

APPENDIX 10

SOCIOECONOMICS MANAGEMENT

CONTENTS:

Supporting Graphs and Analysis for Chapter 3

1990 Economic Values

Estimated Costs for Rangeland Improvement Projects

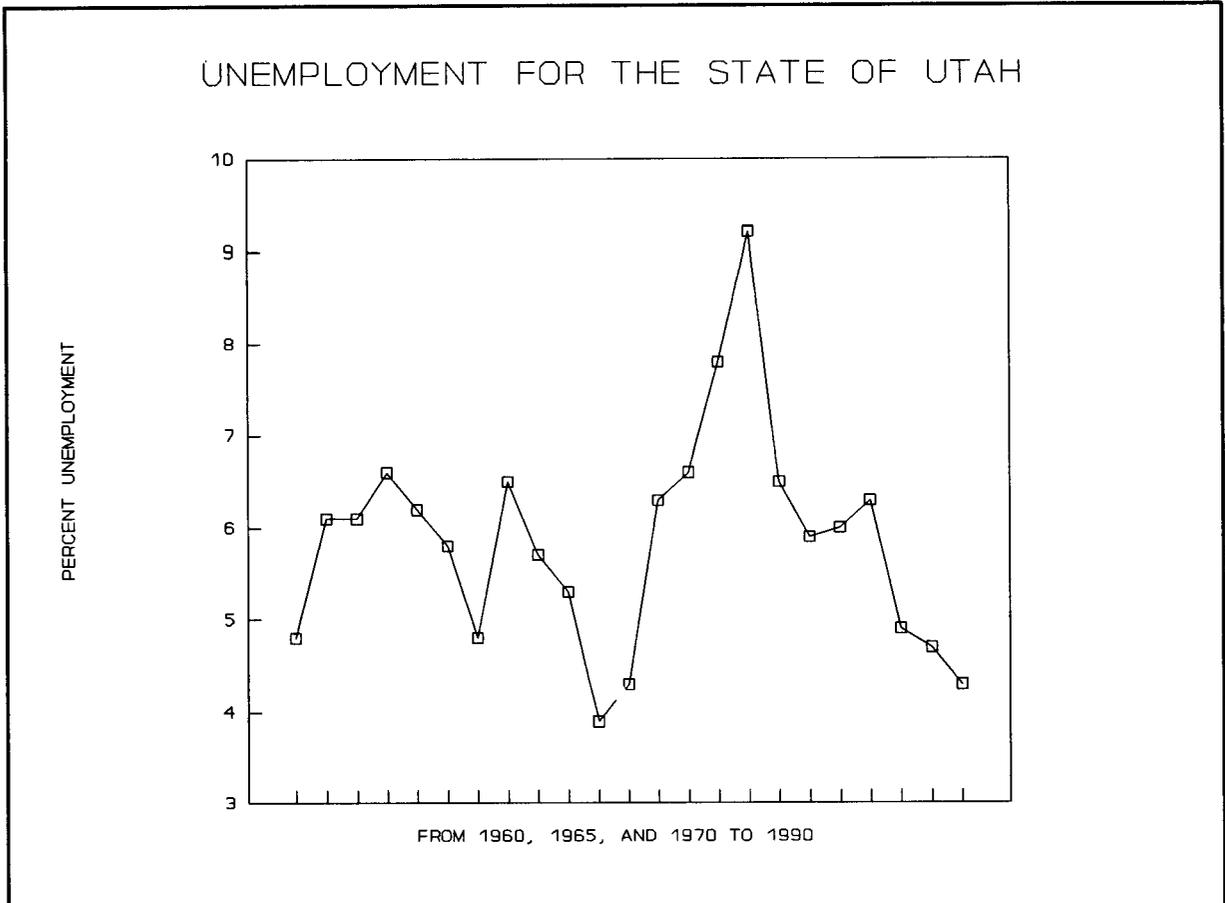


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The following set of graphs is based on data from the State of Utah's Office of Planning and Budget. The period of time covered in the socioeconomic analysis is 1960 through 1990. Such information provides sufficient data to establish trends and outline reasonable forecasts. The order of presentation of these graphs follows the order of presentation in the socioeconomics section of Chapter 3.

Please note, any dollar figures for a given year are most meaningful for that year only; they have not been adjusted for inflation. Therefore, dollar amounts between various years are not wholly comparable. However, when a number of other parameters for each year in question are used in association, the analysis becomes more valuable.

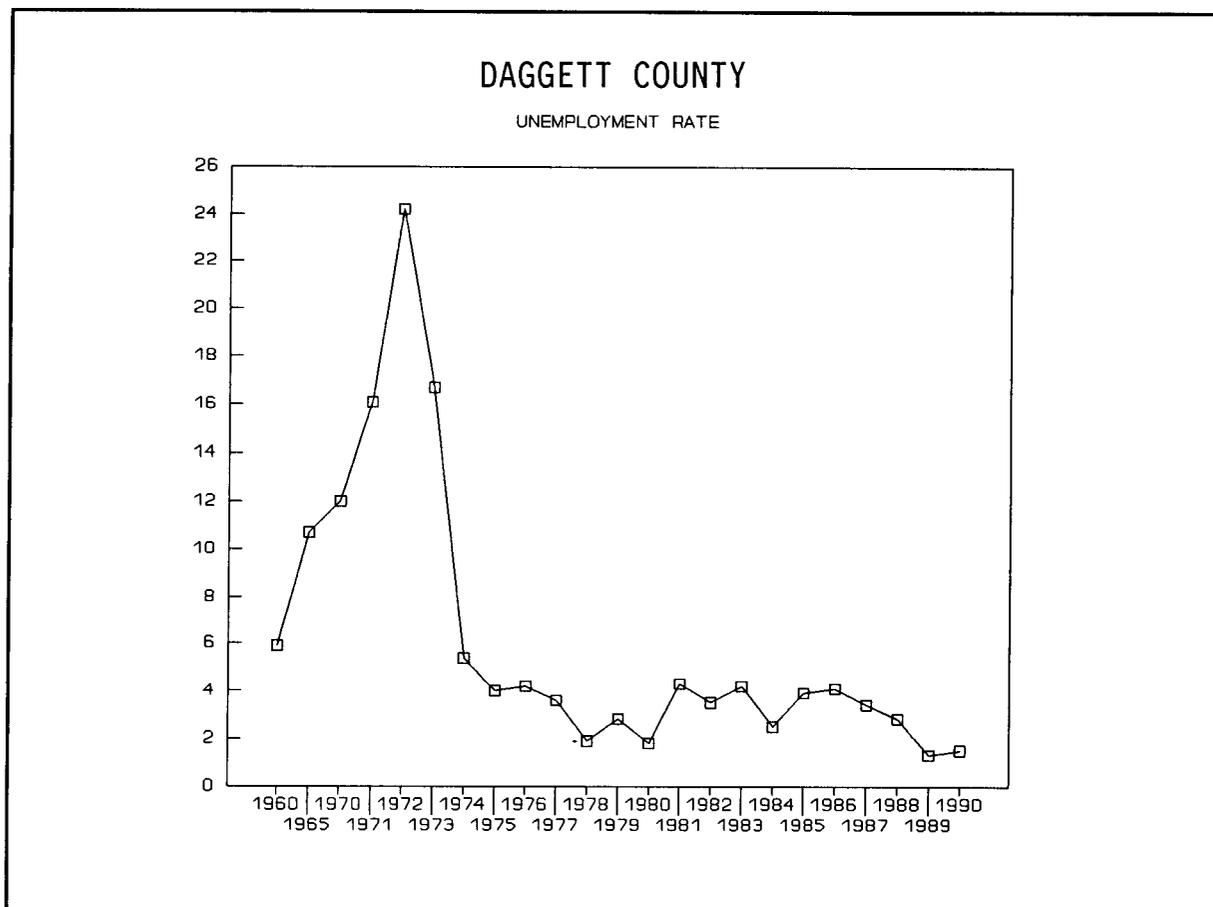
Graph A10-1. Unemployment Rates. State of Utah



Utah's average unemployment rate of 5.8% over the last thirty years has experienced little fluctuation. Variations between about 4% and 9% have come about since 1960. However, for most years the vacillations have been even less.

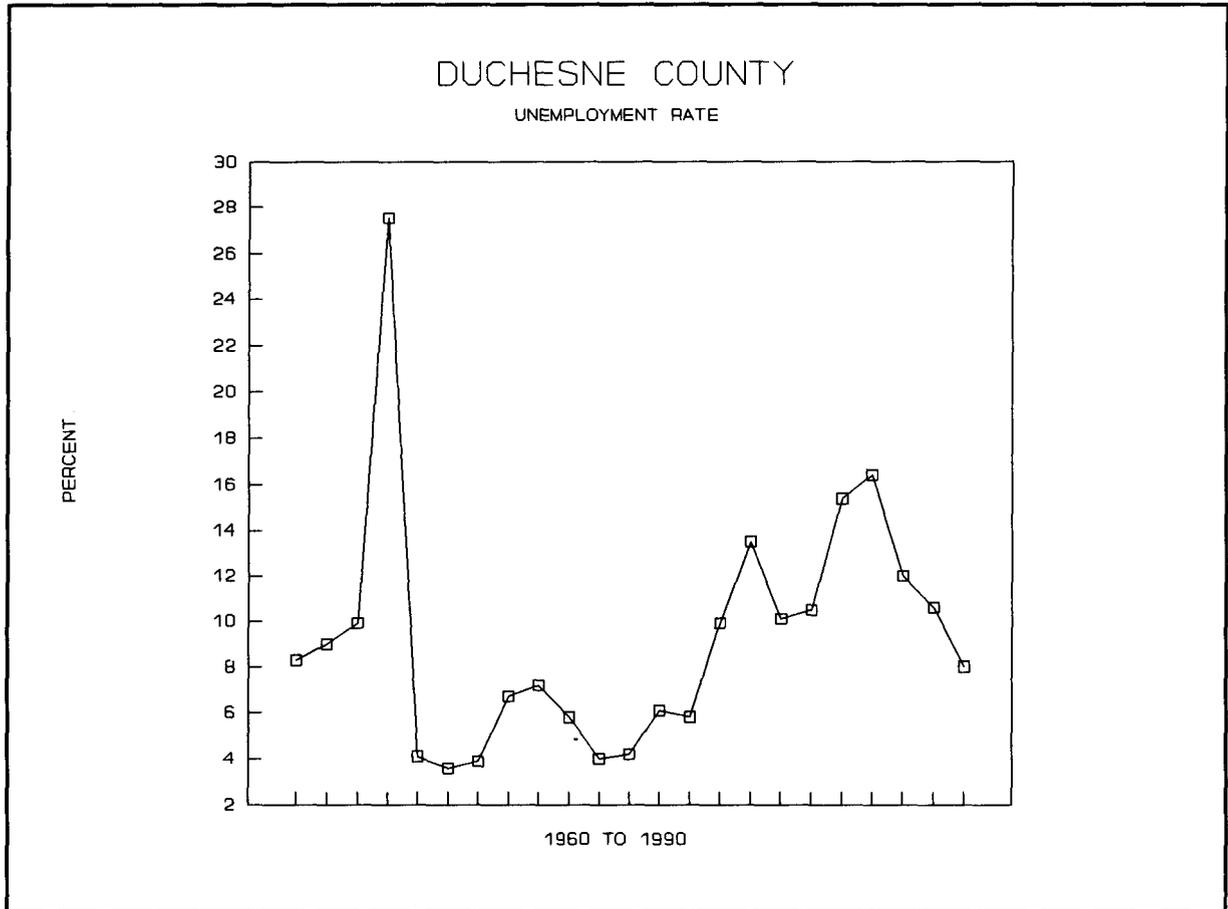
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Graph A10-1a: Unemployment Rates - Daggett County



Daggett County has experienced substantial fluctuations in unemployment, although the average has been a reasonable 6.1% over the last thirty years. The early 1970's were challenging times for workers in this county, where double digit unemployment persisted and peaked at 24.2%. This depression type unemployment was relieved in 1974 and has gone as low as 1.3%. This county's average unemployment is only .3% higher than the State's, showing little reason for real concern in the long run.

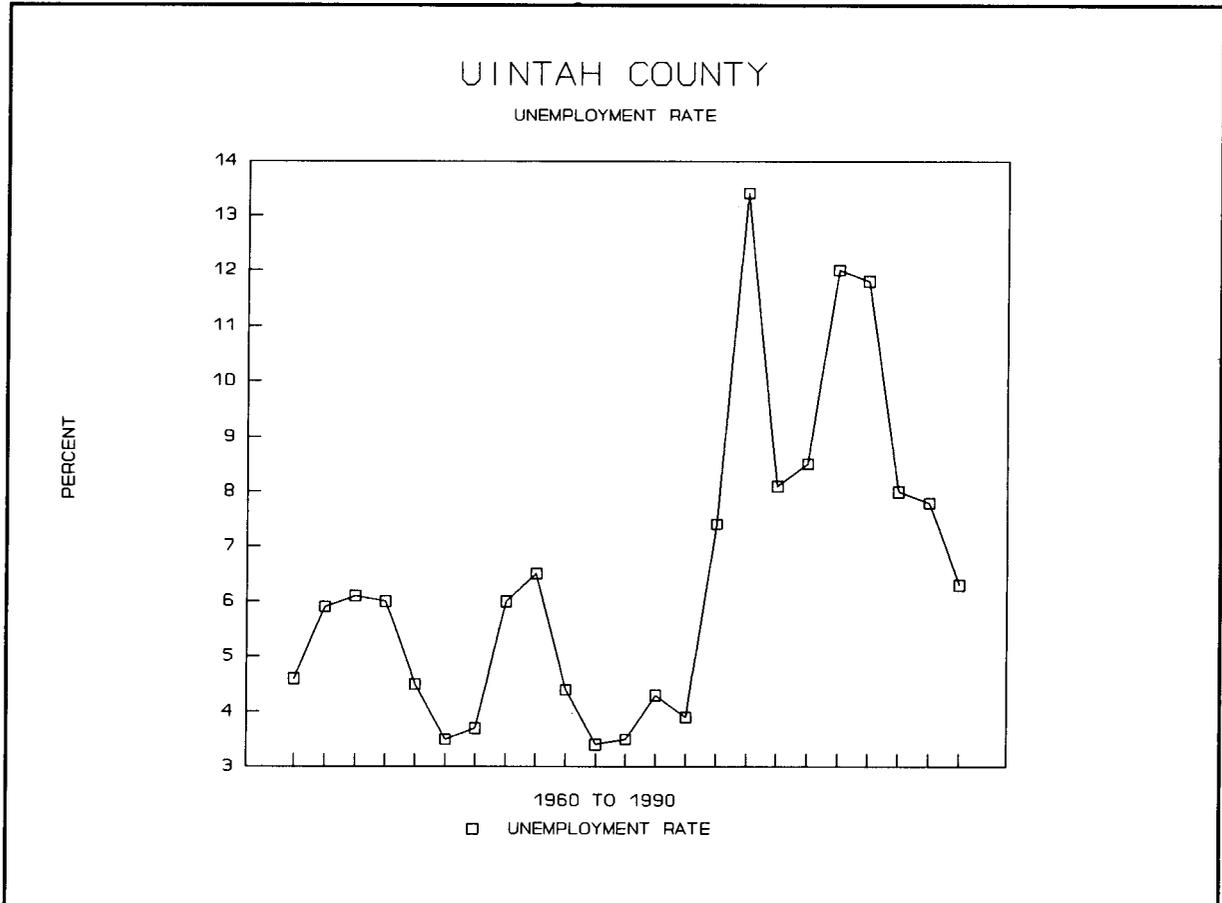
Graph A10-1b: Unemployment Rate - Duchesne County



Duchesne County's unemployment has varied almost as much as Daggett County's. In 1971, a high of 27.5% unemployment wreaked havoc on the local economy, but soon dropped to around 4%. Average unemployment has remained a problem for this county at 9.2%, 3.4% higher than the state's. Seven of the last twenty years have had double digit unemployment.

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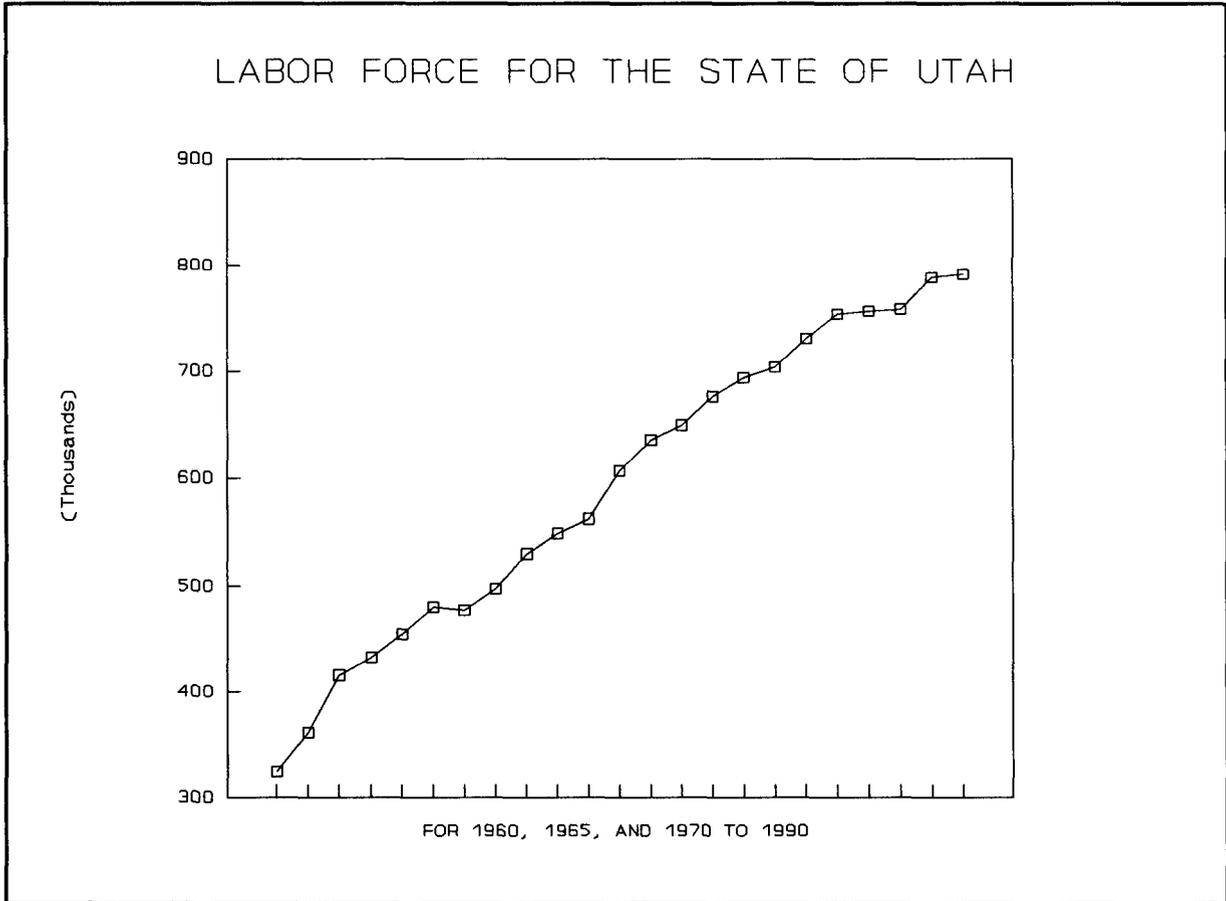
Graph A10-1c: Unemployment Rate - Uintah County



Uintah County's average unemployment of 6.5% is still less than one percent higher than the state's, giving little reason for concern. Uintah has experienced the smallest fluctuation of the three counties, varying between three and fourteen percent. Further, this county has only had three years of double digit unemployment.

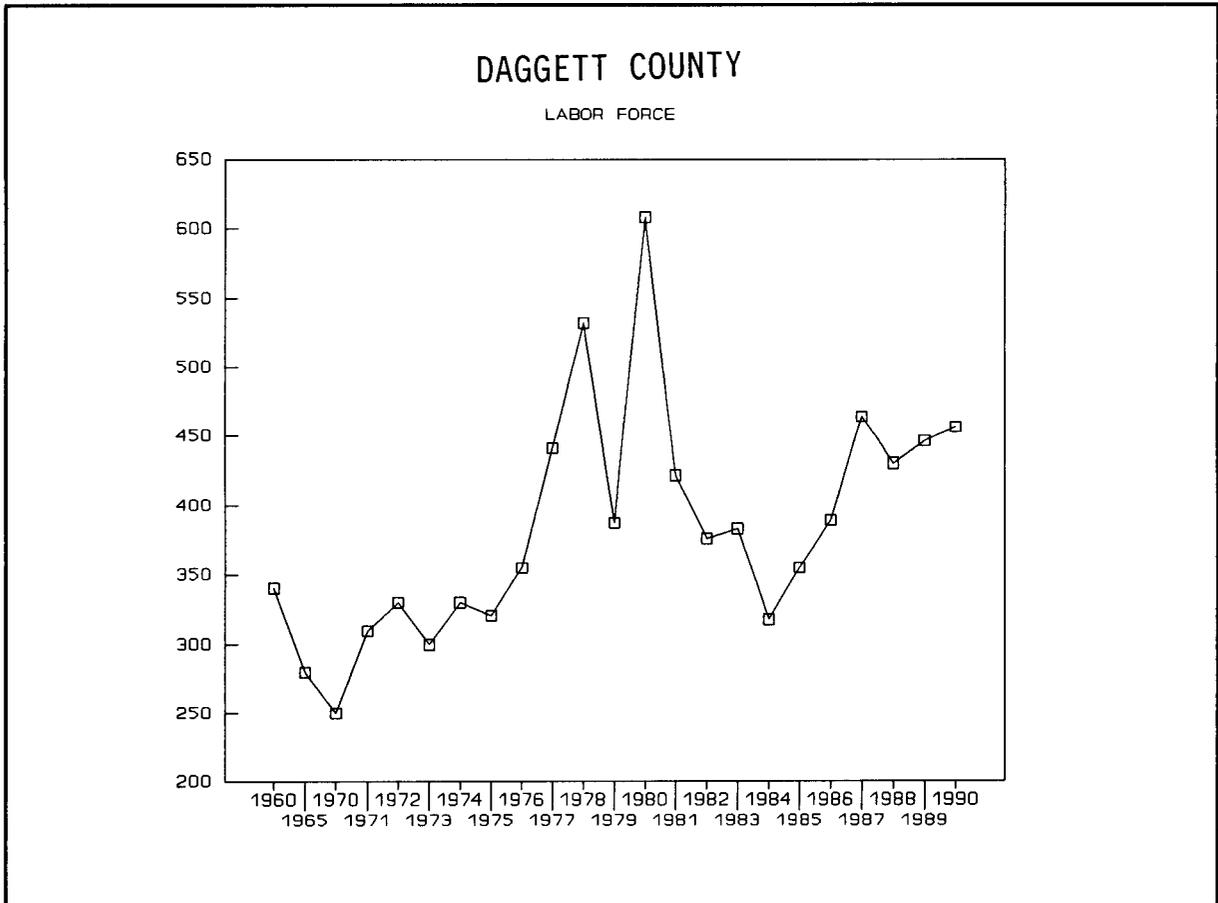
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Graph A10-2: Labor Force - State of Utah



Utah has experienced few years where the labor force decreased and closely follows a linear trend.

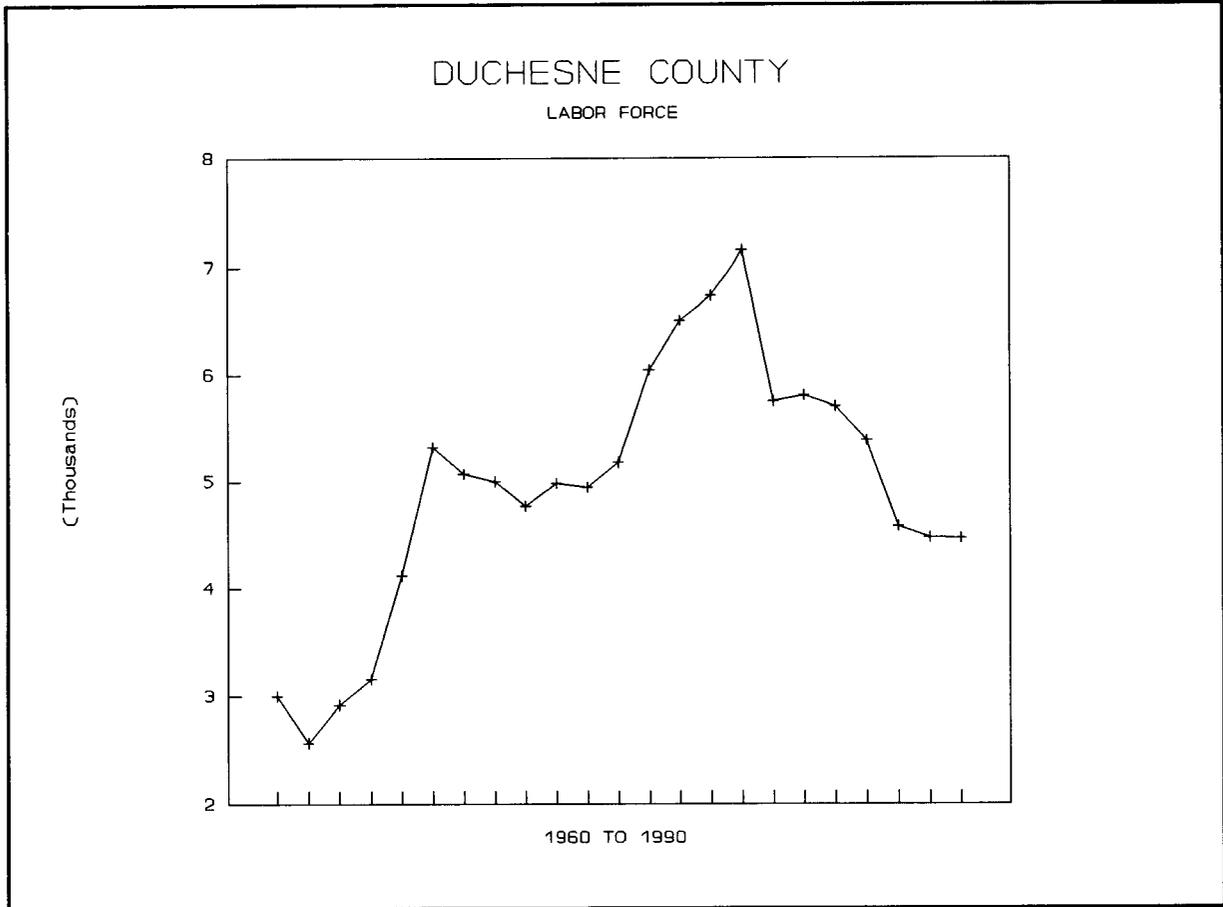
Graph A10-2a: Labor Force - Daggett County



Daggett County's labor force has undergone vacillations of up to sixty percent. However, a gentle upward slope can be delineated through the number of peaks and valleys in between the beginning and ending years.

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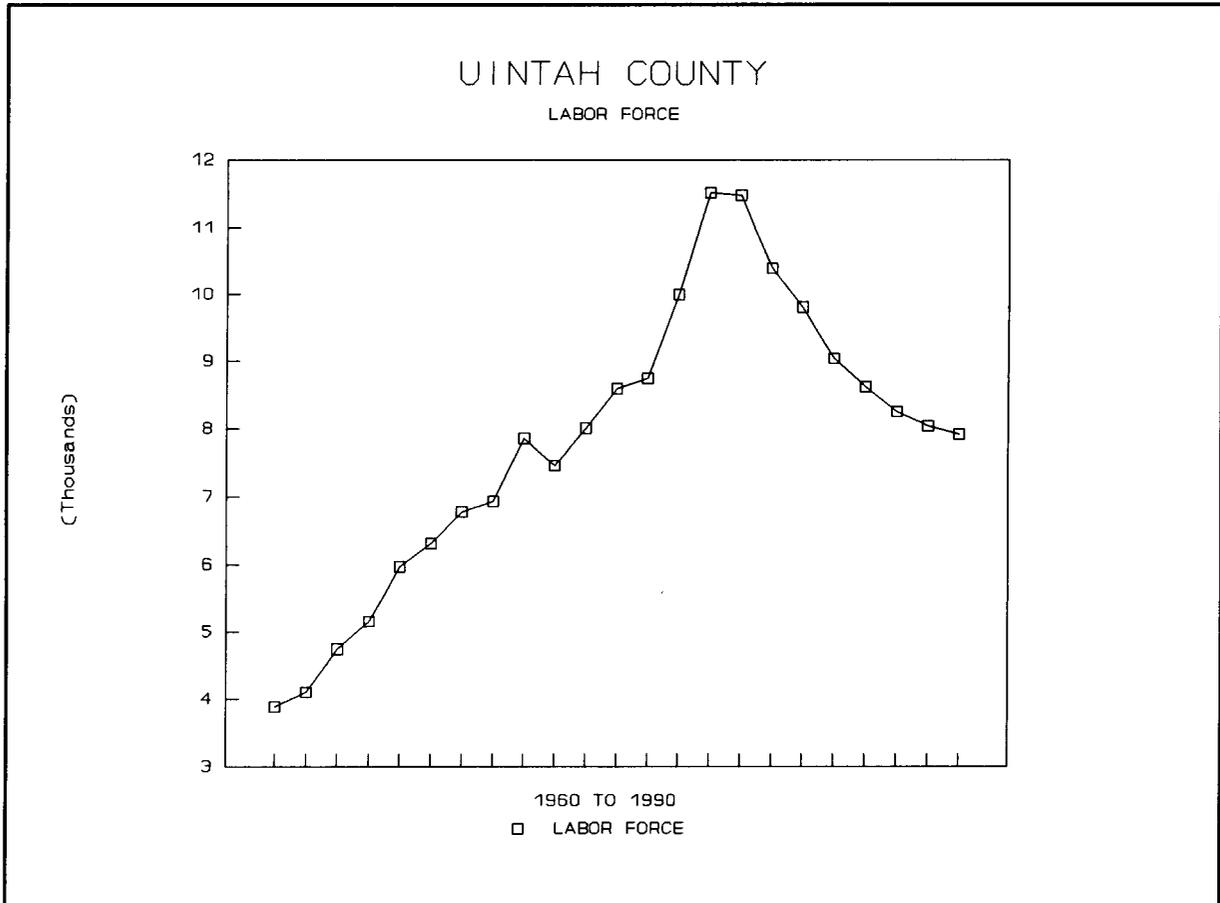
Graph A10-2b: Labor Force - Duchesne County



Two peaks are illustrated along Duchesne's positively sloped labor force curve. Since 1983, there has been a downward step pattern, perhaps giving cause for concern. A fluctuation of over sixty percent in the last thirty years has been witnessed.

