm	Rural Nonfarm
<u>Education:</u>	1940	10.3	8.6	9.5	10.1	8.9	9.5
Median	1950	12.0	9.9	10.5	10.4	10.7	10.5
Years	1960	12.2	11.5	11.7	12.1	11.8	11.7
School	1970	12.5	12.3	12.3	12.5	12.3	12.0
<u>% Completing</u>	1940	39	23	34	37	24	32
High School	1950	50	35	39	48	39	39
	1960	57	46	49	56	49	49
	1970	70	60	62	68	62	62
<u>Formal Achievement</u>	1940						
Median	1950	\$3,250		\$2,471	\$3,126		\$2,315
Family Income	1960	5,868	\$4,325	5,444	5,755	\$5,018	5,277
	1970	9,708	8,476	9,205	9,695	8,388	8,992
<u>% Labor</u>	1940	85	74	76	85	93	78
Force Employed	1950	95	98	94	96	99	97
	1960	95	98	96	95	98	95
	1970	96	98	96	96	99	97
<u>% Families Under</u>	1940	18			20		
Poverty	1960	16	33		17		
	1970	9	10	10	9	15	
<u>Occupational Prestige</u>							
(a) Ratio: White	1940	1.357	.518	.781	1.294	.568	.792
Collar to Blue	1950	1.291	.827	.705	1.241	.886	.702
Collar	1960	1.254	.517	.785	1.186	.505	.774
	1970	1.431	.962	1.098	1.382	1.041	1.064
(b) Ratio: High	1940	.831	1.848	1.122	.891	1.840	1.241
White Collar to	1950	.935	.662	.953	.961	.758	1.077
Low White Collar	1960	.996	1.662	1.056	1.008	1.238	1.057
	1970	1.017	1.321	1.238	1.019	1.147	1.234
(c) Ratio: High	1940	1.511	1.495	1.658	1.477	2.289	1.640
Blue Collar to	1950	1.613	1.863	1.731	1.554	1.196	1.890
Low Blue Collar	1960	1.411	1.592	1.623	1.450	2.282	1.619
	1970	1.292	1.867	1.542	1.320	2.322	1.575
<u>Occupational Prestige</u>	1940	1.233	1.233	1.187	1.221	1.566	1.224
Index	1950	1.280	1.280	1.130	1.252	1.242	1.223
Based on (4a), (4b)	1960	1.220	1.220	1.148	1.215	1.342	1.150
and (4c)	1970	1.247	1.247	1.293	1.240	1.503	1.291
<u>Housing:</u>	1940	54	61	62		58	61
% Units Owner-Occupied	1970	69	89	73		77	71
<u>% Units with All</u>	1940	53	25	42		13	41
Plumbing	1970	99	97	98		98	97

Appendix Table 16. Social Indicators, Canyon County, "With" and "Without" Project, All-County, Farm and Rural Nonfarm.

Indicators	Years	With Project			Estimated Without Project		
		All-County	Farm	Rural Nonfarm	All-County	Farm	Rural Nonfarm
Education:	1940	9.1	8.6	8.8	9.3	8.8	9.3
Median Years	1950	10.3	9.9	9.0	10.4	9.9	10.4
School (Years)	1960	10.8	11.0	10.2	10.9	11.2	10.5
	1970	12.1	12.2	12.0	12.1	12.2	12.0
% Completing High School +	1940	30	23	15	31	27	34
	1950	39	36	32	40	34	38
	1960	42	43	32	42	44	37
	1970	53	56	51	54	57	49
Formal Achievement:	1940						
Median Family Income	1950	2,768		2,291	2,640		2,269
	1960	4,496	3,950	6,898	4,488	3,505	5,647
	1970	7,786	8,300	7,500	7,940	6,431	7,134
% Labor Force Employed	1940	83	74	72	86	95	83
	1950	93	97	91	95	99	94
	1960	95	98	95	96	99	96
	1970	95	98	93	96	98	94
% Families Under Poverty	1950	30			31		
	1960	28	34		29		
	1970	12	7	15	14	21	
Occupational Prestige							
(a) Ratio: White Collar to Blue Collar	1940	.845	.367	.840	.974	.767	.750
	1950	.810	.717	.684	.415	.804	.697
	1960	.957	.764	.665	1.057	.666	.651
	1970	.819	.971	.702	.829	1.208	.737
(b) Ratio: High White Collar to Low White Collar	1940	1.291	2.379	2.131	1.426	1.444	2.828
	1950	.942	1.032	1.063	1.194	1.170	1.883
	1960	1.049	.952	1.200	1.137	1.022	1.413
	1970	1.071	1.160	1.210	1.128	1.343	1.082
(c) Ratio: High Blue Collar to Low Blue Collar	1940	1.492	.829	1.241	1.420	1.263	1.691
	1950	1.808	1.824	1.835	1.492	1.072	1.521
	1960	1.878	3.551	2.273	1.688	.792	1.892
	1970	1.605	.987	2.583	1.497	.521	2.095
Occupational Prestige Index	1940	1.201	1.192	1.404	1.240	1.058	1.756
	1950	1.187	1.191	1.194	1.034	1.015	1.367
Based on (4a), (4b) and	1960	1.295	1.756	1.379	1.294	.827	1.319
	1970	1.165	1.039	1.498	1.151	1.024	1.305
Housing:							
Units Owner-Occupied	1940	54	59	49		50	49
	1970	67	78	61		76	61
Units With All Plumbing	1940	47	70	70		11	26
	1970	98	98	94		96	95