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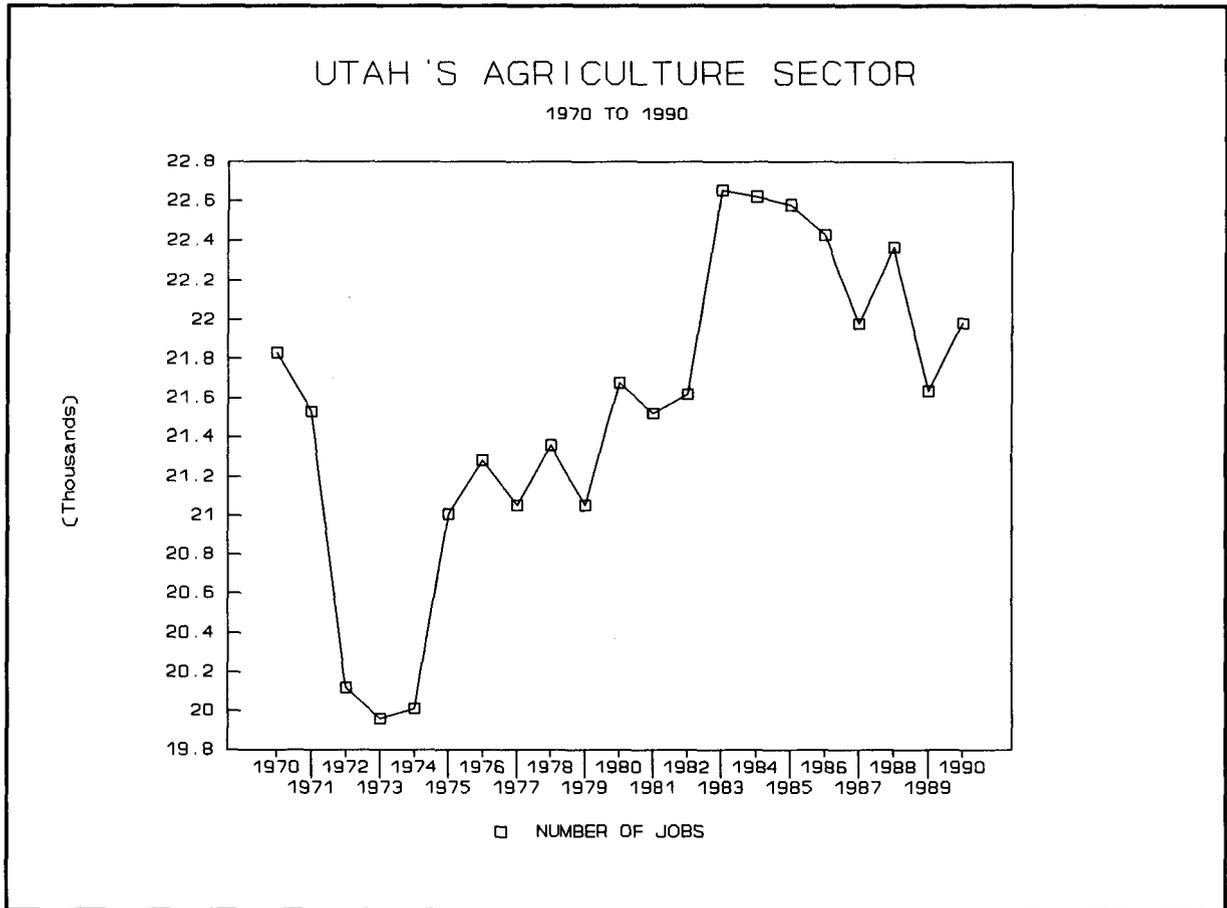
Graph A10-2c: Labor Force - Uintah County



An exponential increase in Uintah's labor force developed until 1982. For two years the rates remained stable until 1983, when there was a downward exponential decrease in the labor force. In the last thirty years, variations of up to sixty-five percent of the labor force has resulted.

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Graph A10-3 - Job Sector, Agriculture - State of Utah

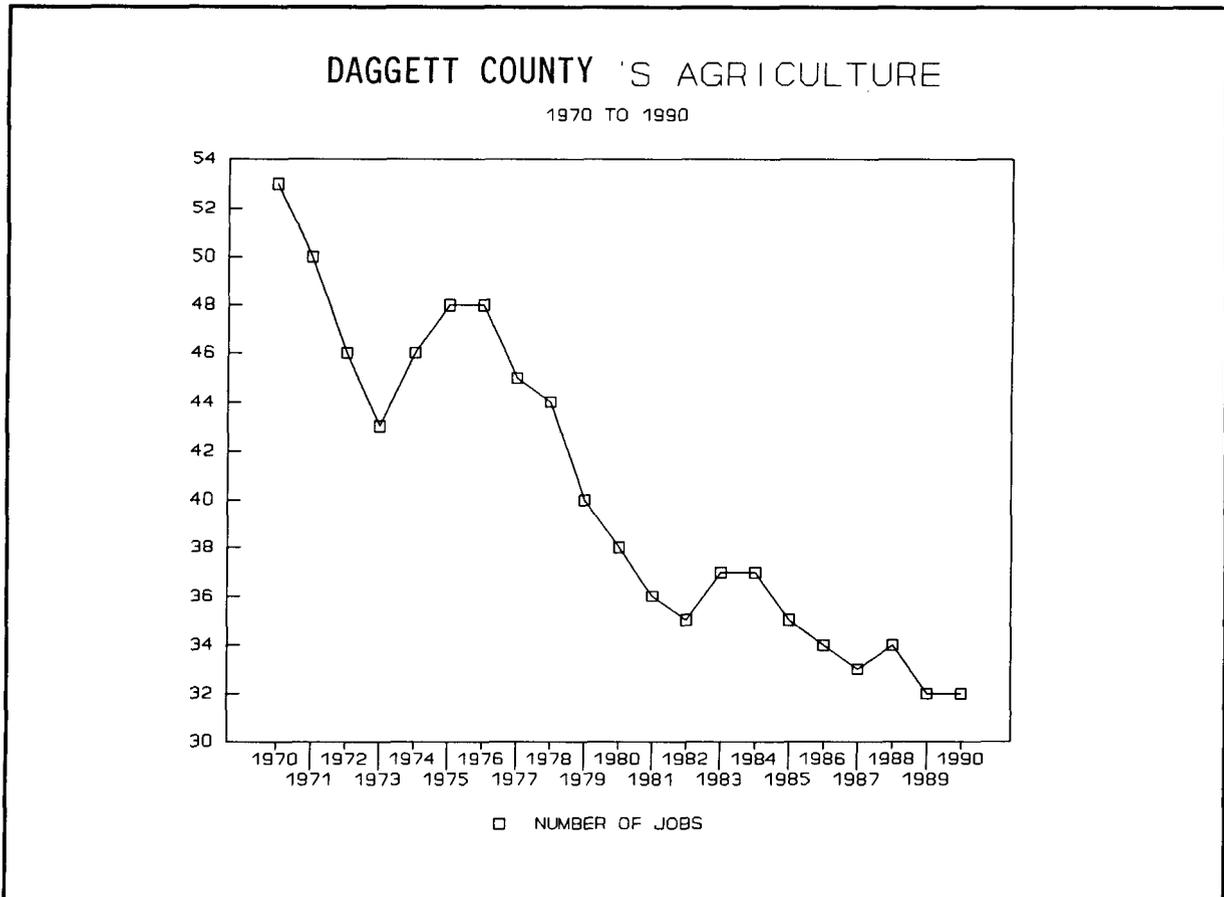


Utah's agriculture industry has shown only a small percent fluctuation over the last twenty years. This fairly constant pattern contrasts with most of Utah's other industries, which display linear increasing or additive trends. In other words, agriculture has been contributing a smaller and smaller portion of total jobs in the State.

The agriculture sector serves as the basis of most production and includes: crops, livestock, agricultural services, forestry, and fishing and hunting. BLM's management of resources, especially livestock and fishing and hunting, could directly impact the number of jobs in this industry.

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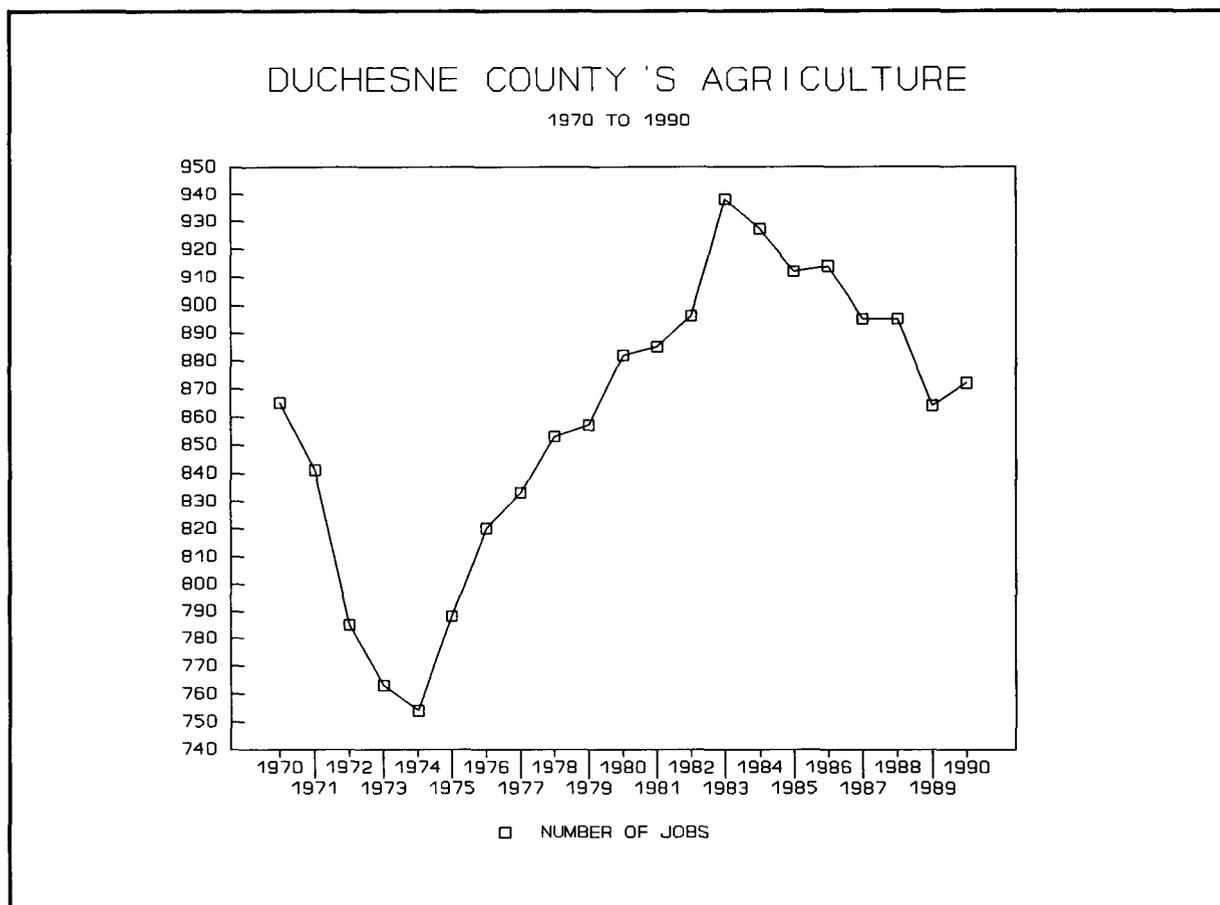
Graph A10-3a - Job Sector, Agriculture - Daggett County



Daggett County's agriculture sector has exhibited a step pattern, downward. In the last twenty years, agriculture has decreased forty percent. This trend should not require highly sophisticated models to project future number of jobs.

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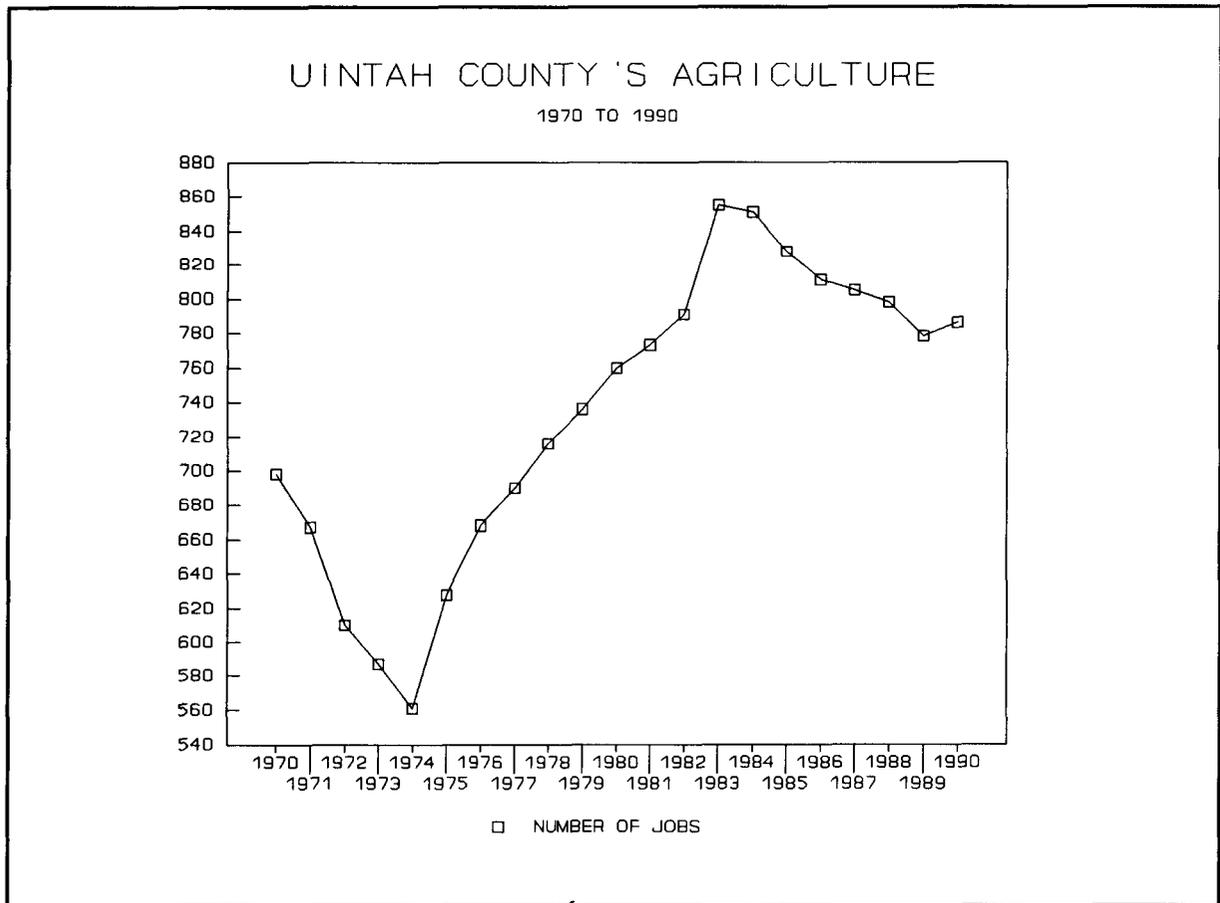
Graph A10-3b - Job Sector, Agriculture - Duchesne County



Duchesne County's agriculture underwent one complete cycle in the last twenty years. In 1970, there were approximately 860 jobs, but by 1990, about the same number of workers were employed in this sector after a large decline and large increase. Duchesne, though it has a considerably smaller labor force, has a large number of agriculture jobs than Uintah County. This higher reliance upon agriculture could make Duchesne more sensitive to BLM's management practices. Fluctuations of approximately twenty percent may be a matter of concern for planners.

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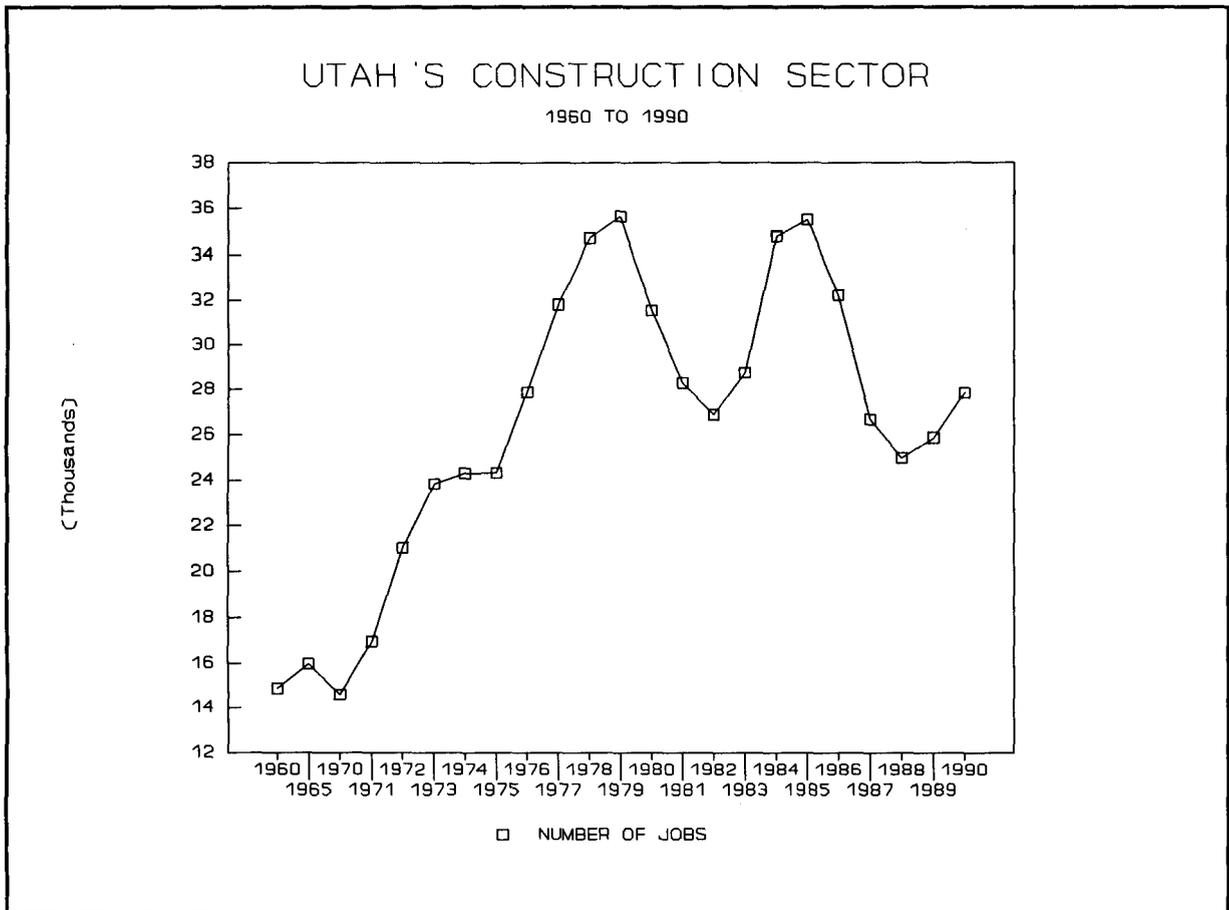
Graph A10-3c - Job Sector, Agriculture - Uintah County



Uintah County's agriculture sector has also undergone a nearly complete cycle in the last twenty years. There were approximately 700 jobs in 1970 and roughly 80 additional jobs, totalling to 780, in 1990. Fluctuations of about thirty-five percent have occurred in the last two decades, indicating the instability of this industry.

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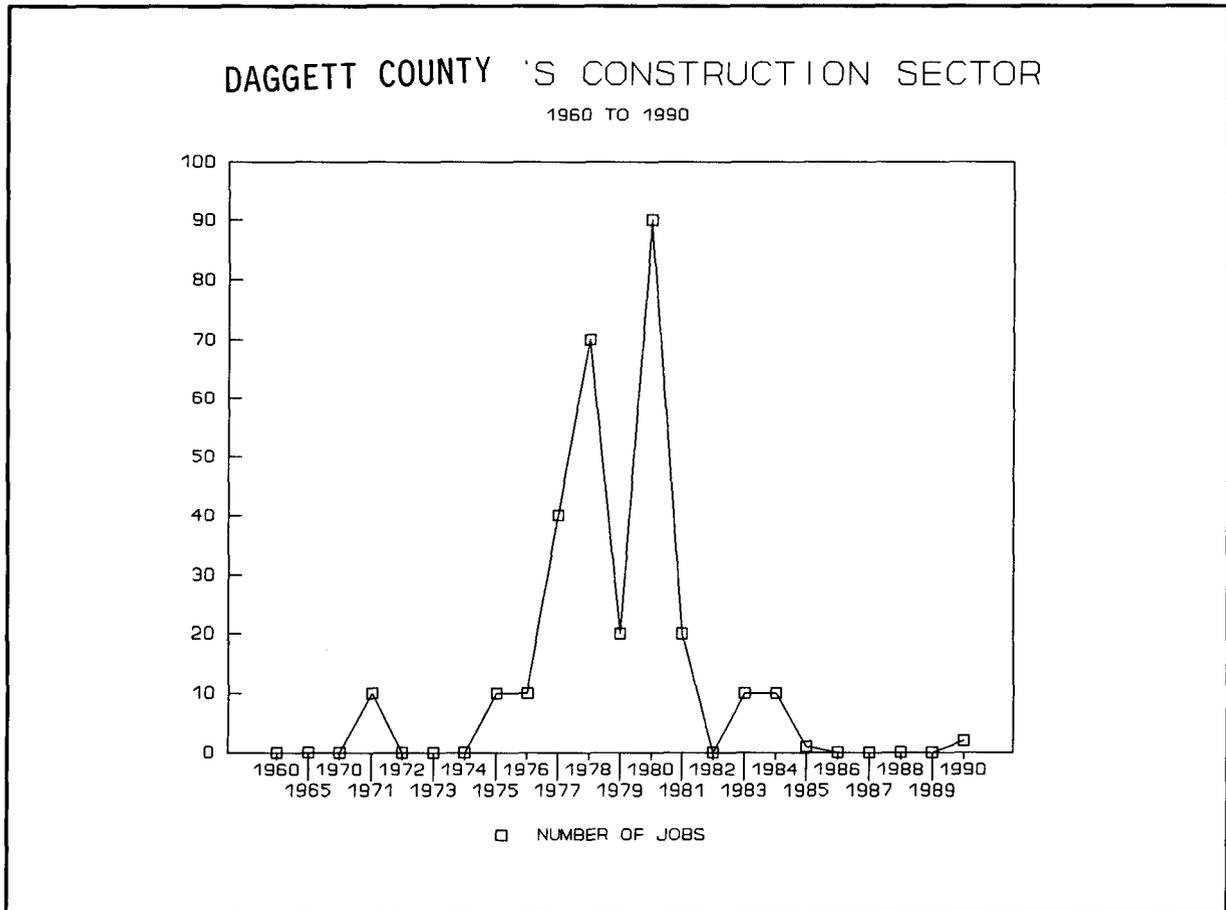
Graph A10-4 - Job Sector, Construction - State of Utah



Until 1974, Utah's construction experienced an increasing trend. After that time, however, a classic cyclic pattern developed.

The construction sector is made up of: General building contracting, heavy construction, and special trade contract, see SIC manual 1987.

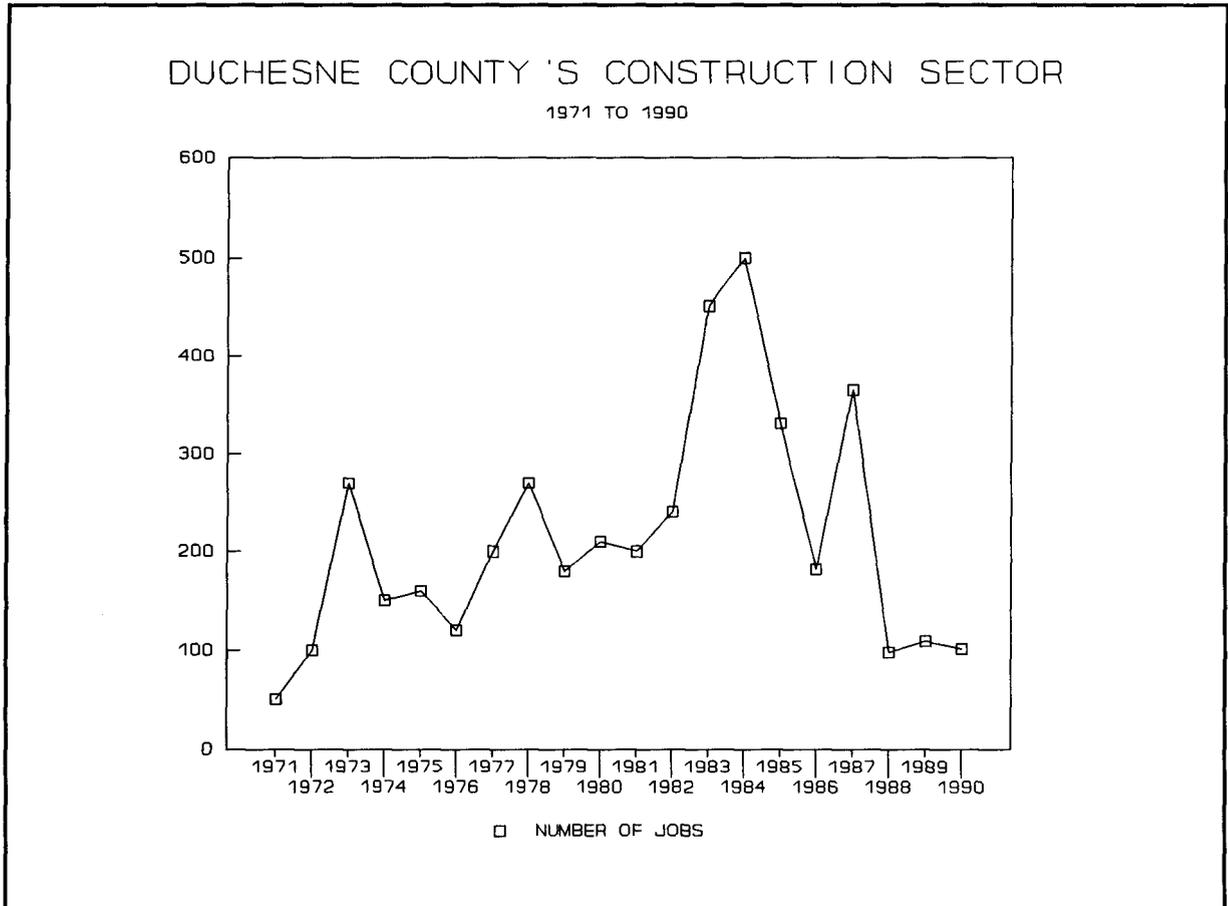
Graph A10-4a - Job Sector, Construction - Daggett County



Daggett County experienced a "boom and bust" phenomenon in the late 1970's. The degree of this event has been very volatile going from zero to ninety workers in six years and within two years back to zero. Again the small population of this county makes these large fluctuations more probable.

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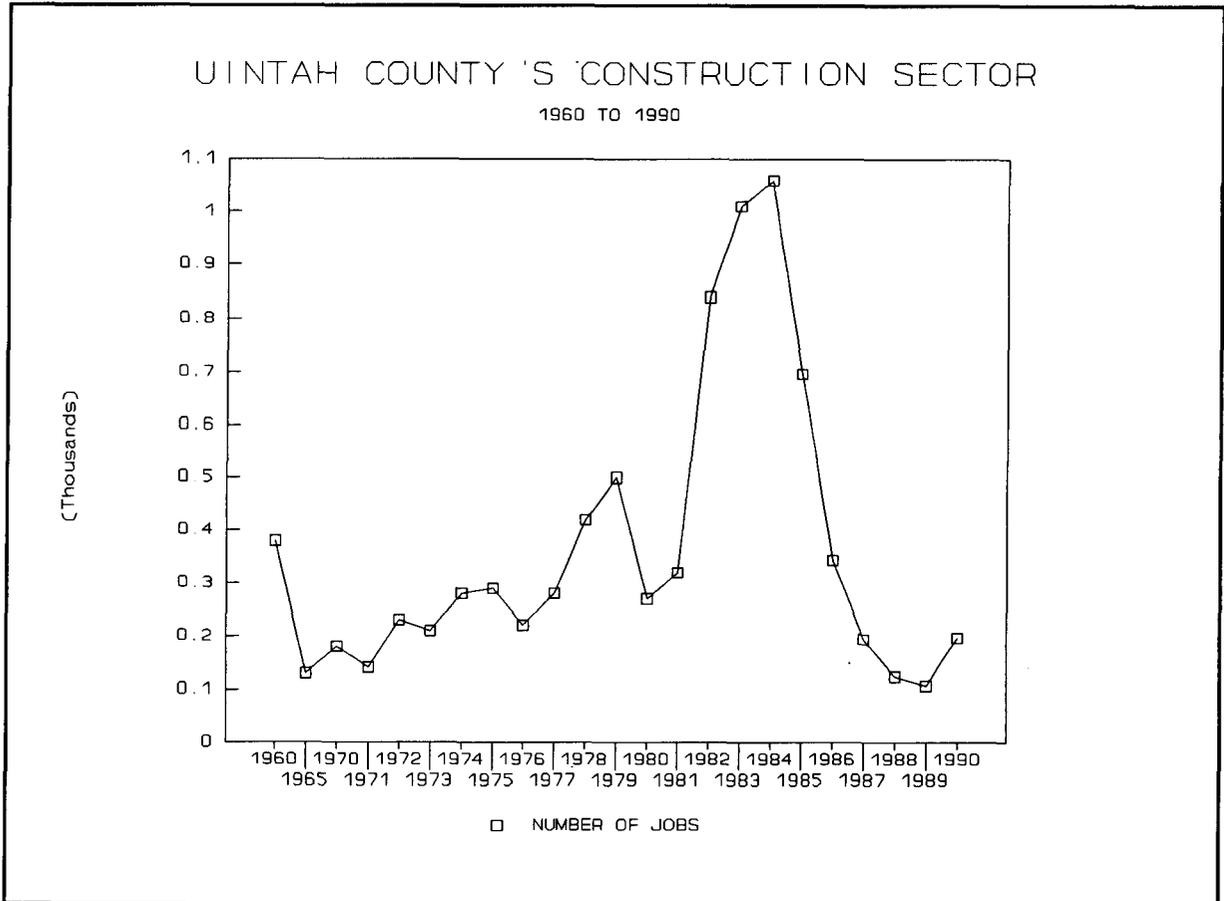
Graph A10-4b - Job Sector, Construction - Duchesne County



There is no apparent trend in Duchesne County's construction sector. There are a few phases when the number of jobs grew, but only for a year or two. Overall, however, there has been a fairly constant pattern. Vacillations of up to 90 percent have occurred in the last two decades, illustrating the volatility of this sector.

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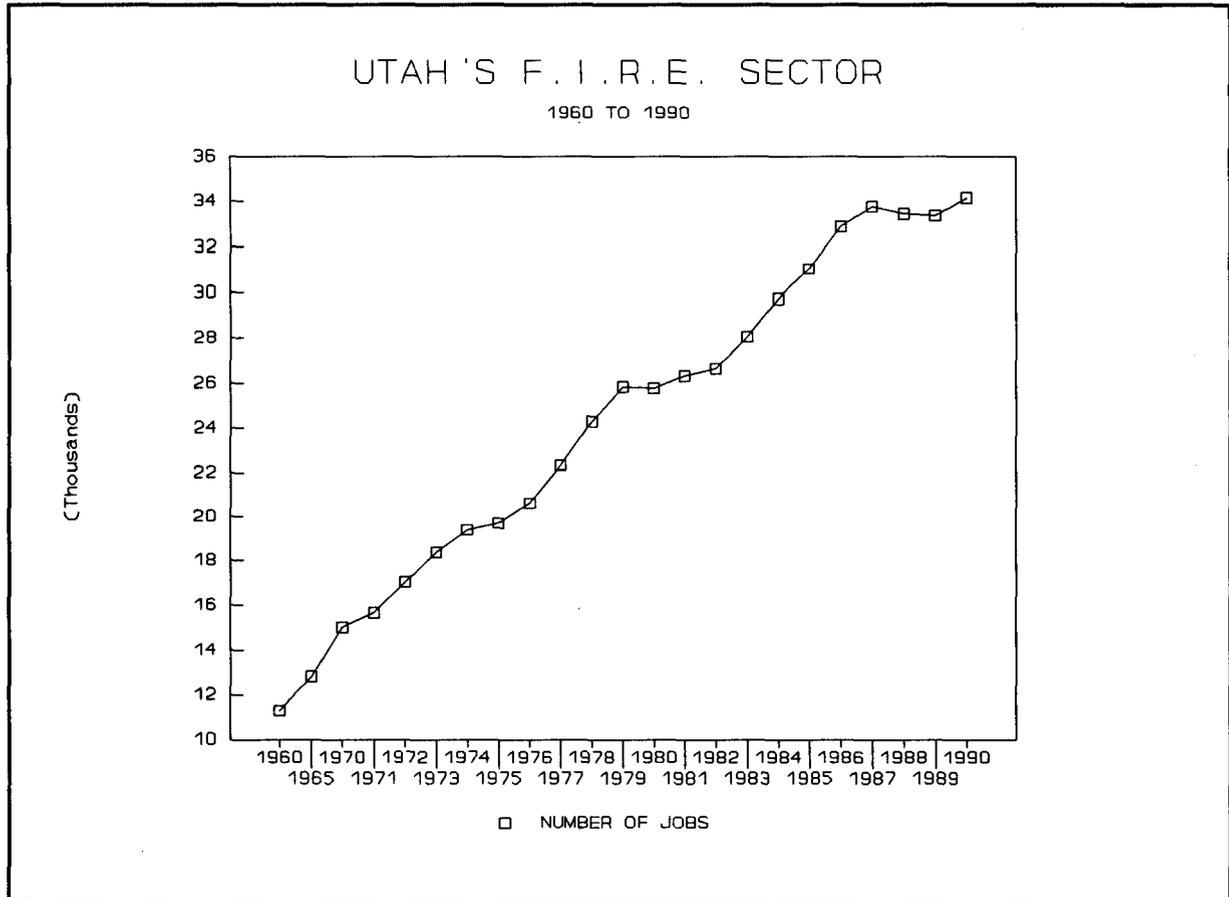
Graph A10-4c - Job Sector, Construction - Uintah County



Uintah County's construction industry shows an exponential trend with a number of peaks or cycles. This multiplicative nature is extremely volatile, however, exhibiting a very unstable pattern, a variation of about 90 percent can be observed during the above period, between 1984 and 1988, about a thousand jobs were lost. A strong correlation can be seen between the construction and labor force from 1981 and 1990.

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Graph A10-5 - Job Sector, FIRE - State of Utah

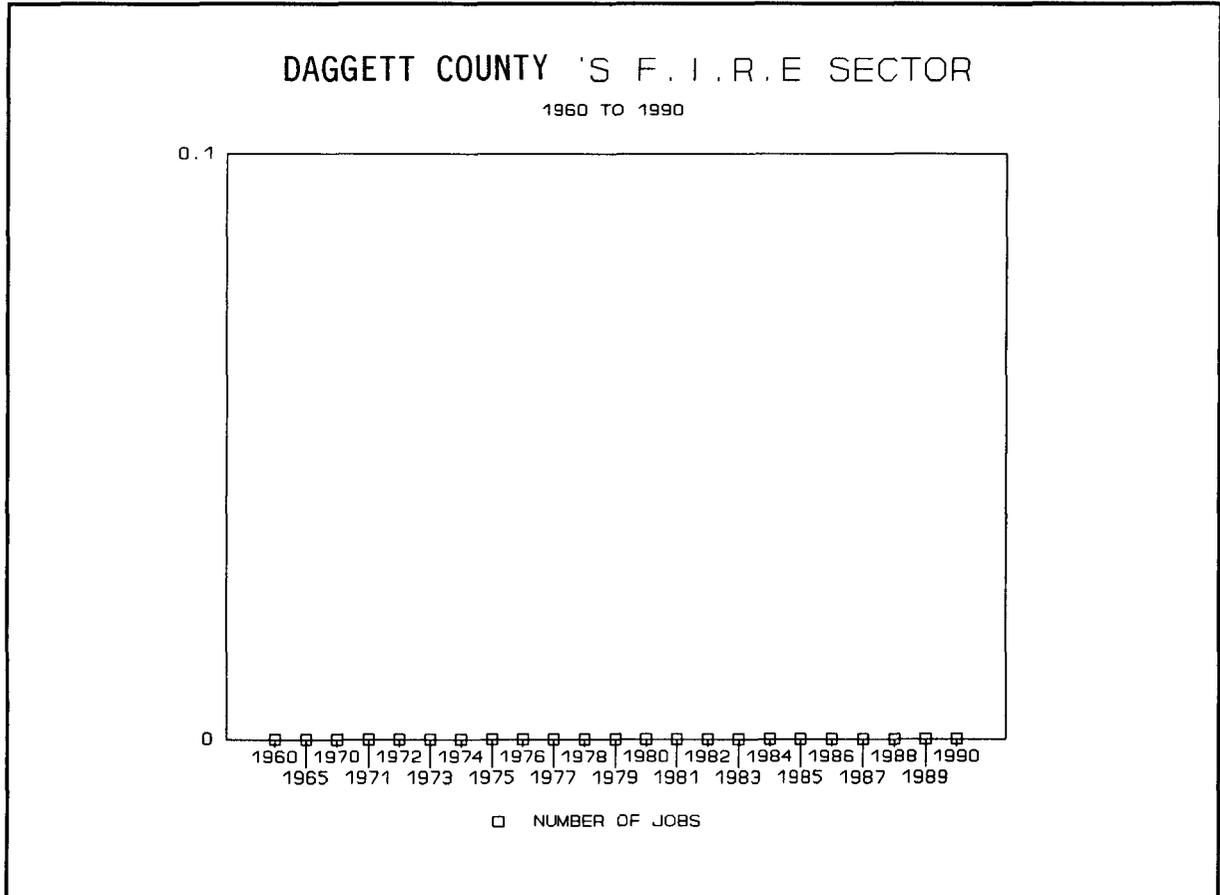


Utah's finance, insurance, and real estate (FIRE) sector has been steadily growing since 1960, however, it did level off in the late 1980's. This industry illustrates a stable long-term trend that is fairly simple to forecast.

Businesses in the FIRE sector would include: Banks, insurance, and real estate. It seems unlikely that BLM's management could make any discernable impact on this industry.

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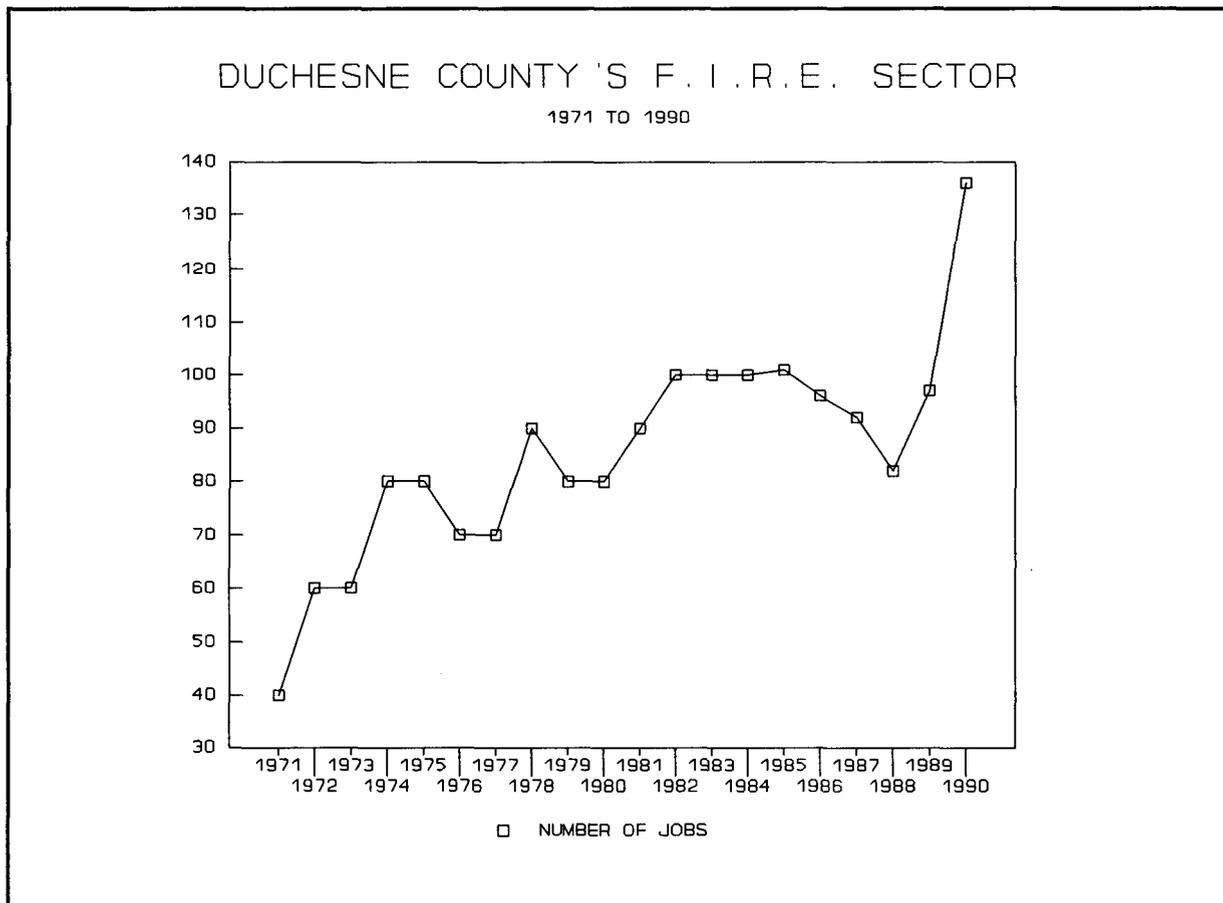
Graph A10-5a - Job Sector, FIRE - Daggett County



Daggett County has had no FIRE jobs in the last thirty years, according to the Utah Office of Planning and Budget.

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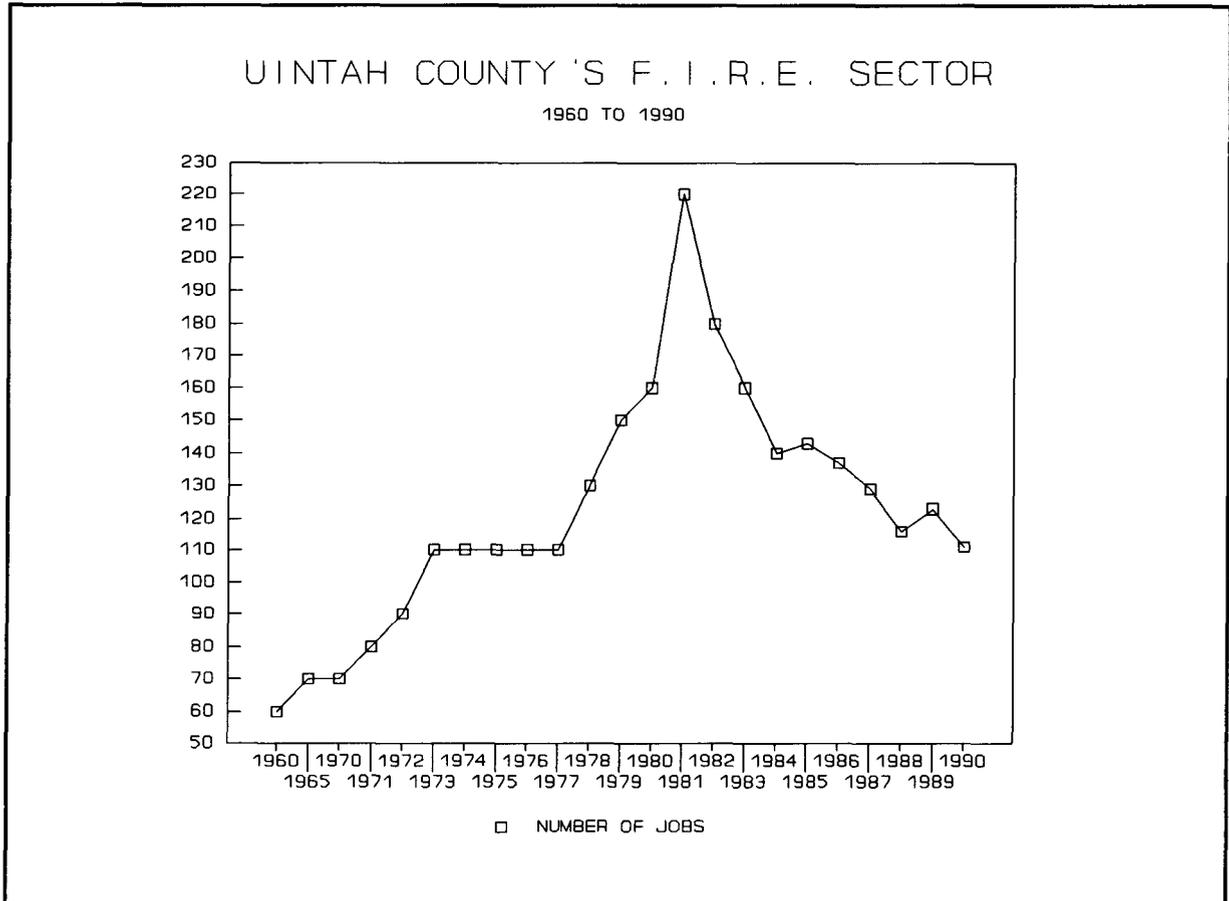
Graph A10-5b - Job Sector, FIRE - Duchesne County



Duchesne County's FIRE sector displays a mostly upward trend scattered with a few years of bursts and declines. The number of years with increasing employment out number the number of years with decreasing employment in this industry. This does not significantly contribute to the labor force, however, and would be of little consequence regardless of BLM management practices.

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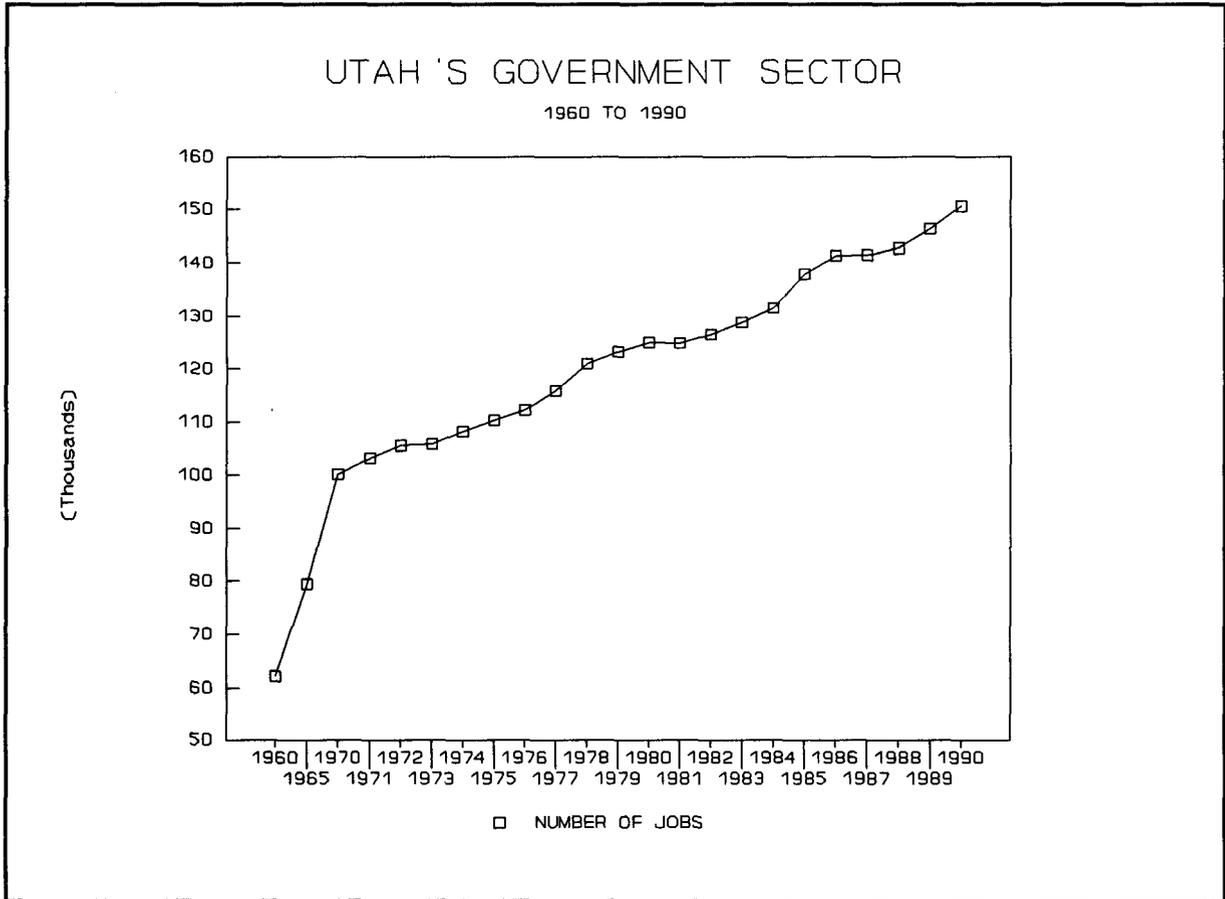
Graph A10-5c - Job Sector, FIRE - Uintah County



Uintah County's sector illustrates a step pattern in the early 1970's followed by a burst of growth until 1980. After that time a steady drop off in the number of jobs has occurred. Again, this industry represents a small percentage of the labor force and seems to be beyond the reasonable control of the BLM.

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Graph A10-6 - Job Sector, Government - State of Utah

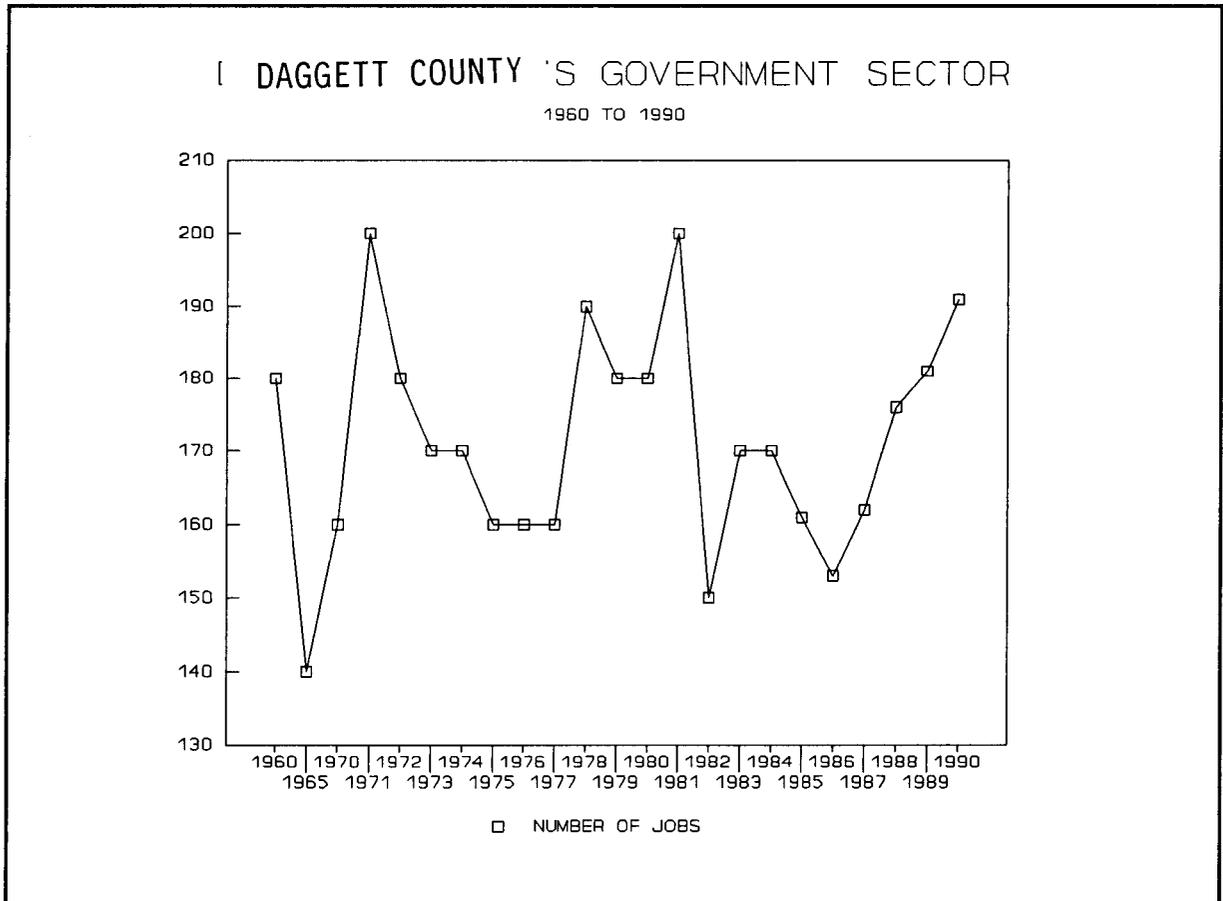


Utah's government sector has been steadily growing in number of jobs for the last thirty years. This could be correlated to the large percent of federally owned land in Utah, as well as the increased pressure from users of public land. This sector illustrates an additive trend.

The SIC manual classifies the government sector as public administration, which includes: Legislative, justice, finance, human resources, environmental, and economic programs.

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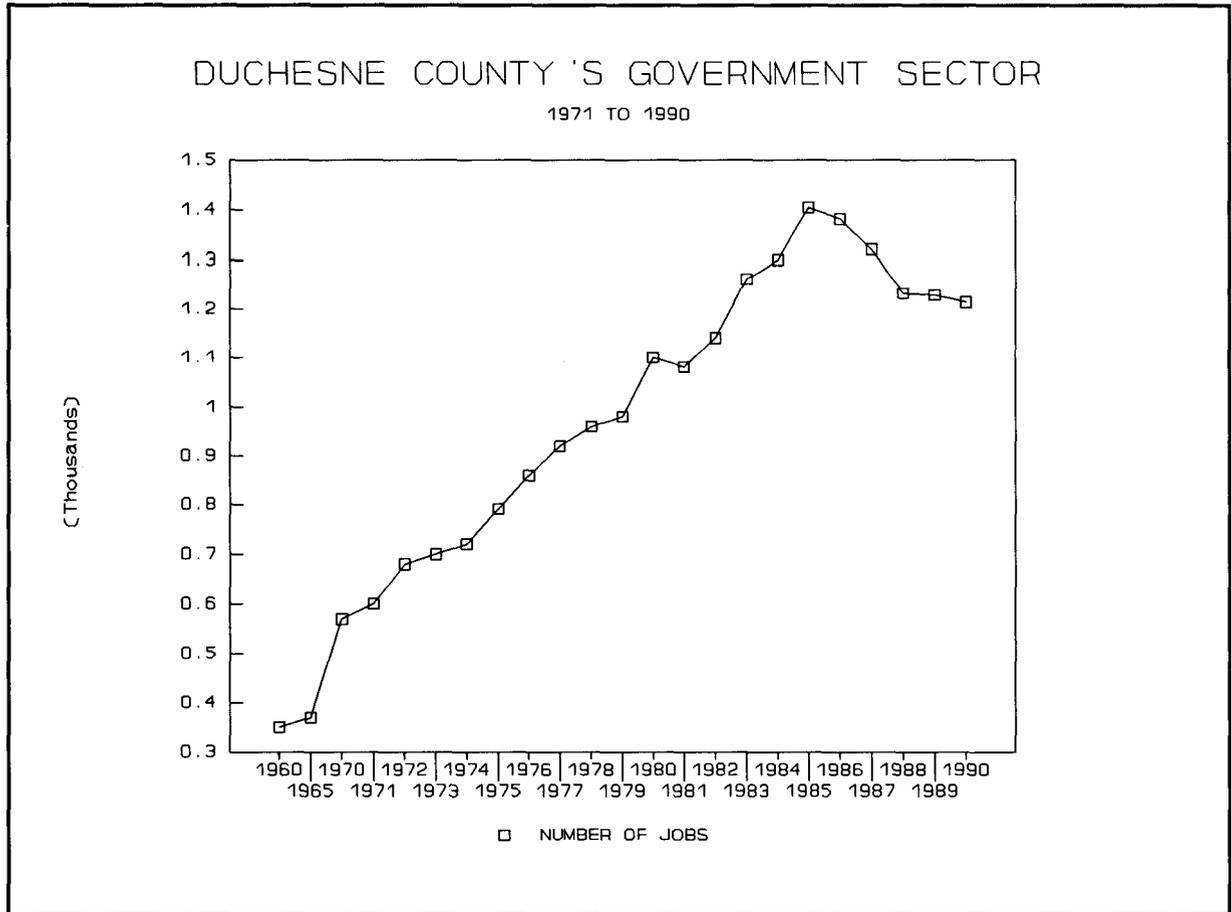
Graph A10-6a - Job Sector, Government - Daggett County



Daggett County's government sector has remained fairly constant, especially when compared to its other sectors. A large portion of workers are employed in this sector relative to the labor force. The number of years that employment increased are approximately equal to the number of years that employment decreased.

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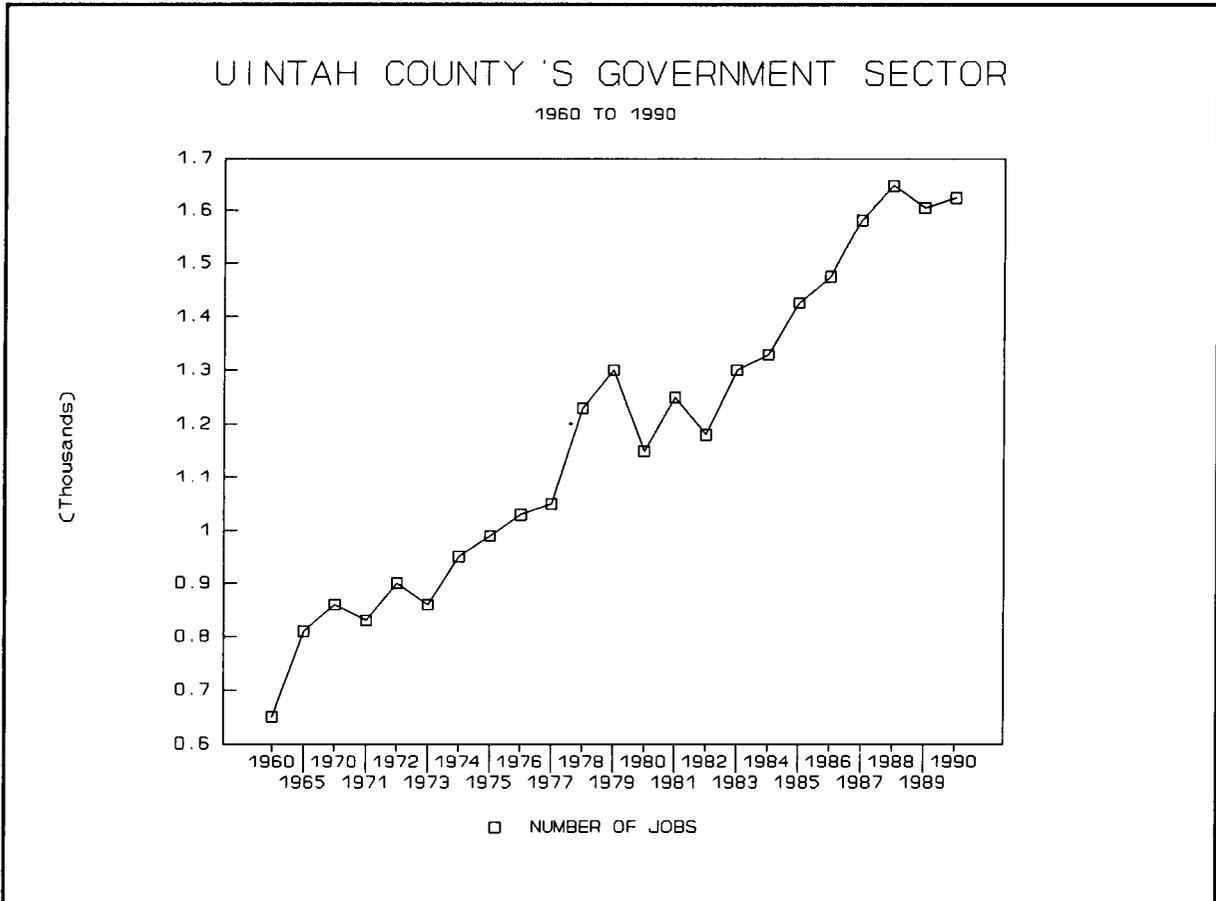
Graph A10-6b - Job Sector, Government - Duchesne County



Duchesne County's government sector displayed a linear trend until the mid 1980's, when the number of workers started to drop off. This sector also accounts for a major portion of Duchesne's labor force.

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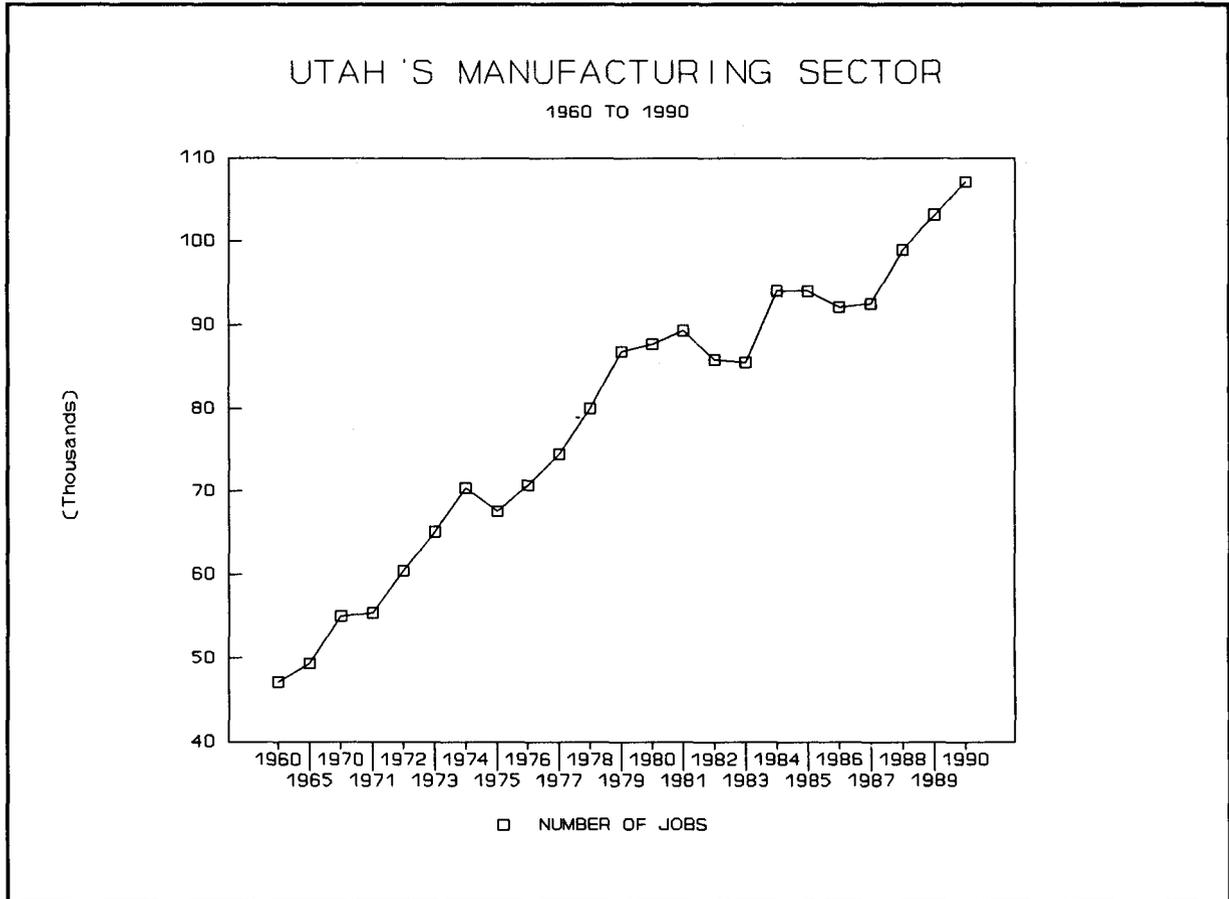
Graph A10-6c - Job Sector, Government - Uintah County



Uintah County's government sector illustrates a linear trend with a few bursts of growth. The number of years that the quantity of workers increased surpassed the number of years of declining employment. The government sector also makes up a large portion of the labor force.

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Graph A10-7 - Job Sector, Manufacturing - State of Utah

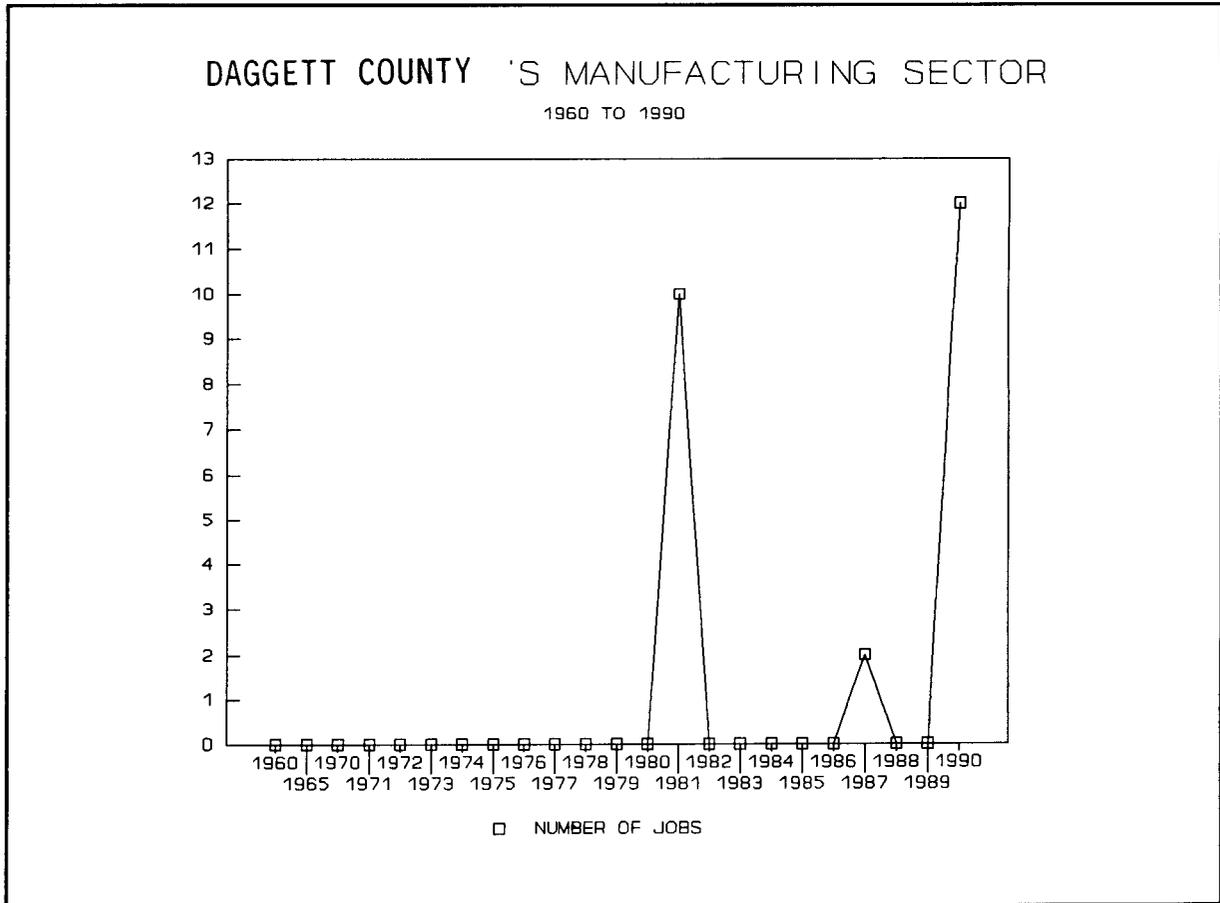


A number of expansion periods have contributed to Utah's growing manufacturing sector. Years when number employed increased in this industry dwarf the number of years when jobs decreased. Overall this industry is growing at a stable rate.

Manufacturing illustrates the "value added" concept by taking raw materials and processing them for use. Examples would include: Food, textiles, lumber products, chemical products, metal products, and transportation equipment, see SIC manual 1987. BLM's management of raw materials could indirectly affect manufacturers in and around the state.

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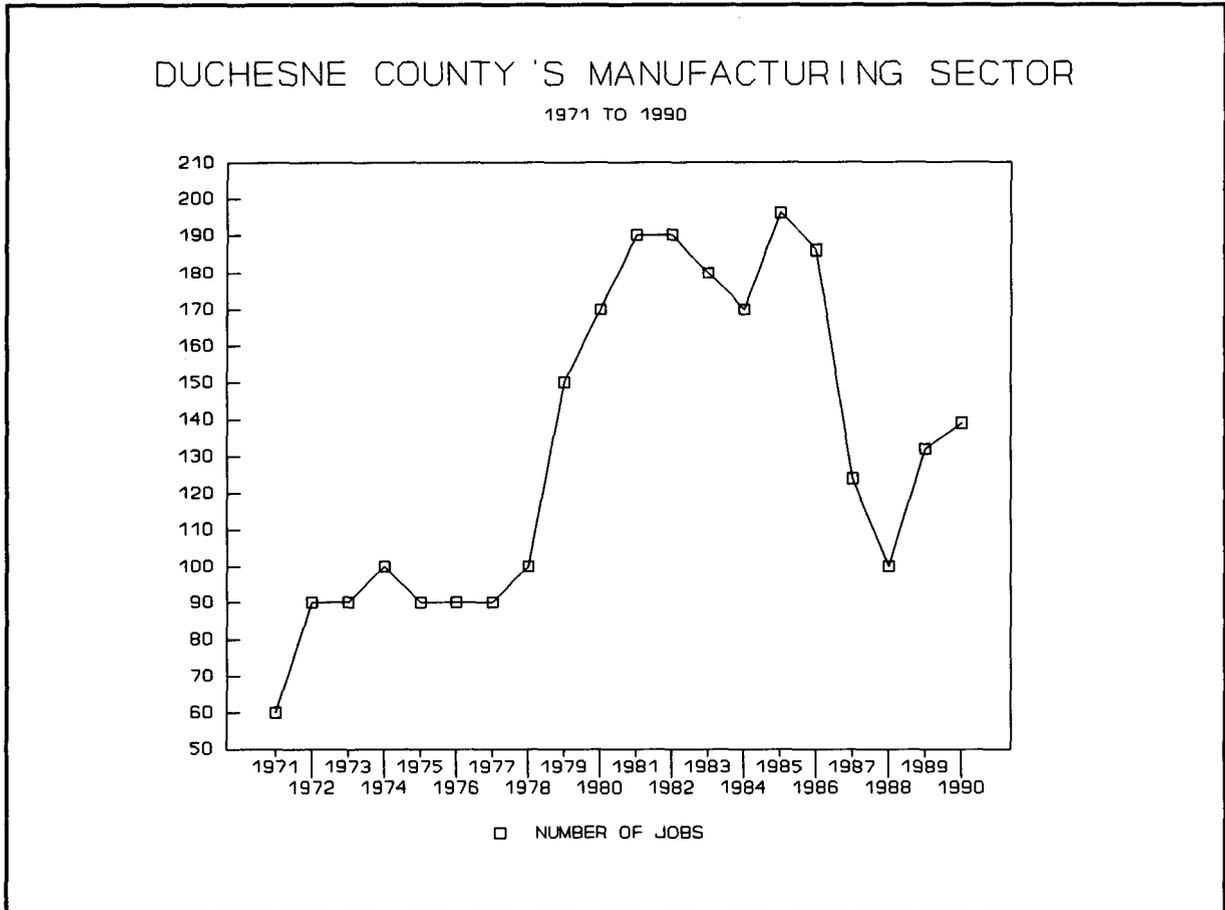
Graph A10-7a - Job Sector, Manufacturing - Daggett County



Again, Daggett County displays sporadic changes in its manufacturing sector due mostly to its small population. These dramatic variations may also be due to Utah's Office of Planning and Budget "top down" disaggregation technique; by deriving the total employed in this sector for the whole state and then parcelling the contributions of each county.

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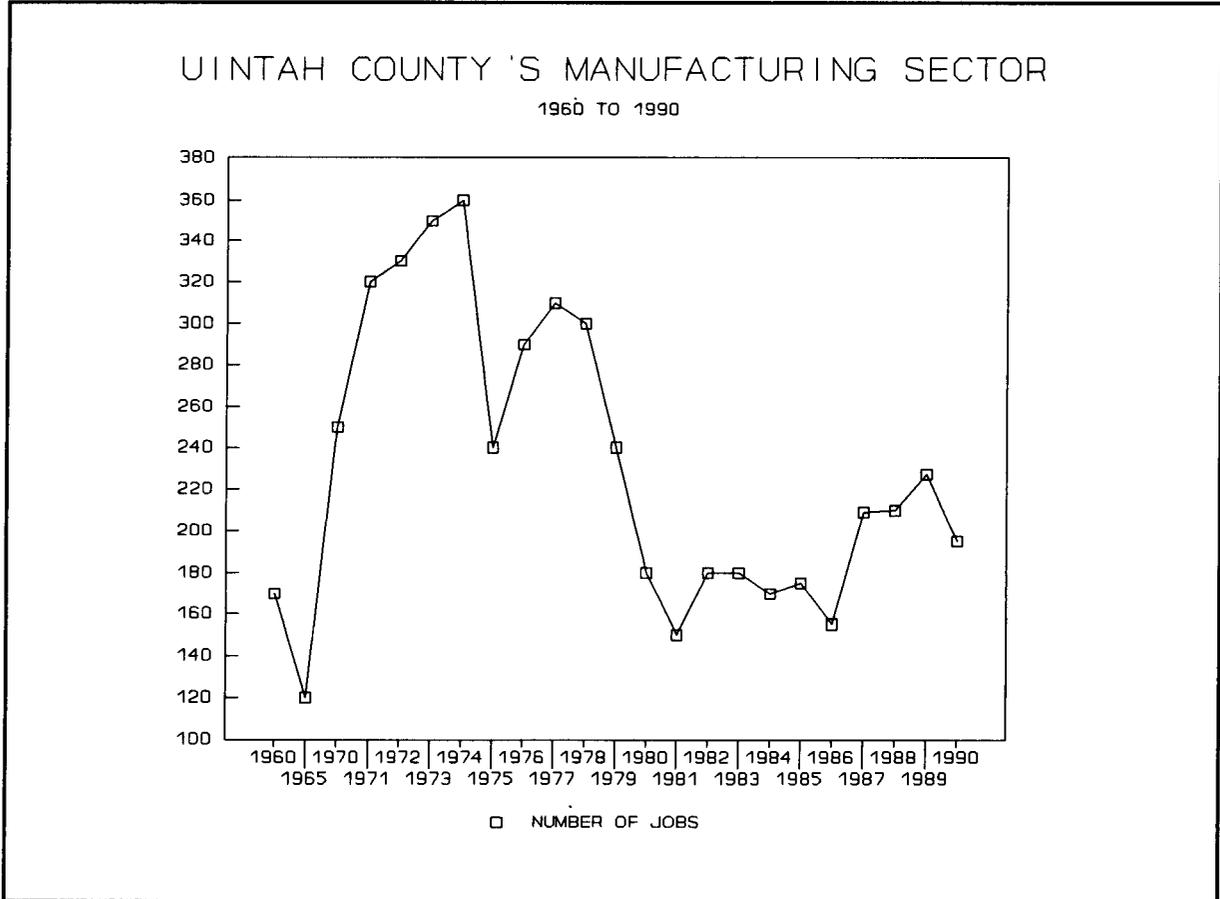
Graph A10-7b - Job Sector, Manufacturing - Duchesne County



Until the mid 1970's, Duchesne County's manufacturing sector was stable, however, in the late 70's and into the 80's a burst of growth occurred. This industry doubled in the number of jobs between 1977 and 1981, but by 1988 the manufacturing industry had almost returned to it's 1977 level. Since that time there has been a notable resurgence. It may be difficult for planners to place much confidence in forecasting another expansion equal to the magnitude of the early 1980's.

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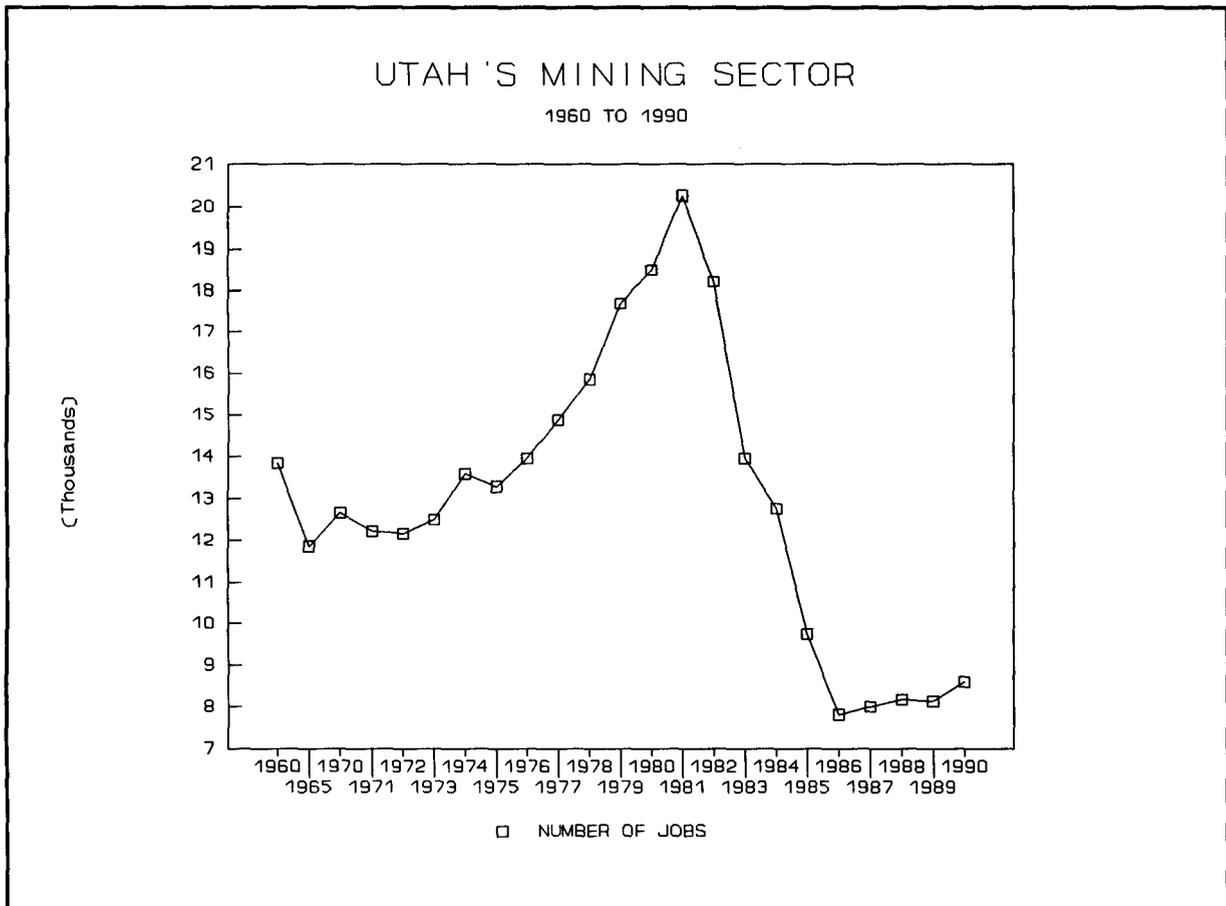
Graph A10-7c - Job Sector, Manufacturing - Uintah County



In Uintah County, manufacturing went from a comparatively high number of workers in the 1970's to about half as many in the 1980's. There seems to be a gentle upward trend from 1980. This type of pattern can prove challenging for forecasters and cause uncertainty among planners.

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Graph A10-8 - Job Sector, Mining - State of Utah

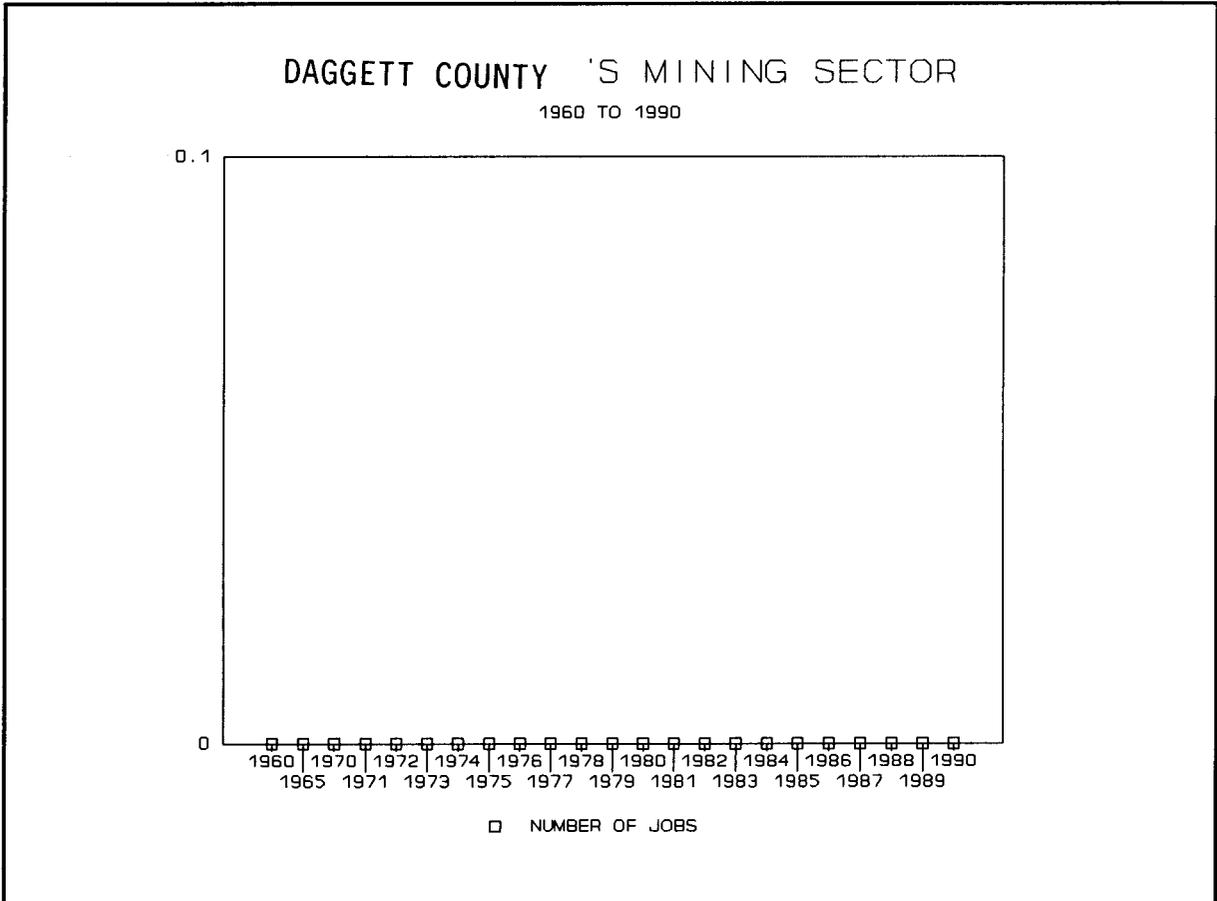


Mining in Utah has experienced a dramatic "boom and bust" trend in the last twenty years. In the 1970's, the number employed in this industry escalated from 12,500 to approximately 20,000 by 1980. However, within six years the number of workers in this sector plummeted to about 8,000. This oscillation makes forecasting and thus planning exceptionally challenging. Mining is made up of metal and nonmetallic minerals, as well as coal mining and oil and gas extraction.

BLM policy and management of minerals will have a direct impact on this sector. Increasing restrictions, as required by competing interests will increase the costs of extraction and reduce the probability of mining and perhaps lead to increased costs minerals.

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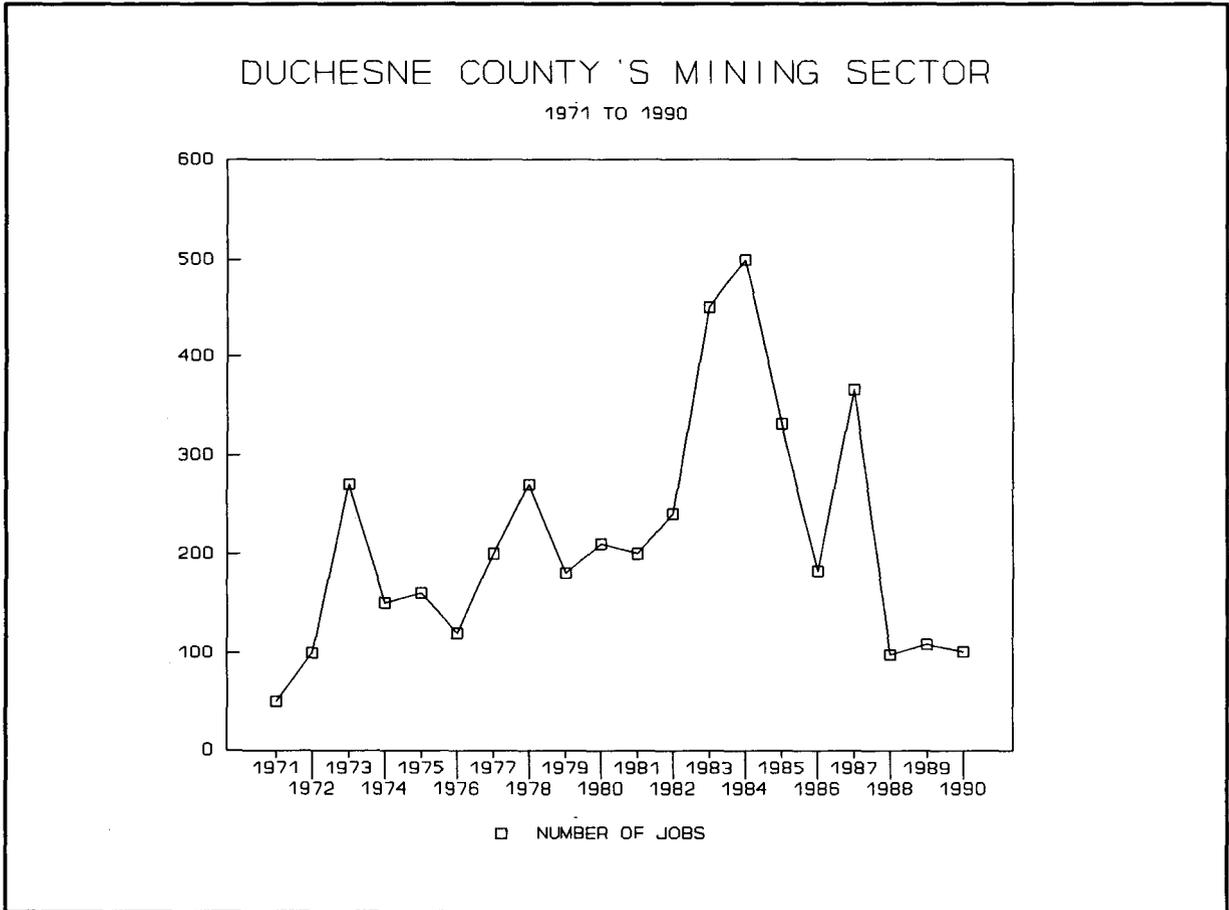
Graph A10-8a - Job Sector, Mining - Daggett County



According to the Utah Office of Planning and Budget, there have been no workers employed by the mining sector in Daggett County over the last thirty years.

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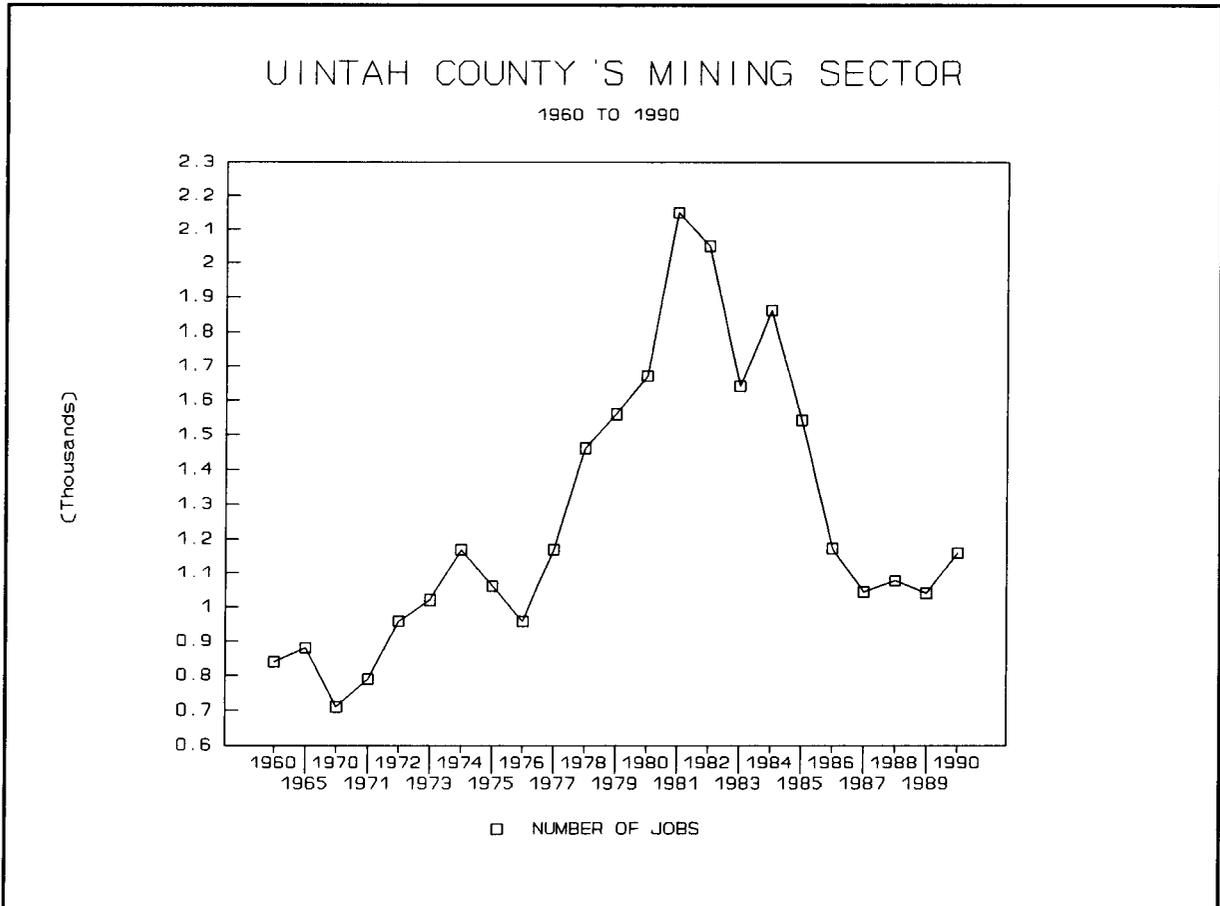
Graph A10-8b - Job Sector, Mining - Duchesne County



Mining has been an industry of notable importance for Duchesne County; however this sector has exhibited sporadic fluctuations with no discernable trends. This situation makes projecting future employment difficult and gives planners little confidence concerning this industry.

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Graph A10-8c - Job Sector, Mining - Uintah County



Uintah County's mining industry has performed much like the State's mining industry. In addition, a relation between the county's mining industry and the county's labor force can be seen when an ordinary least squares (OLS) regression is run. When mining acts as the independent variable and labor force serves as the dependent variable, a R^2 of .70 can be generated. Further, a positive correlation between the two variables can be noted, in other words as the number of employees increases so does the labor force. The complete regression results are given below.

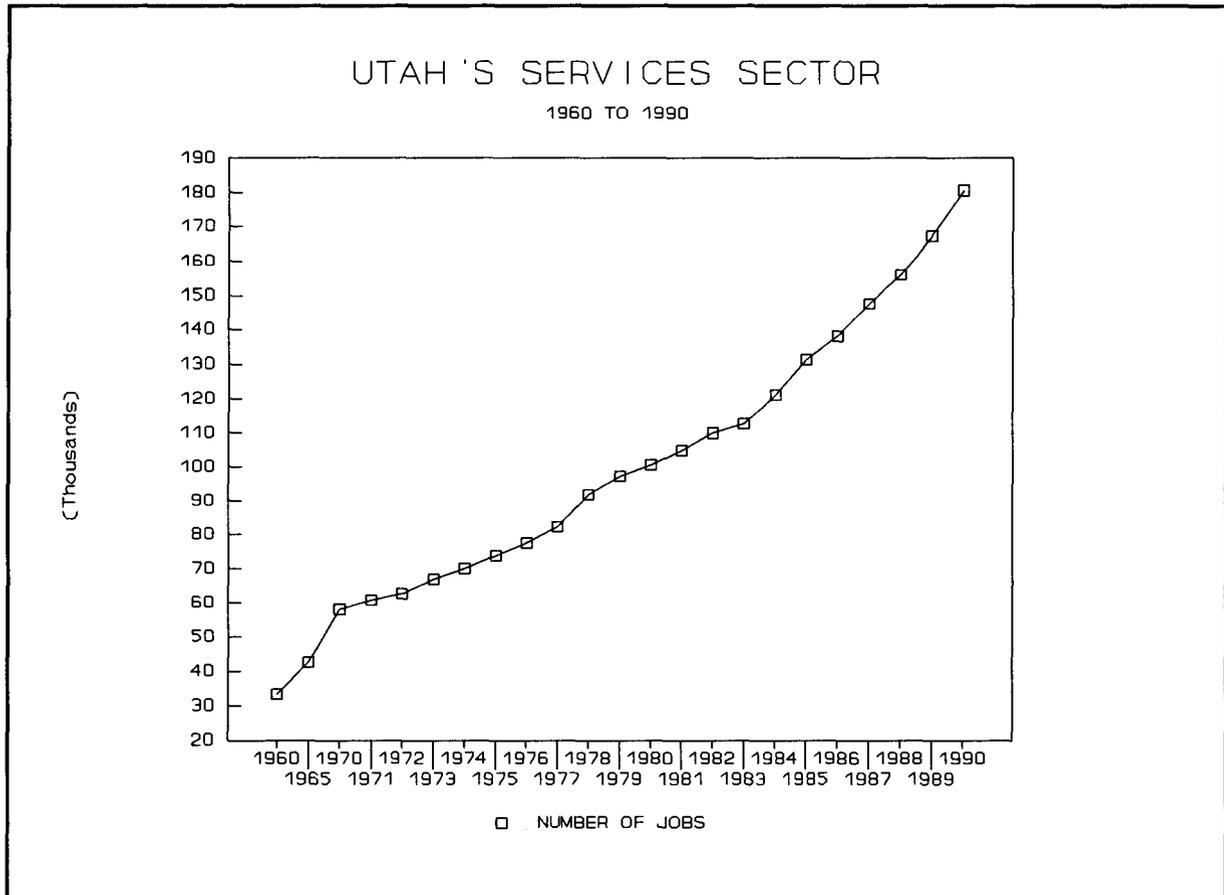
Regression output:

Constant	2254.41
Standard error of Y Estimate	1196.99
R^2	0.70
Number of observations	23.00
Degrees of freedom	21.00

X (independent) coefficient	4.41
Standard error of coefficient	0.63

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Graph A10-9 - Job Sector, Services - State of Utah



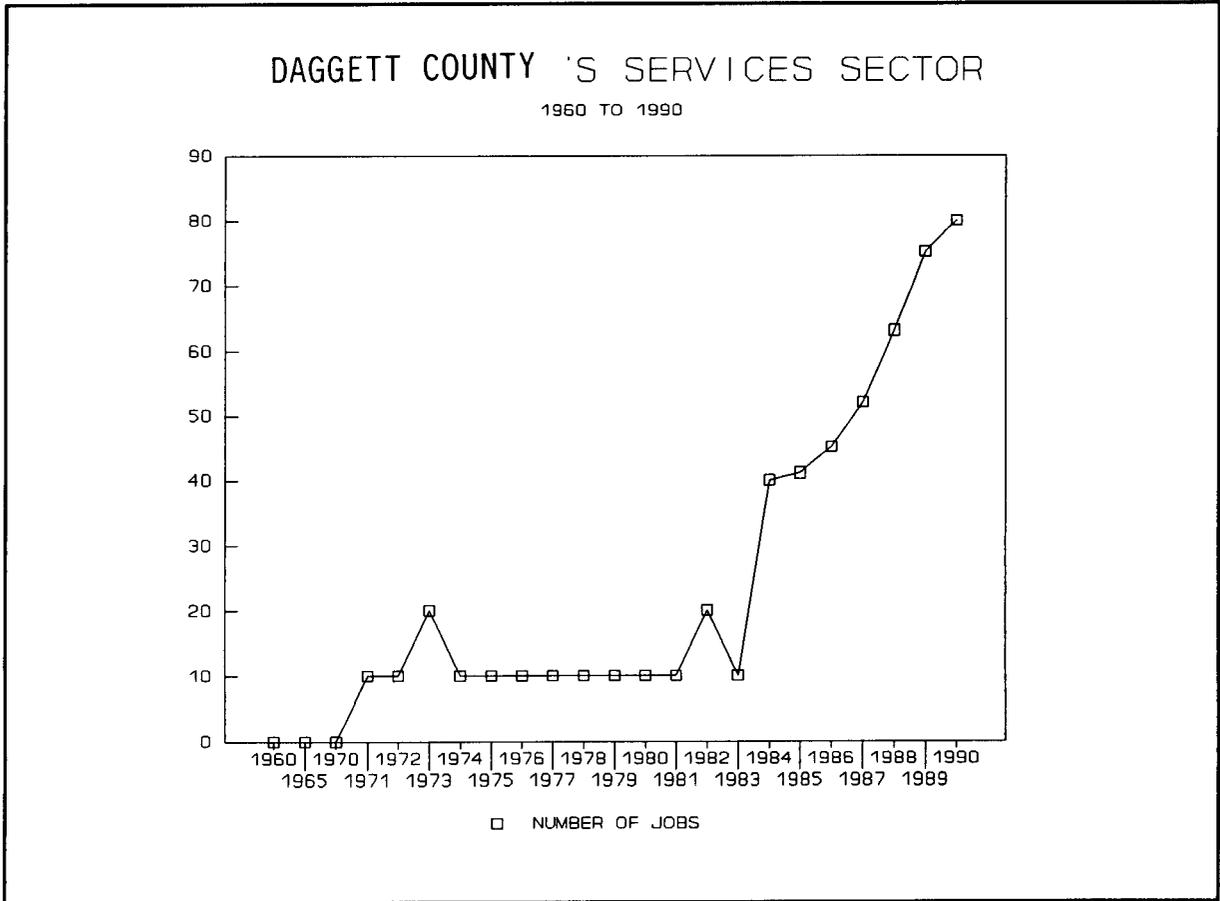
Utah's service sector has undergone two types of growth in the last thirty years. In the 1970's, a linear trend can be observed. However, in the 1980's, an almost exponential rate can be delineated.

Examples of the service sector, include: Lodging, personal and business services, repairs, and amusement and recreation, see SIC manual 1987.

It is fairly easy to see how the BLM may affect these type of establishments. Visitation rates may increase as a result of BLM adopted management concerning recreation and fish and wildlife.

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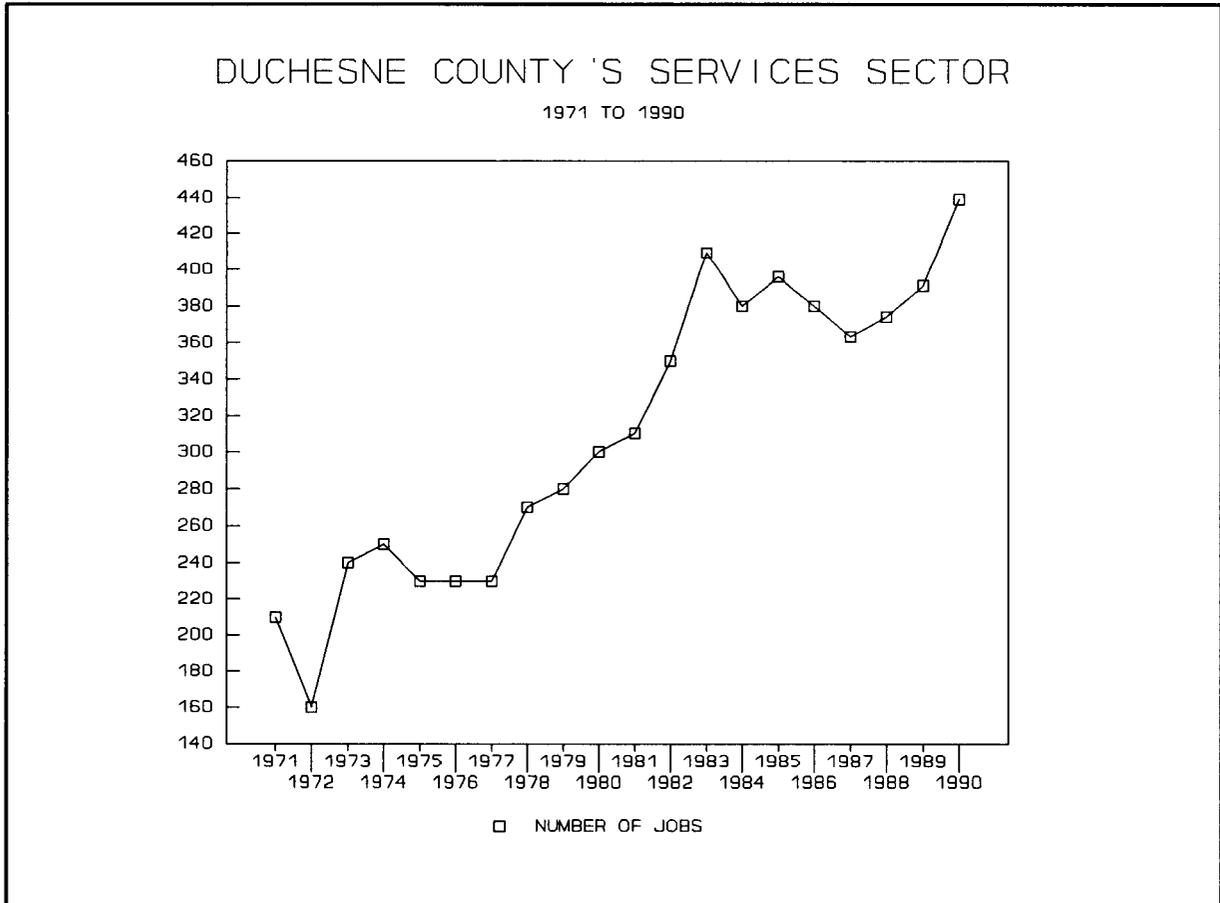
Graph A10-9a - Job Sector, Services - Daggett County



Until 1983, Daggett County's services sector didn't contribute many workers to the labor force. However, after 1983, a dramatic increase in the number employed in this industry occurred. A majority of this expansion may be due to the proximity and magnitude of Flaming Gorge.

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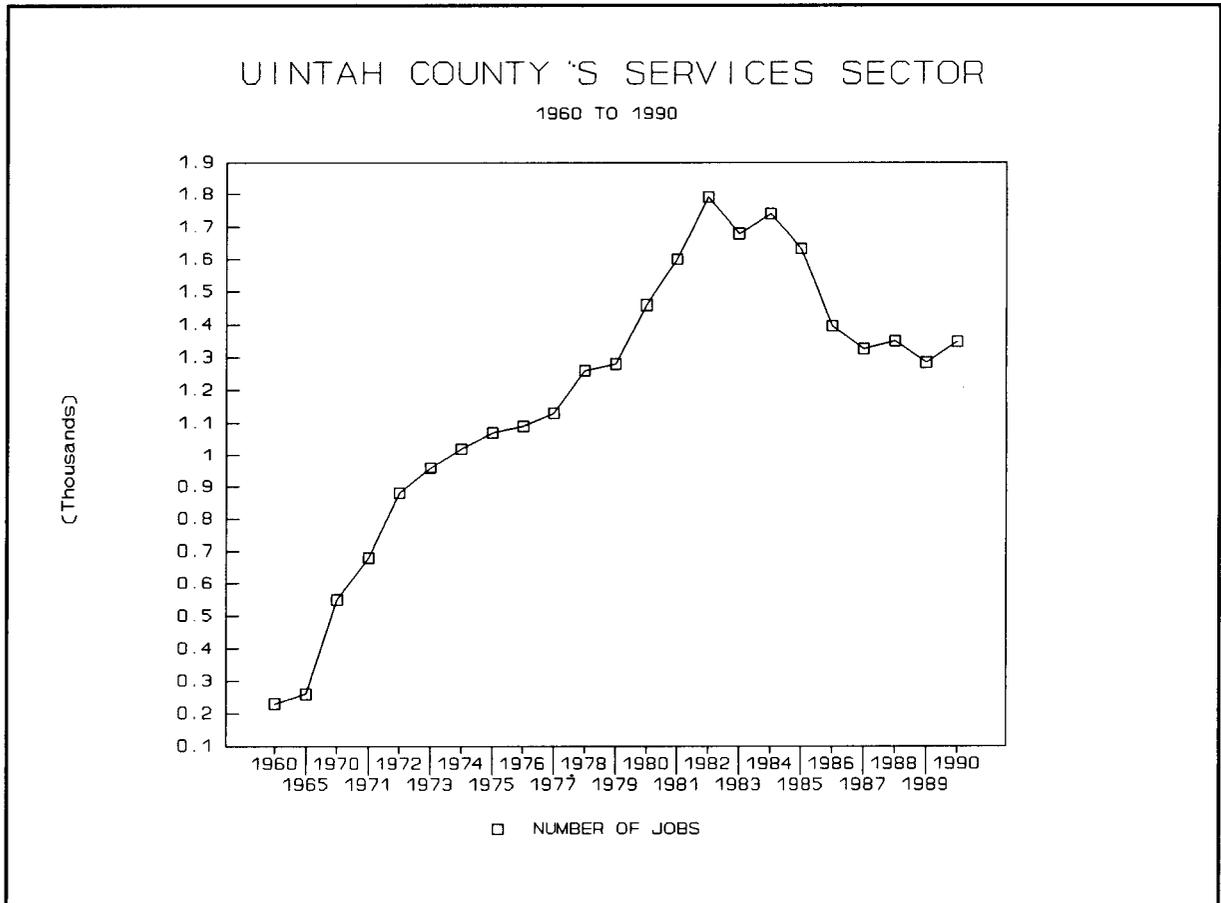
Graph A10-9b - Job Sector, Services - Duchesne County



A steady increase with a few periods of growth has occurred in Duchesne County's services sector. The last four years have displayed a substantial increase in numbers employed in this industry. The BLM and other agencies may play an integral part for such growth, due to the large amount of federal and state owned land in this county.

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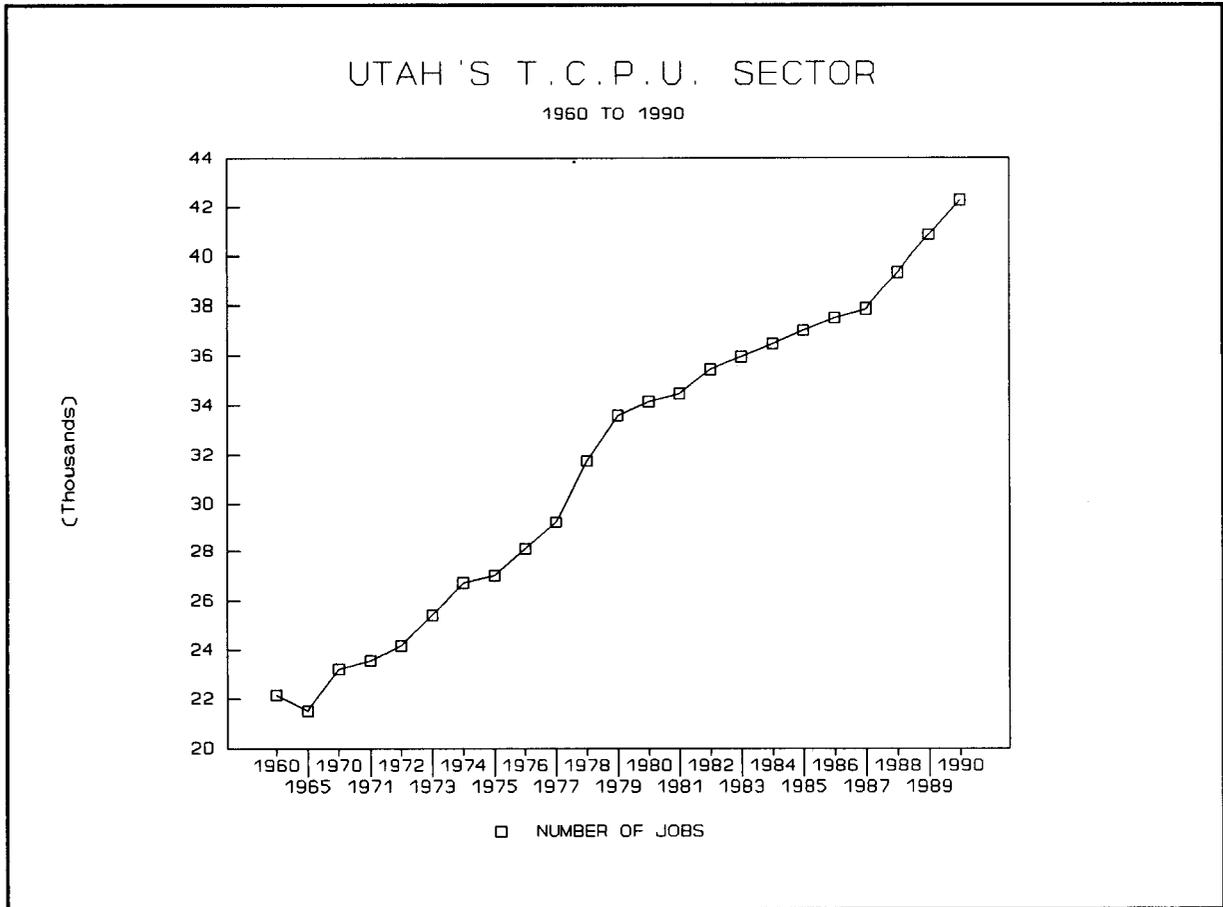
Graph A10-9c - Job Sector, Services - Uintah County



Uintah County experienced substantial growth in the services sector, until the early 1980's. Through out the mid 1980's to the present, this industry has declined in the number employed. BLM influence should be apparent in this county due, again, to the percentage of acreage that falls under public ownership.

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Graph A10-10 - Job Sector, T.C.P.U. - State of Utah

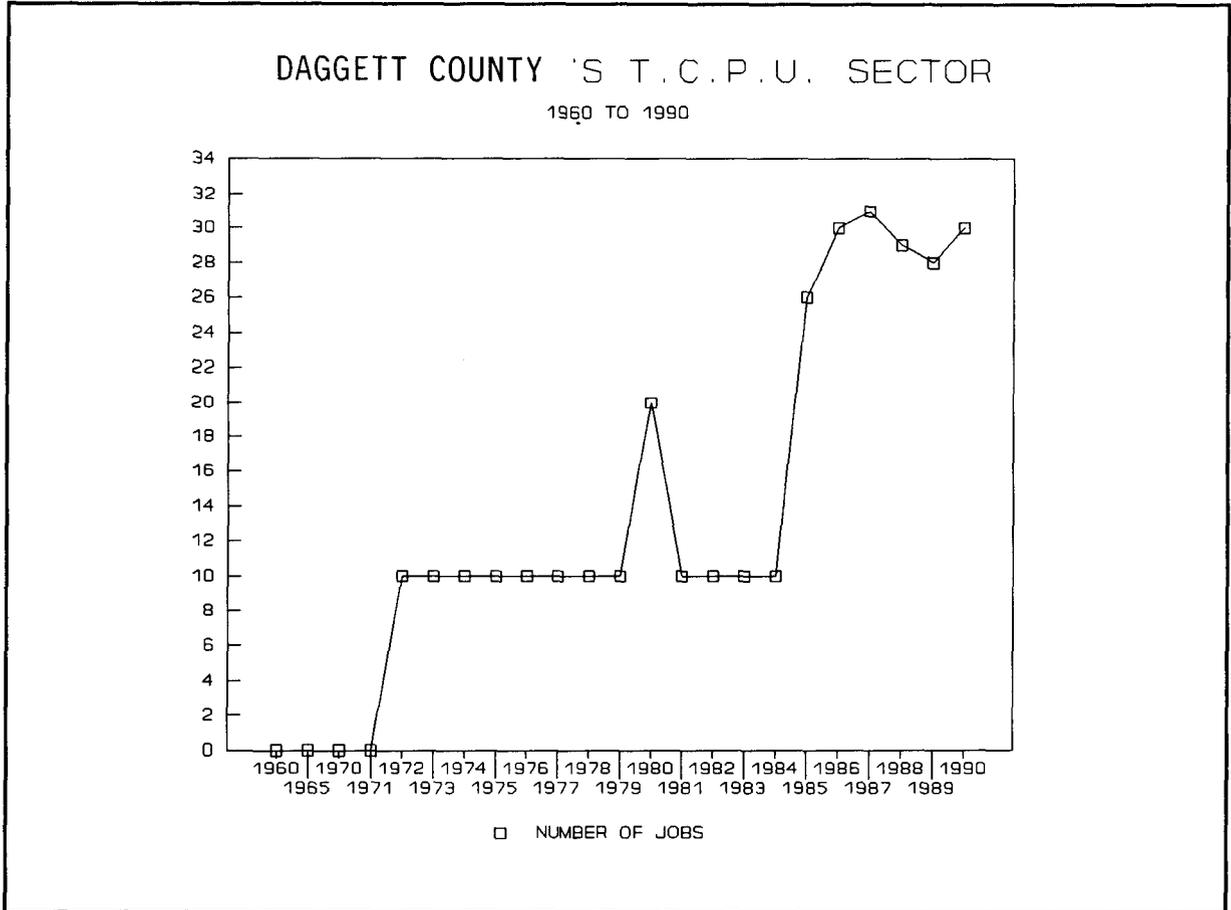


Utah's Transportation, Communications, and Public Utilities (TCPU) exhibits a linear type of trend for the last three decades. Again, this situation makes forecasts for this industry more reliable.

Businesses that make-up this sector include: Railroad, passenger transit, trucking, US postal service, telephone, TV and radio (as well as cable TV), see SIC manual 1987. BLM's largest effect concerning this industry could be the granting of rights-of-ways, thus allowing public utility and gas lines to be constructed.

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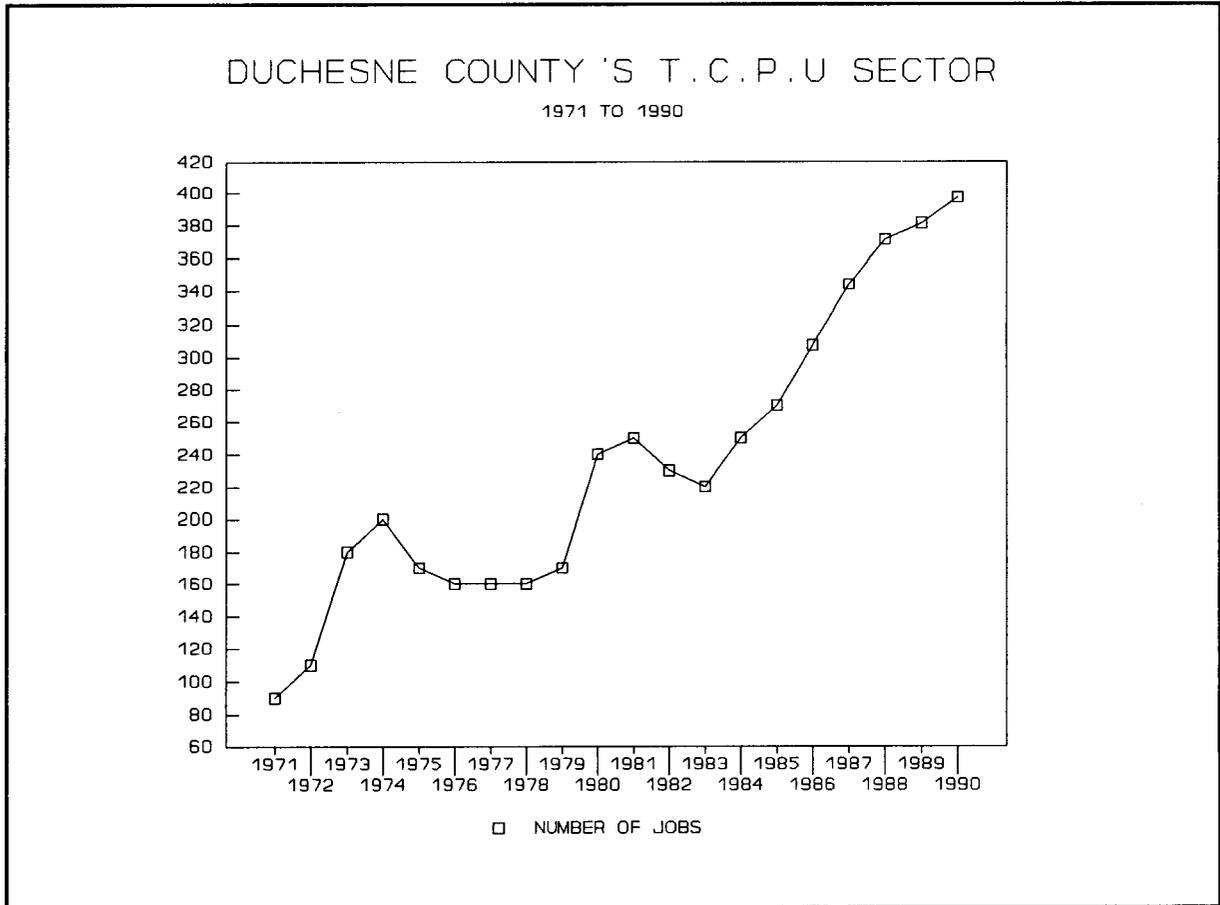
Graph A10-10a - Job Sector, T.C.P.U. - Daggett County



Daggett County's TCPU sector (as with many other sectors in this county) are hard to predict due to the small population. Notice in 1980, 10 people entered this industry, thus doubling the size of the TCPU industry.

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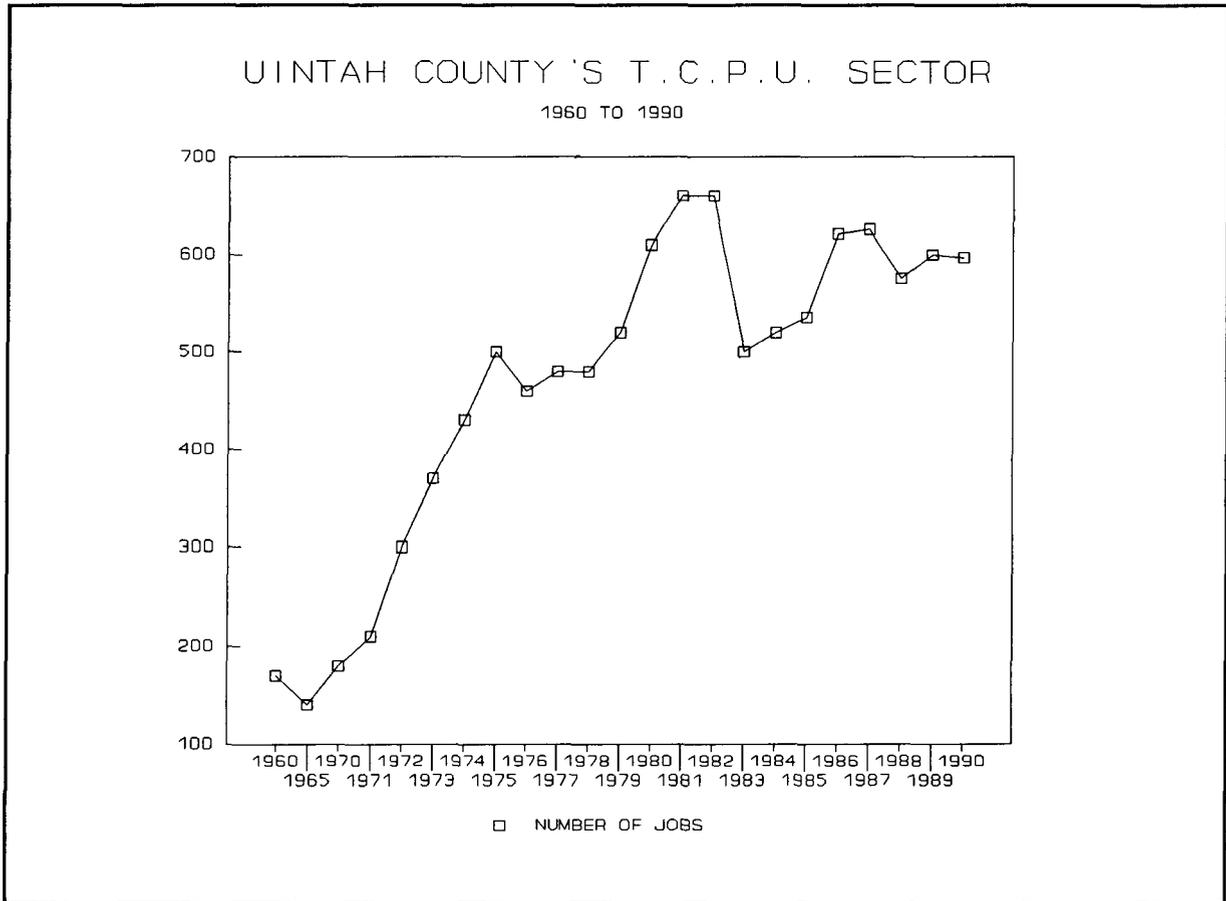
Graph A10-10b - Job Sector, T.C.P.U. - Duchesne County



Duchesne County's TCPU has experienced two clear steps or bursts of growth followed by modest declines leading to today's upward trend. This makes forecasting reliable and gives planners confidence in their recommendations.

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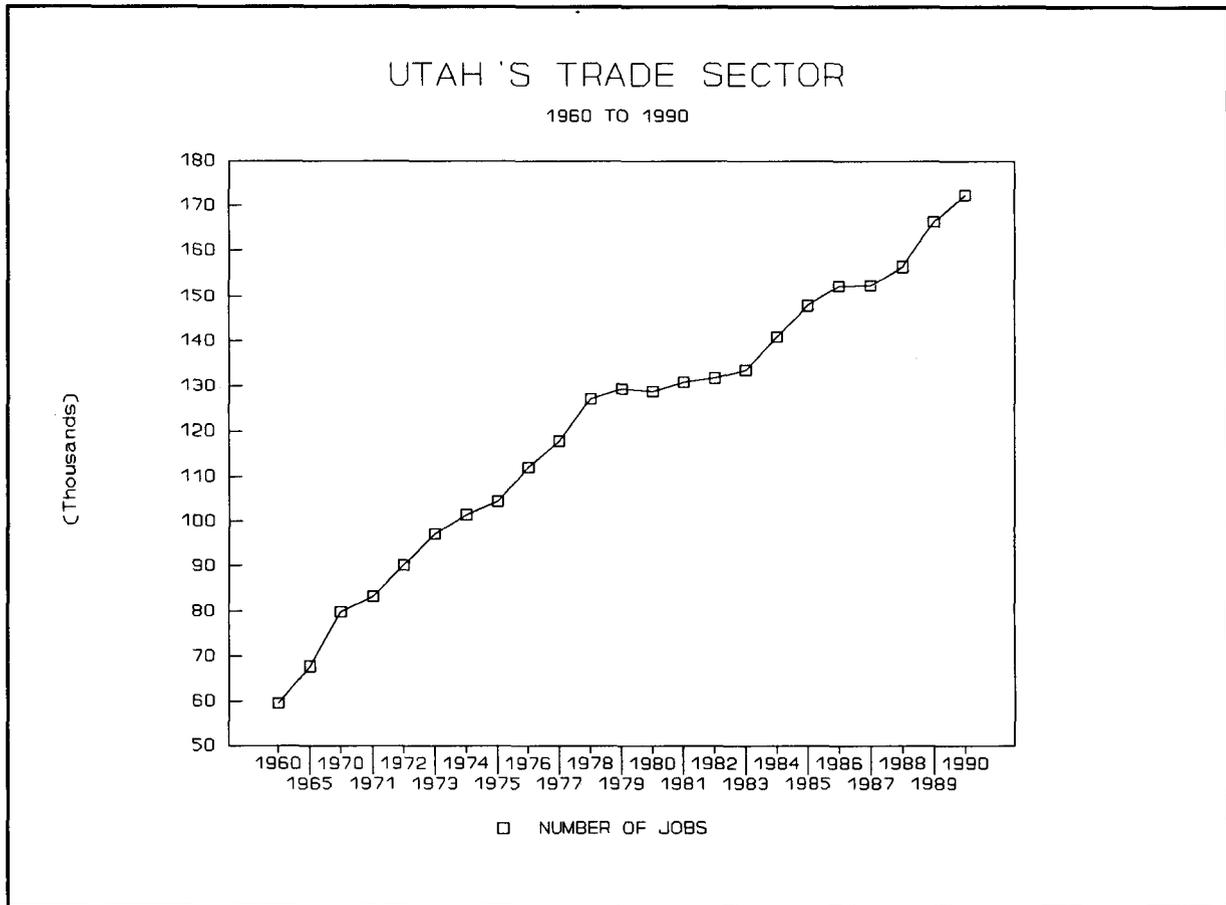
Graph A10-10c - Job Sector, T.C.P.U. - Uintah County



Uintah County's TCPU industry appears to be just the opposite of Duchesne's. Uintah experienced a large surge in number employed in the early 1970's, followed by periods of smaller fluctuations. These smaller vacillations led to the almost flat trend that exists today.

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Graph A10-11 - Job Sector, Trade - State of Utah

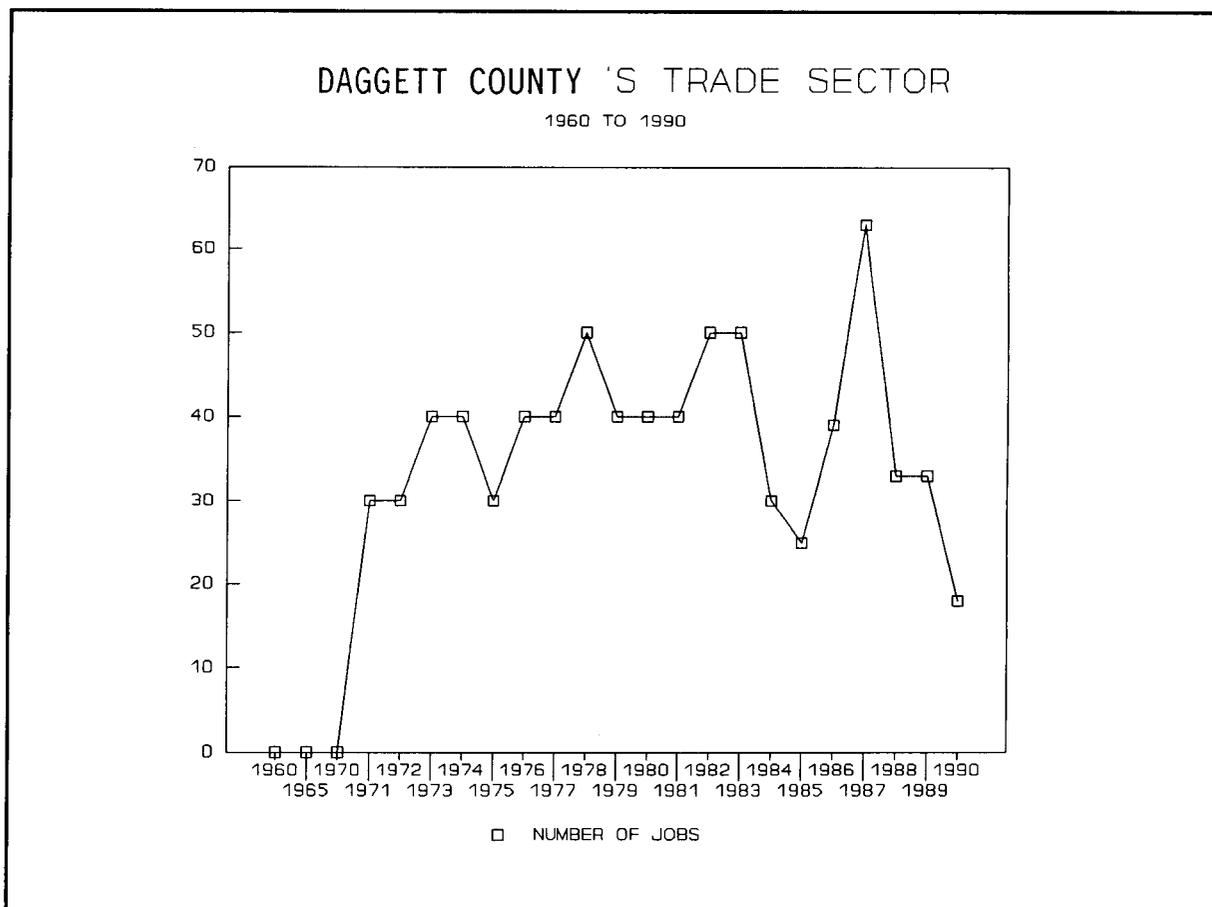


A stable linear increasing rate has occurred in Utah for the last thirty years, this makes estimating the number of jobs in the Trade sector fairly reliable. This sector is broken into wholesale and retail trade. Wholesale is comprised of both durable and nondurable goods. Retail trade takes the wholesale goods produced for retailers and distributes them to individuals, examples include car dealerships, grocery stores, and eating and drinking places, see Standard Industrial Classification (SIC) Manual 1987. This relationship between whole and retail trade illustrates the "value added" concept.

Many resources under BLM management may affect this sector, including: agriculture (livestock), recreation, and fish and wildlife. Increasing or decreasing the quantity of cattle on public land would affect the wholesale trade of livestock. Similarly, increasing or decreasing visitor participation through alteration of recreation and fish and wildlife management could affect both wholesale and retail trade of groceries, and especially the retail trade of groceries and eating and drinking places.

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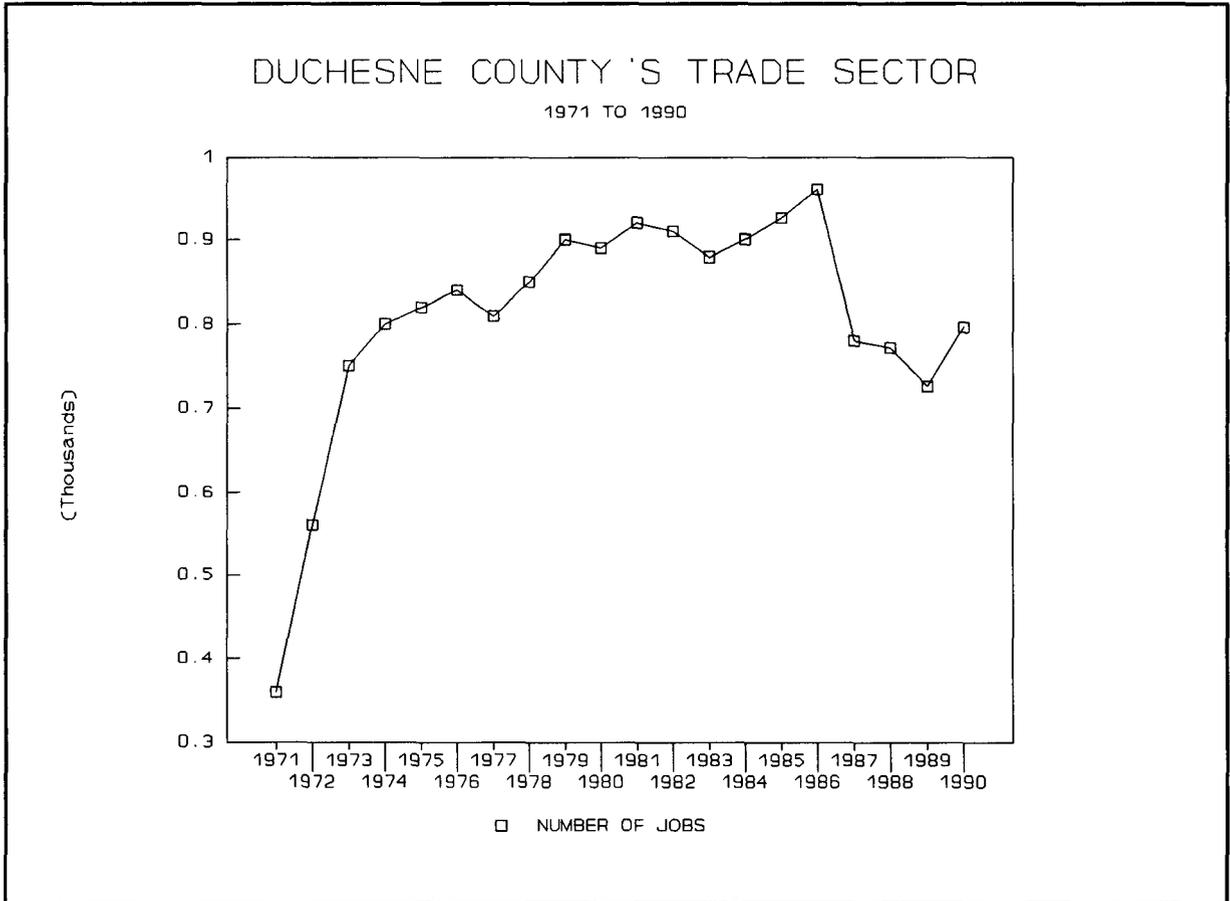
Graph A10-11a - Job Sector, Trade - Daggett County



Daggett County's Trade industry has shown periods of large variation in the last twenty years, this could be in part due to the small numbers employed in this sector. Between 1985 and 1987, the number of employees in this industry was more than doubled by adding approximately 40 workers. It is interesting to notice that as Utah's trade sector has steadily increased over the last few years, Daggett County's share of this industry has become smaller and smaller. Obviously, the small population makes various industries susceptible to large vacillations and decreases confidence forecasters will have in their estimates. Ultimately, this could cause problems for planners and administrators.

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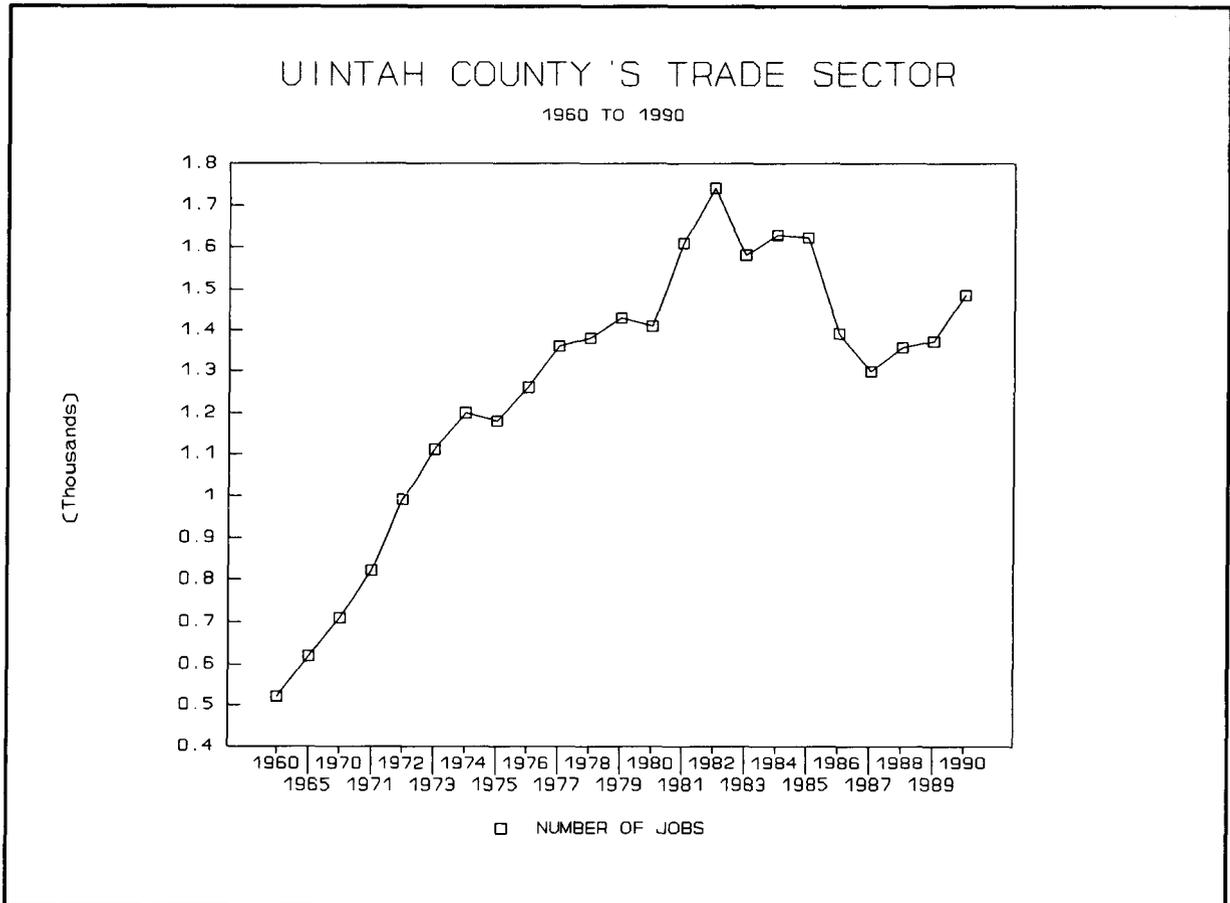
Graph A10-11b - Job Sector, Trade - Duchesne County



In Duchesne County, the Trade sector bloomed in 1971 and pretty much leveled off by 1974. Fluctuations have occurred, but were only of marginal importance. This makes projecting estimates more reliable.

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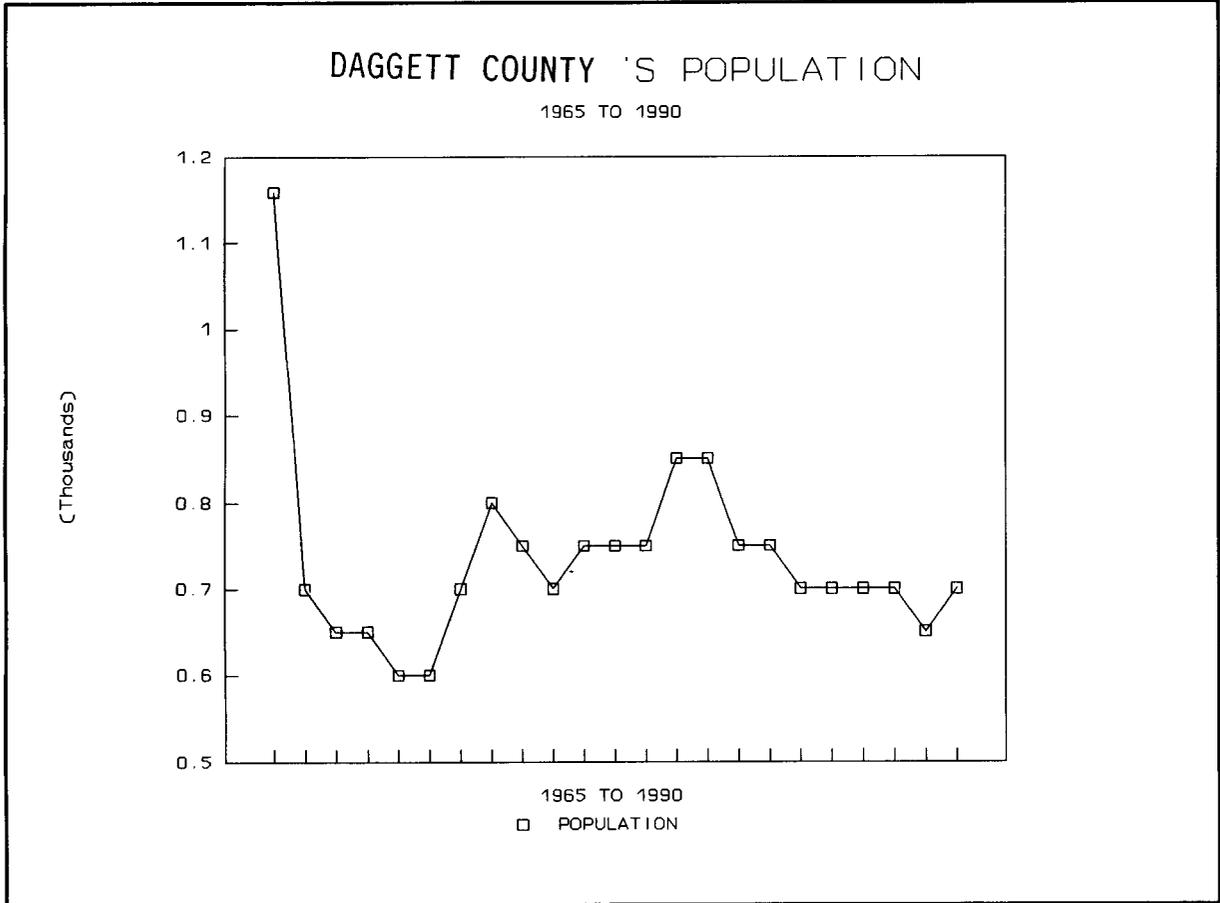
Graph A10-11c - Job Sector, Trade - Uintah County



Since 1960, in Uintah County, there has been an increasing number of workers in the trade industry with a surge in the early 1980's. A subsequent fall occurred in the mid 1980's, perhaps leading to the less dramatic increase in the trade sector in the last four years. Of the three counties in the DMRA, Uintah most closely resembles the trend exhibited by the State. This could be in part due to the relatively large population of Vernal.

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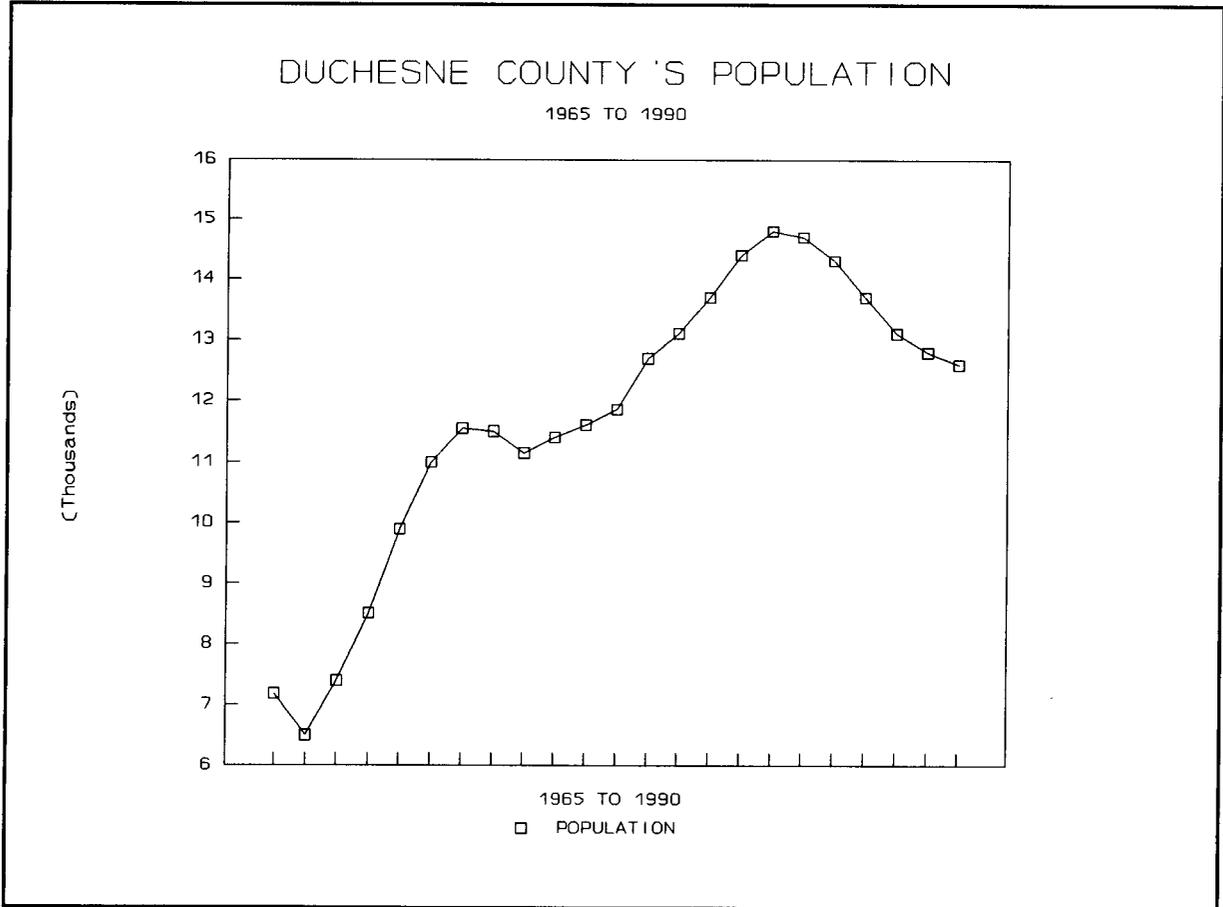
Graph A10-12a - Population - Daggett County



Daggett County's population has shown little deviation over the last three decades.

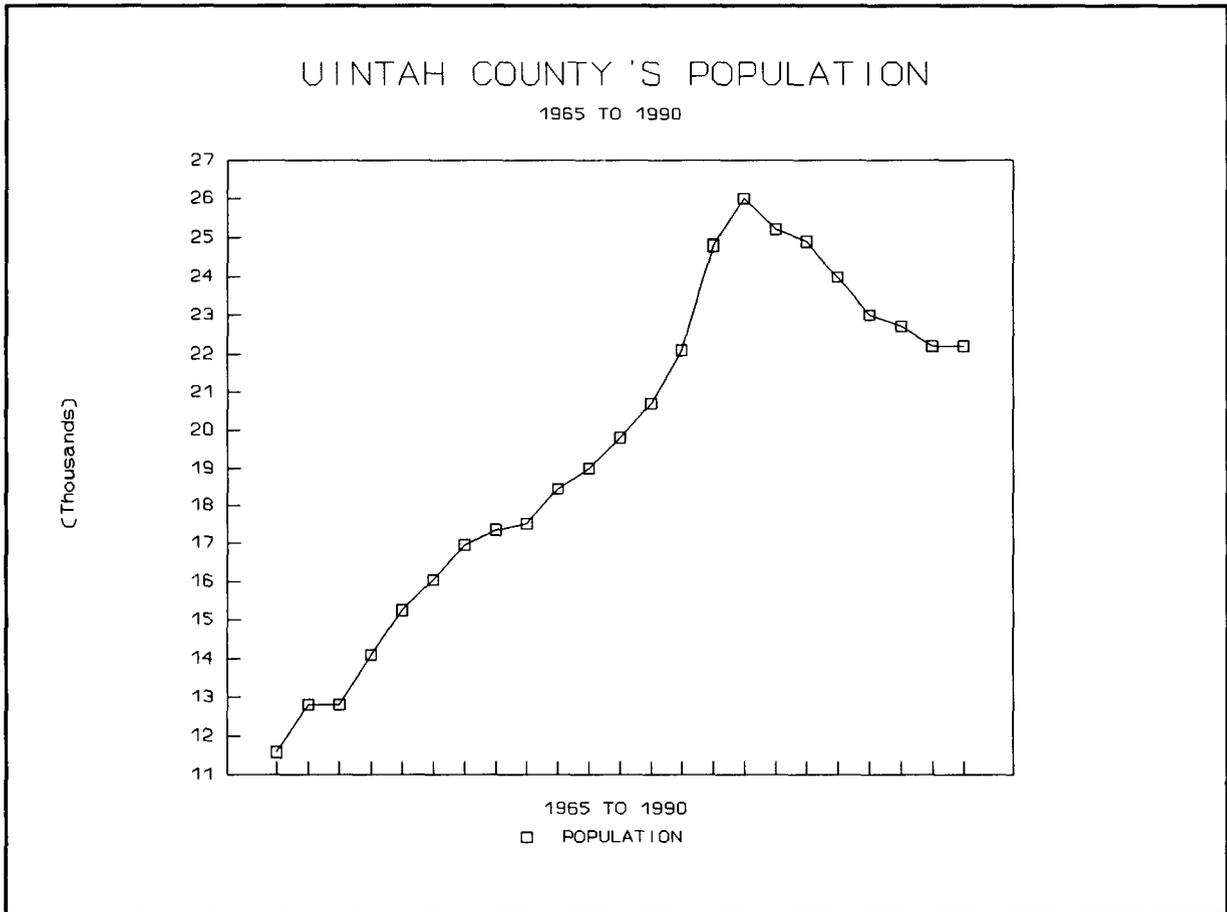
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Graph A10-12b - Population - Duchesne County



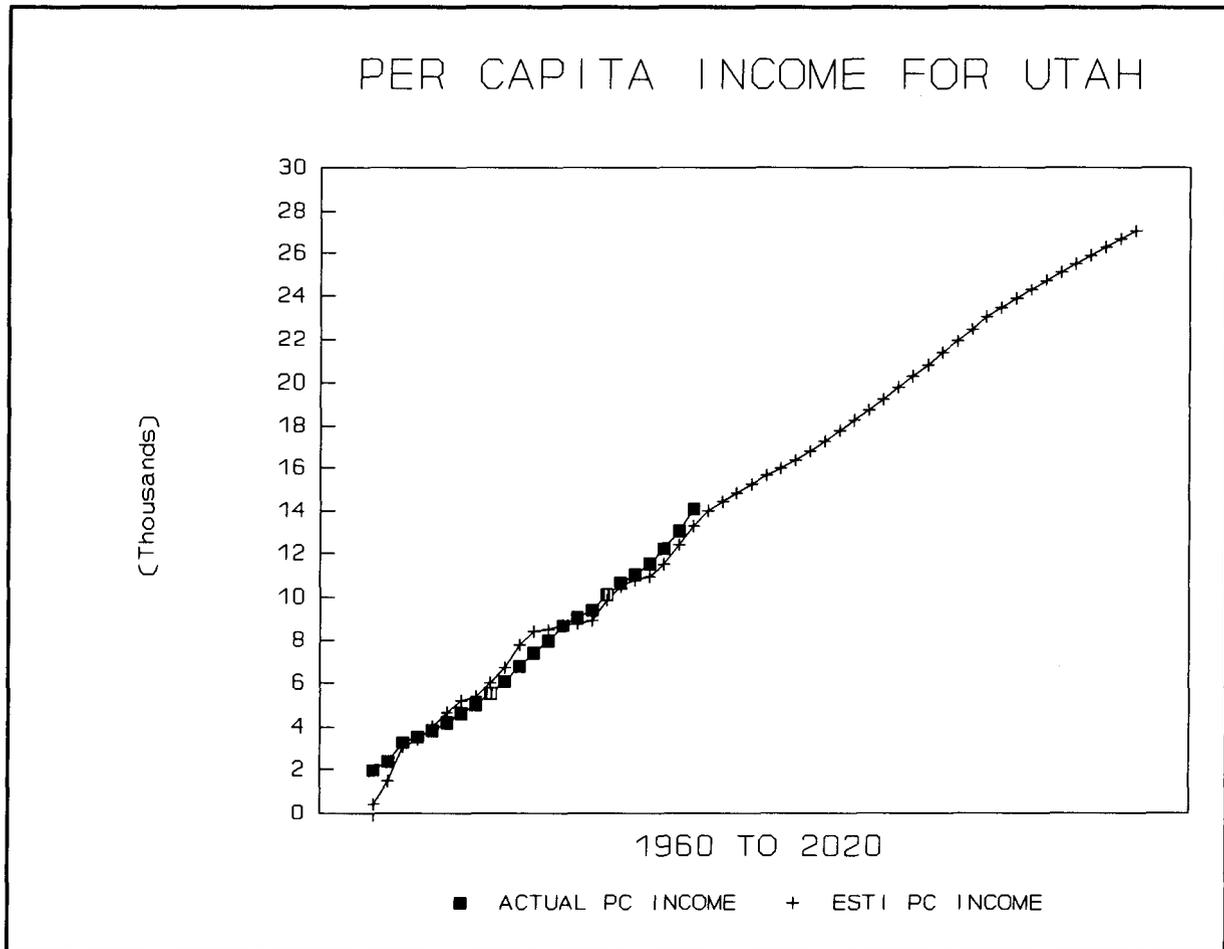
Duchesne County's population depicts a gradual upward cycle until the mid 1980's, when a subtle downward trend developed.

Graph A10-12c - Population - Uintah County



Uintah County's population exhibited a nearly linear trend until the early 1980's, when a gradual down turn in the number of residents occurred.

Graph A10-13 - Estimated Per Capita Income and Forecasts - State of Utah



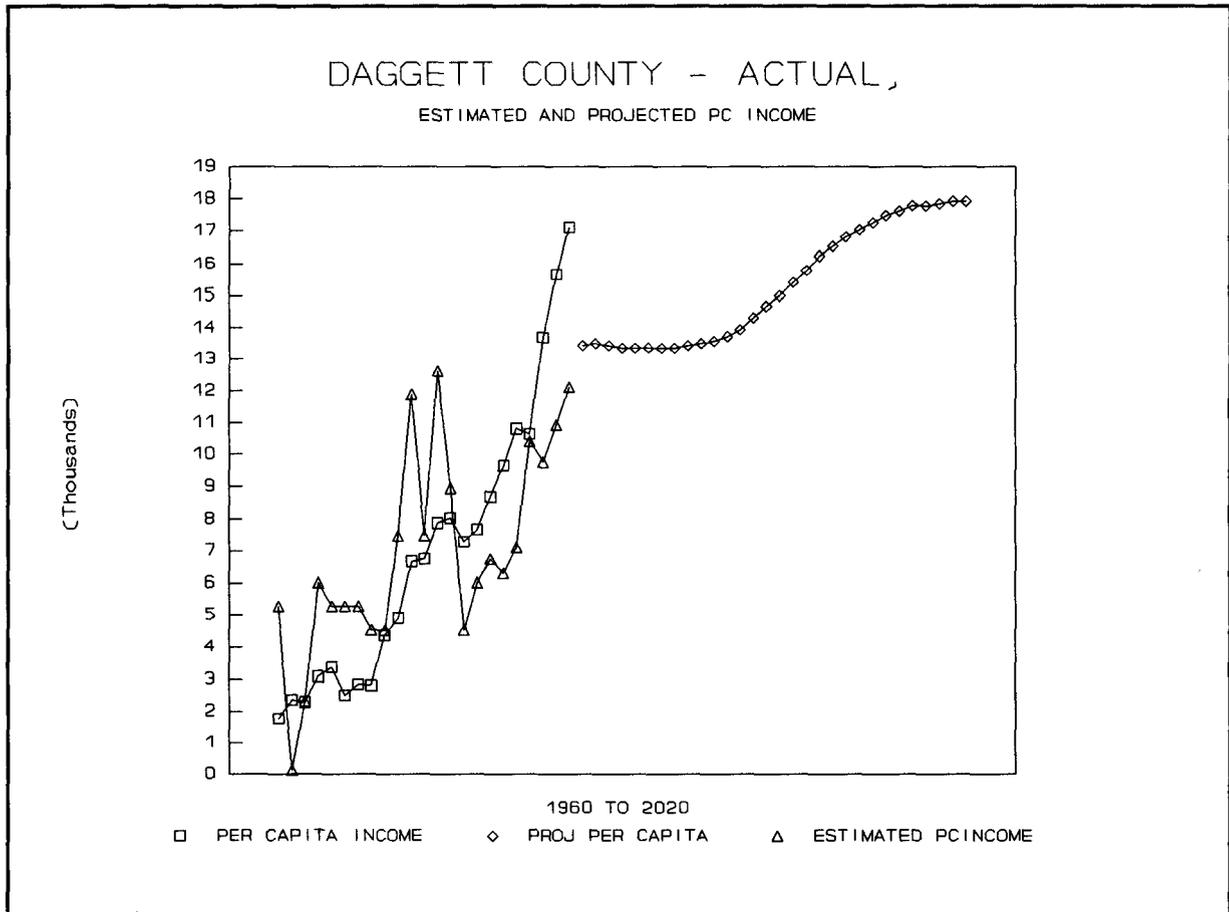
A strong correlation between per capita income and total non-agricultural jobs can be delineated and represented by the high R^2 value. Projections for per capita income shows a linear upward trend.

Regression output:

constant-	6,967.67
Standard error of Y estimate	659.69
R^2	.96
Number of observations	23
Degrees of freedom	21
X coefficient	.03
Standard error of coefficient	.001

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Graph A10-13a - Estimated Per Capita Income and Forecasts - Daggett County



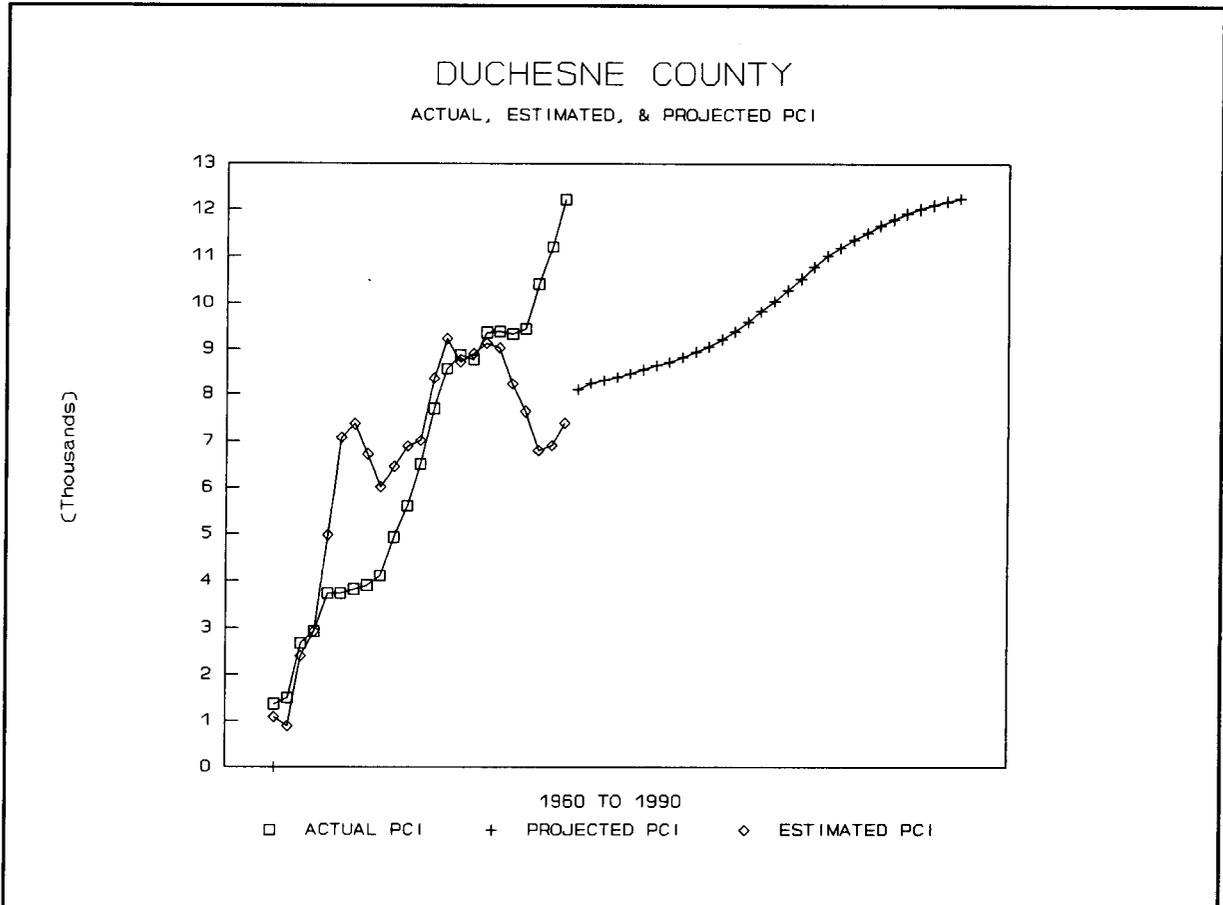
The correlation between per capita income and total non-agricultural jobs is not as strong for Daggett county.

Regression output:

constant	-12,380.7
standard error of Y estimate	3,127.9
R ²	0.52
Number of observations	23
Degrees of freedom	21
X coefficient	73.51
Standard error of coefficient	15.42

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Graph A10-13b - Estimated Per Capita Income and Forecasts - Duchesne County

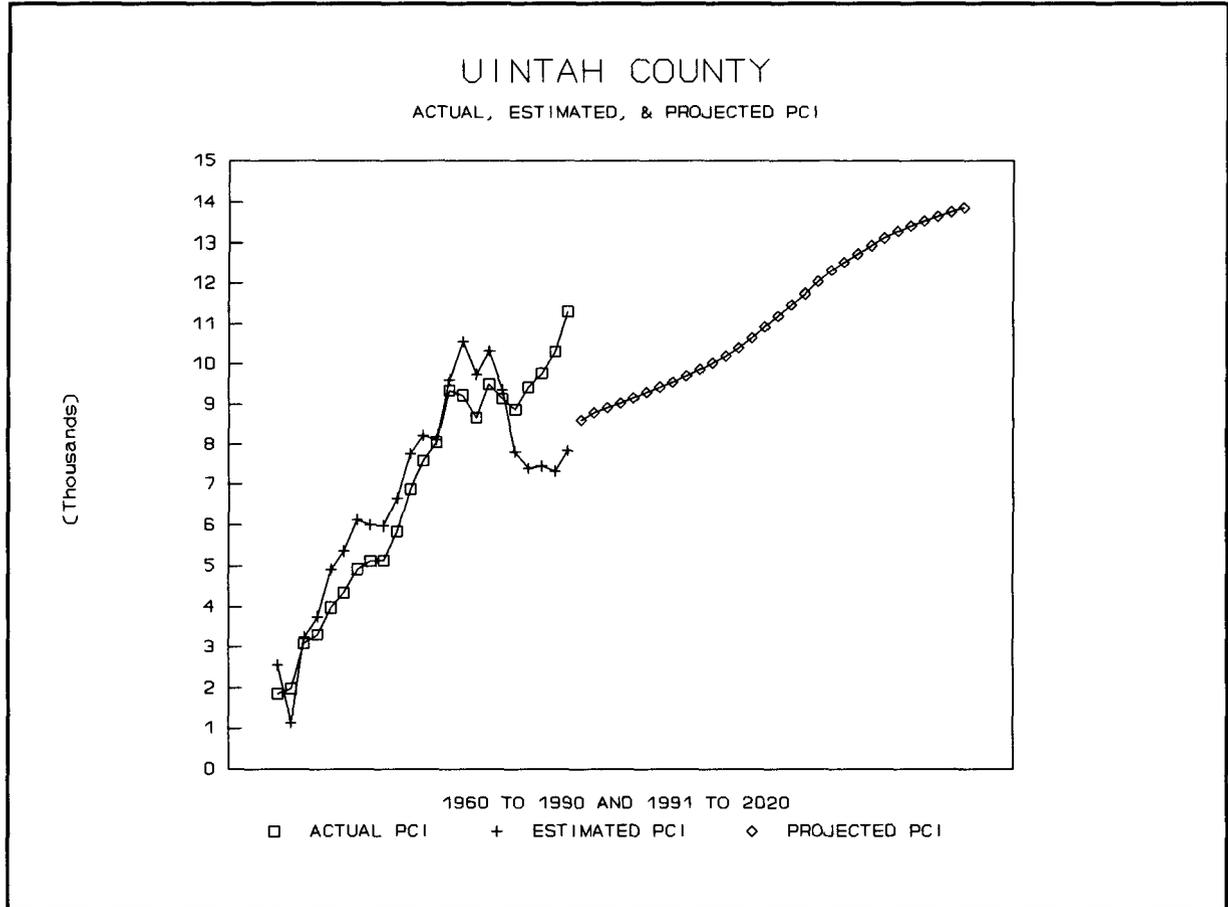


Duchesne County's correlation between per capita income and total non-agricultural jobs is equally as weak as Daggett's.

Regression output:

constant	- 1,518.15
Standard error of Y estimate	2,204.68
R ²	.57
Number of Observations	23
Degrees of freedom	21
X coefficient	2.43
Standard error of coefficient	0.46

Graph A10-13c - Estimated Per Capita Income and Forecasts - Uintah County



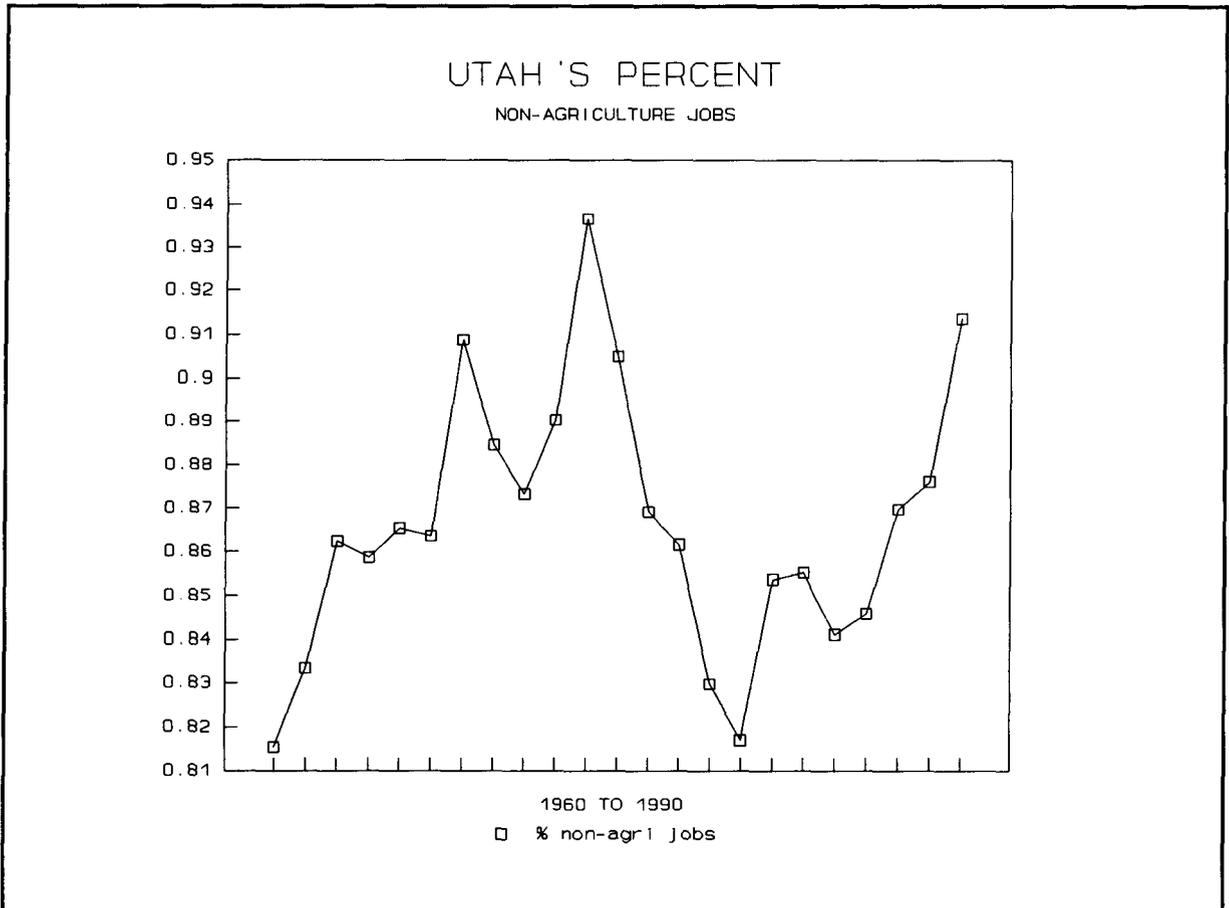
Of the three counties analyzed here, Uintah has the strongest correlation between per capita income and total non-agricultural jobs.

Regression output:

constant	- 1,767.18
Standard error of Y estimate	1,437.39
R ²	.76
Number of observations	23
Degrees of freedom	21
X coefficient	1.43
Standard error of coefficient	.18

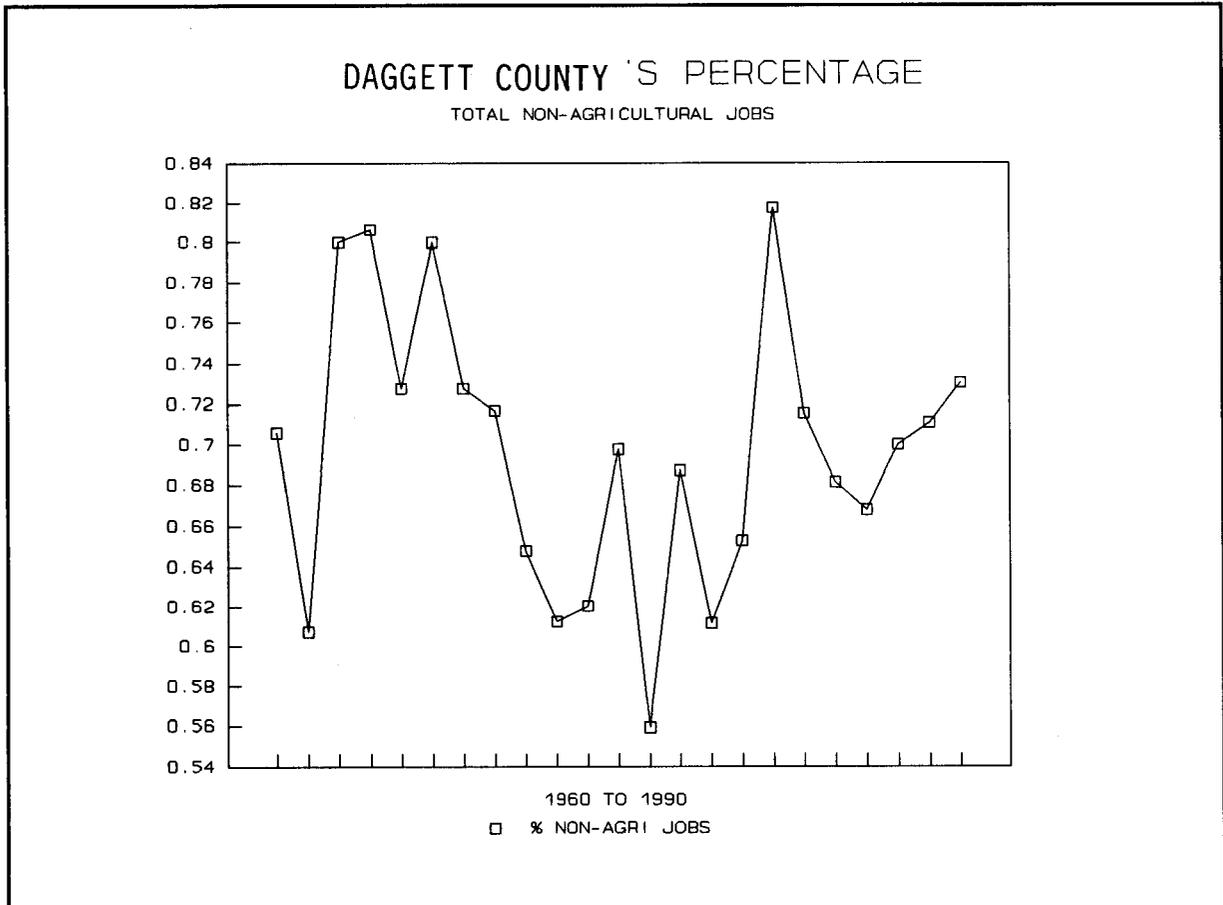
Appendix 10 - Socioeconomic Management

Graph A10-14 - Percentage of Total Non-Agricultural Jobs - State of Utah



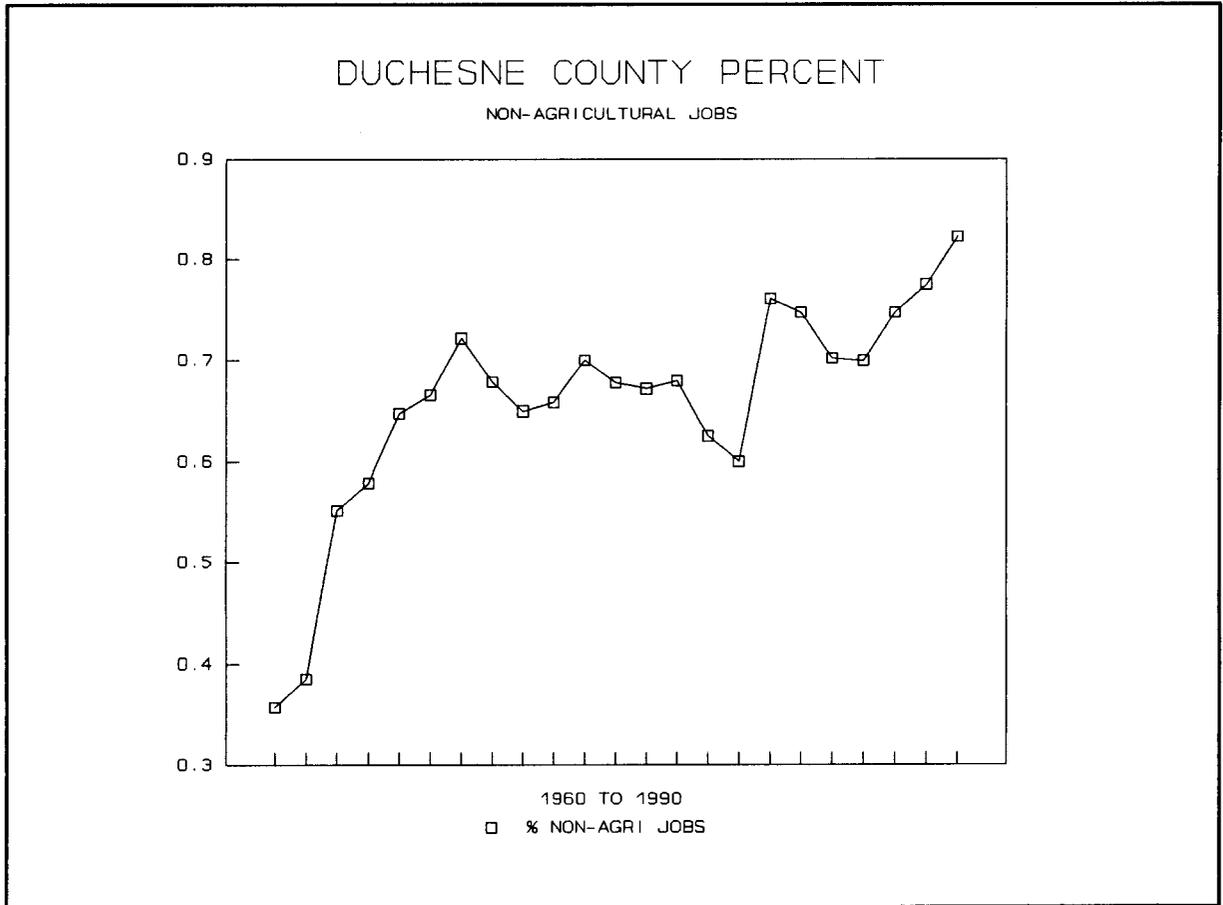
Appendix 10 - Socioeconomic Management

Graph A10-14a - Percentage of Total Non-Agricultural Jobs - Daggett County



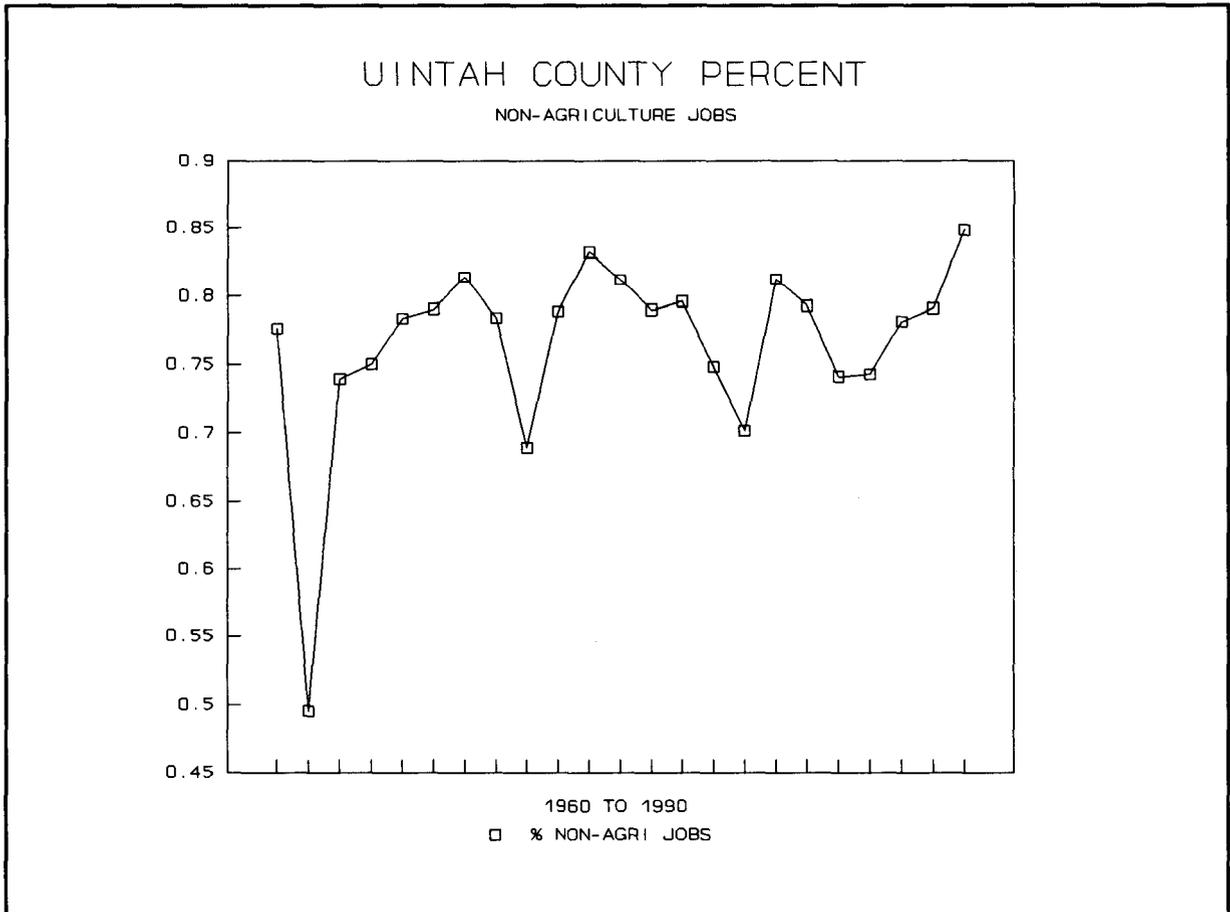
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Graph A10-14b - Percentage of Total Non-Agricultural Jobs - Duchesne County



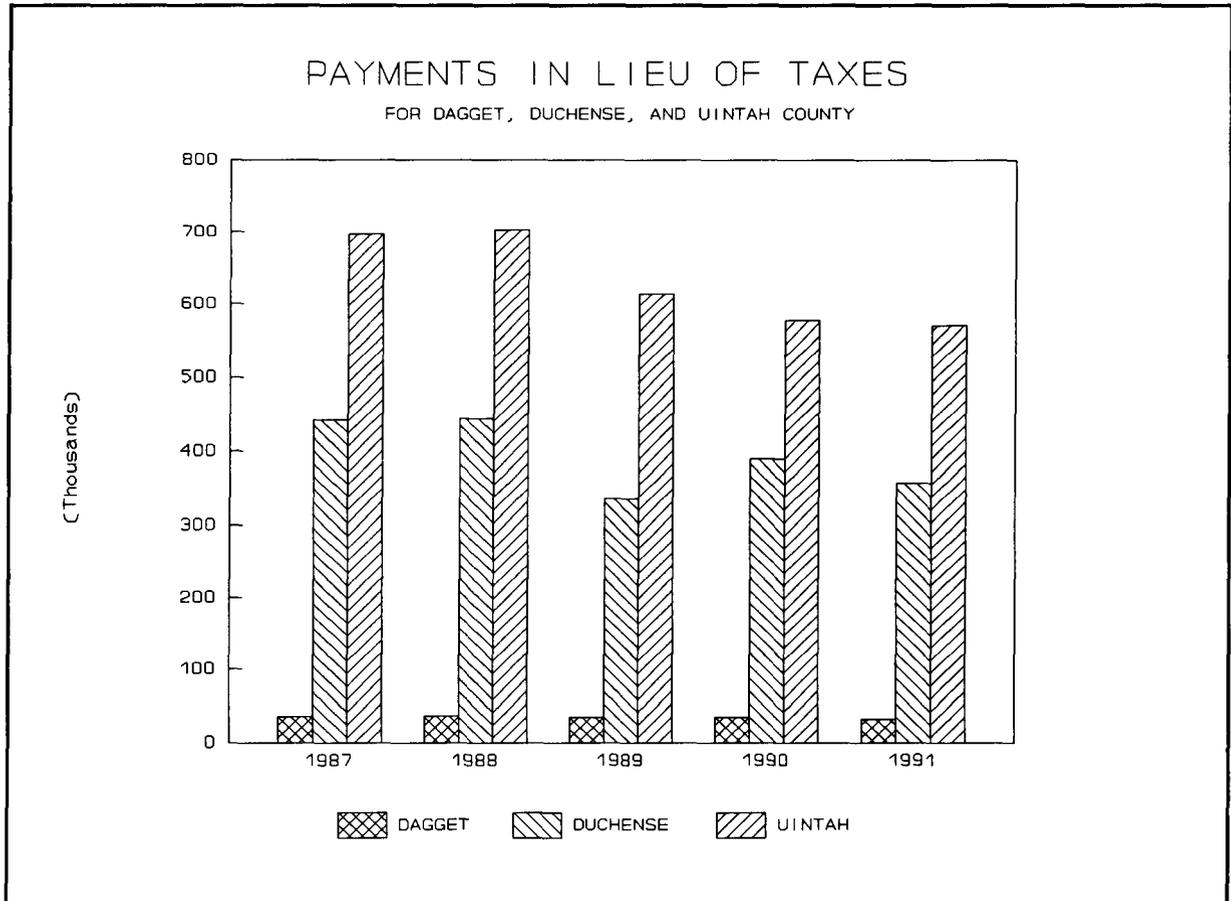
Appendix 10 - Socioeconomic Management

Graph A10-14c - Percentage of Total Non-Agricultural Jobs - Uintah County



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Graph A10-15 - Payments in Lieu of Taxes (PILTs) - Daggett, Duchesne, and Uintah Counties

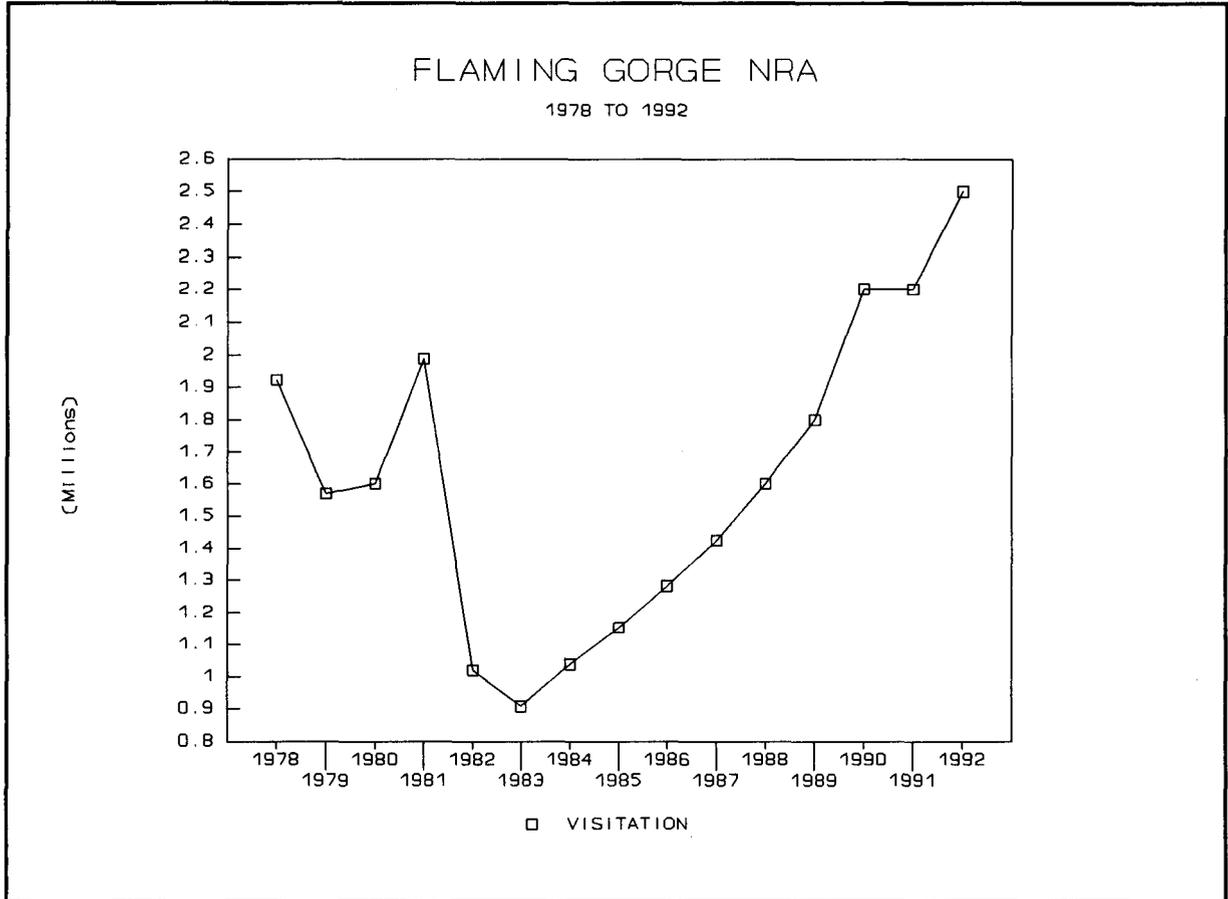


From BLM Facts and Figures for Utah

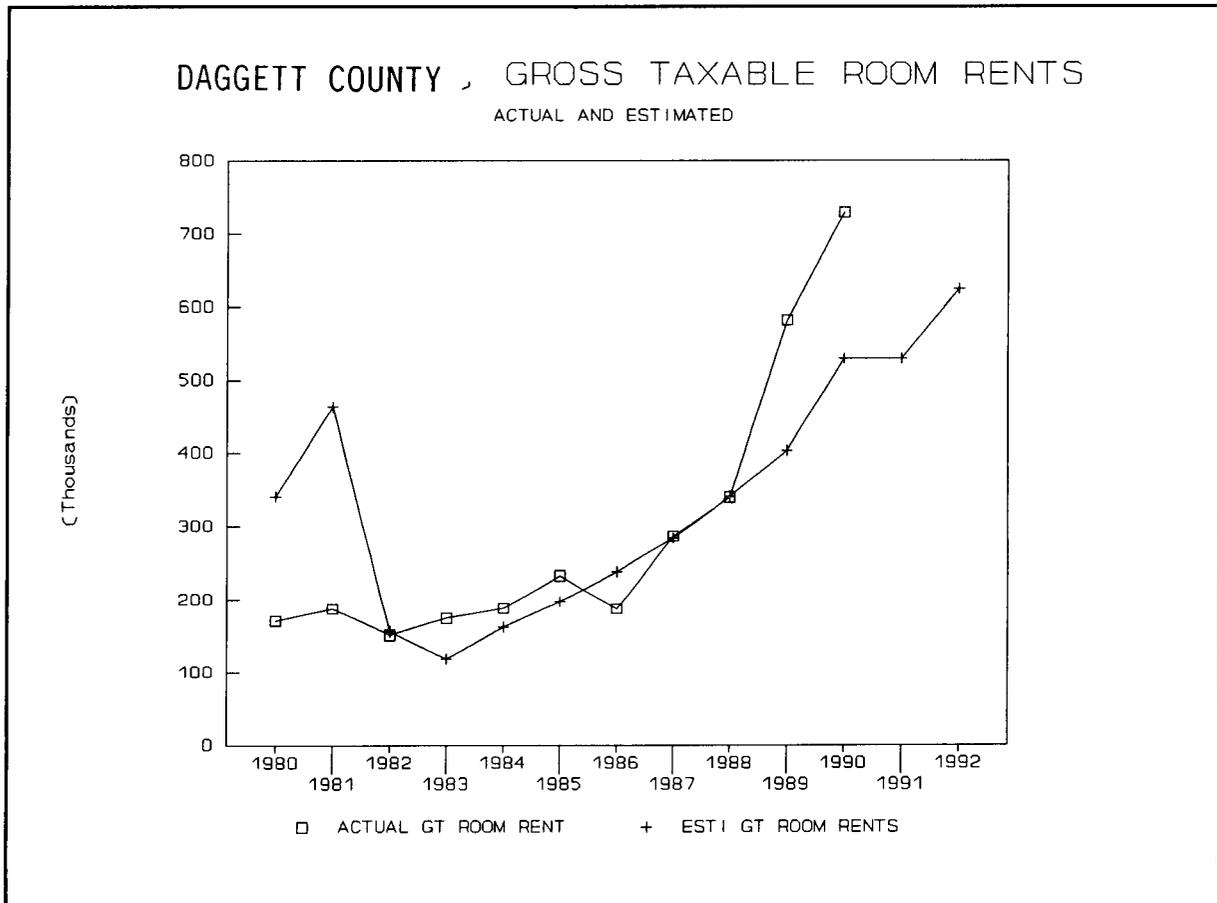
The above graph displays the fairly stable nature of PILTs as a source of revenue of the counties.

Appendix 10 - Socioeconomic Management

Graph A10-16a - Recreation, Flaming Gorge NRA - Daggett County



Graph A10-16b - Recreation, Gross Taxable Room Rents - Daggett County



Regression Output: For gross taxable room rents using Flaming Gorge visitation

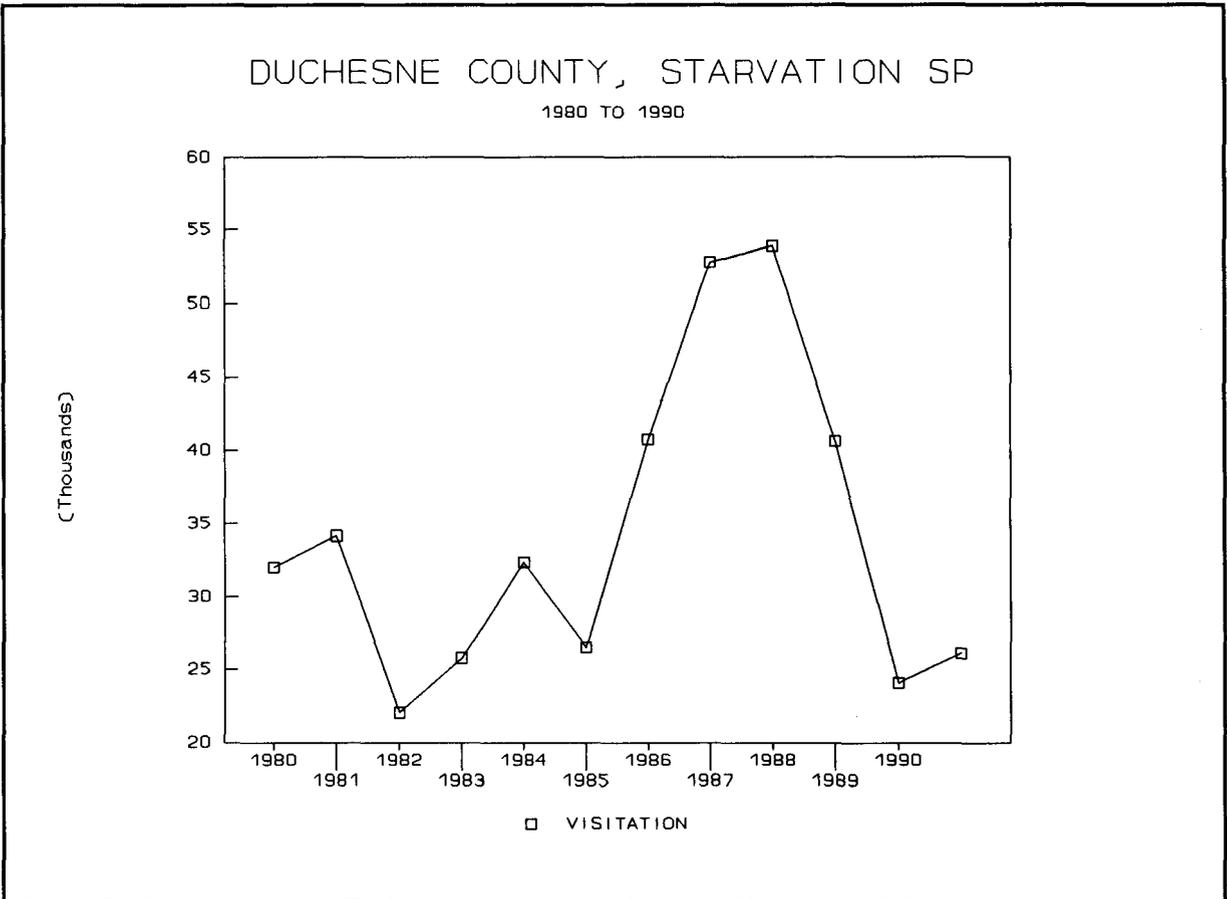
Constant	-167,841.
Standard error of Y estimate	143,000.5
R ²	.49
Number of observations	11
Degrees of Freedom	9

X (independent variable) coefficient	0.316891
Standard error of coefficient	0.107051

The above X coefficient represents Flaming Gorge visitation, which in this case has a positive relationship with actual gross taxable room rents. In other words, when visitation to Flaming Gorge increases so does gross taxable room rents for Daggett County. An R² of .49 depicts a relative loose goodness of fit and is illustrated in the above graph comparing actual and estimated gross taxable room rents.

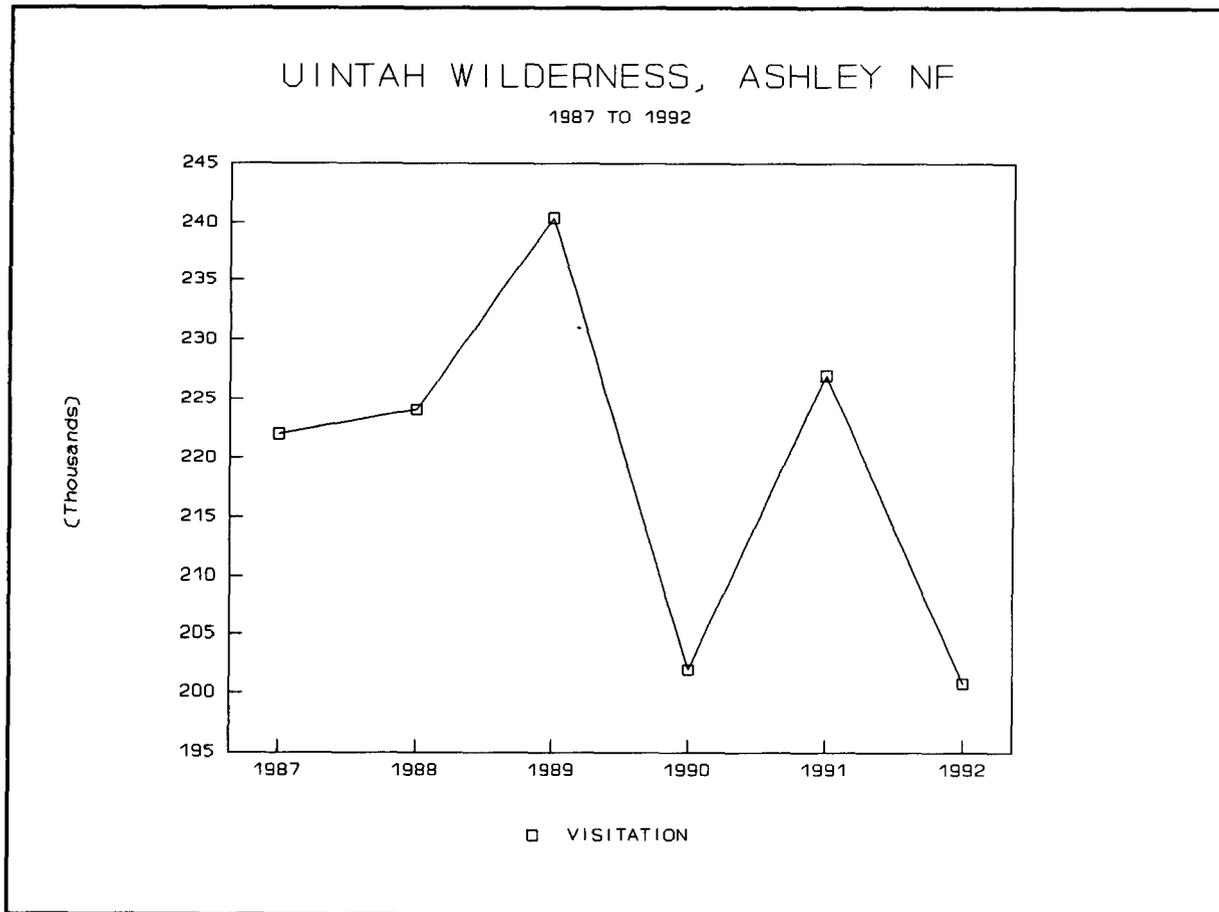
Appendix 10 - Socioeconomic Management

Graph A10-16c - Recreation, Starvation SP - Duchesne County

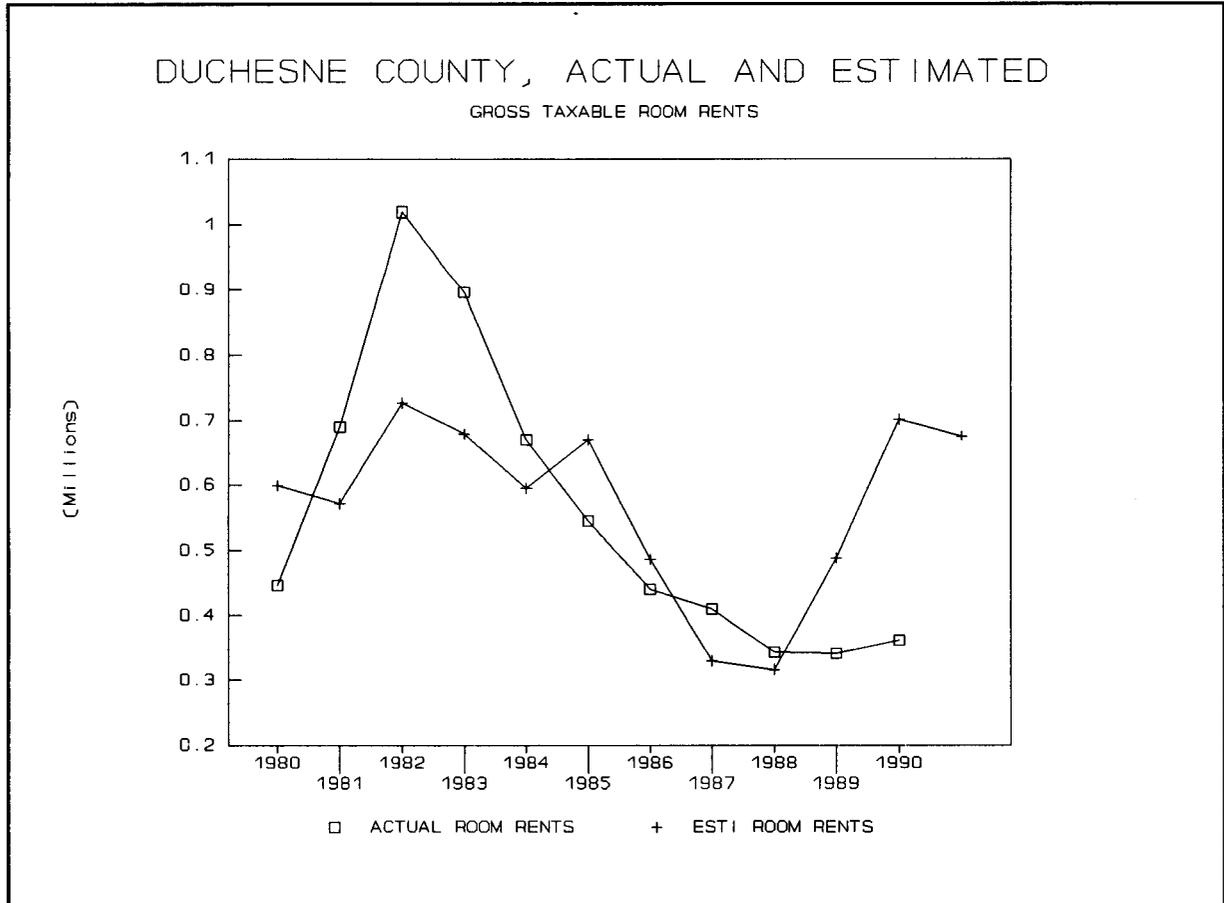


Appendix 10 - Socioeconomic Management

Graph A10-16d - Recreation, Ashley NF - Uintah County



Graph A10-16e - Recreation, Gross Taxable Room Rents - Duchesne County



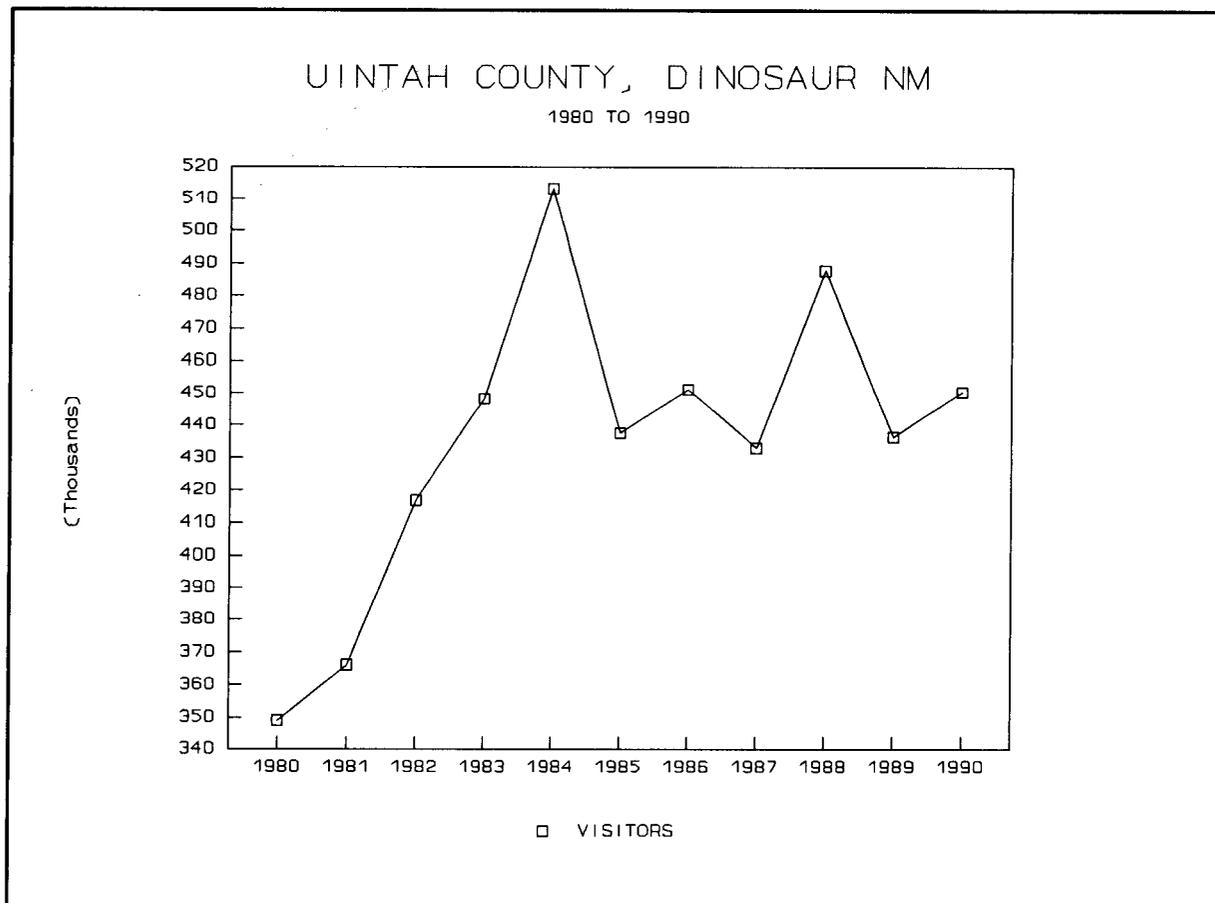
Regression Output: For gross taxable room rents from Starvation SP visitor rates

Constant	1,012,408.
Standard Error of Y estimate	193,527.5
R ²	.37
Number of Observations	11
Degrees of Freedom	9
X (independent variable) coefficient	-12.9186
Standard Error of Coefficient	5.588475

Here, unlike Flaming Gorge, Starvation SP visitation has a negative coefficient. Which means as the number of visitors to Starvation SP increases the gross taxable room rents decrease, however the low R² illustrates the lack of correlation between the two variables in question. This point is further illustrated in the above graph comparing the actual and estimated gross taxable room rents.

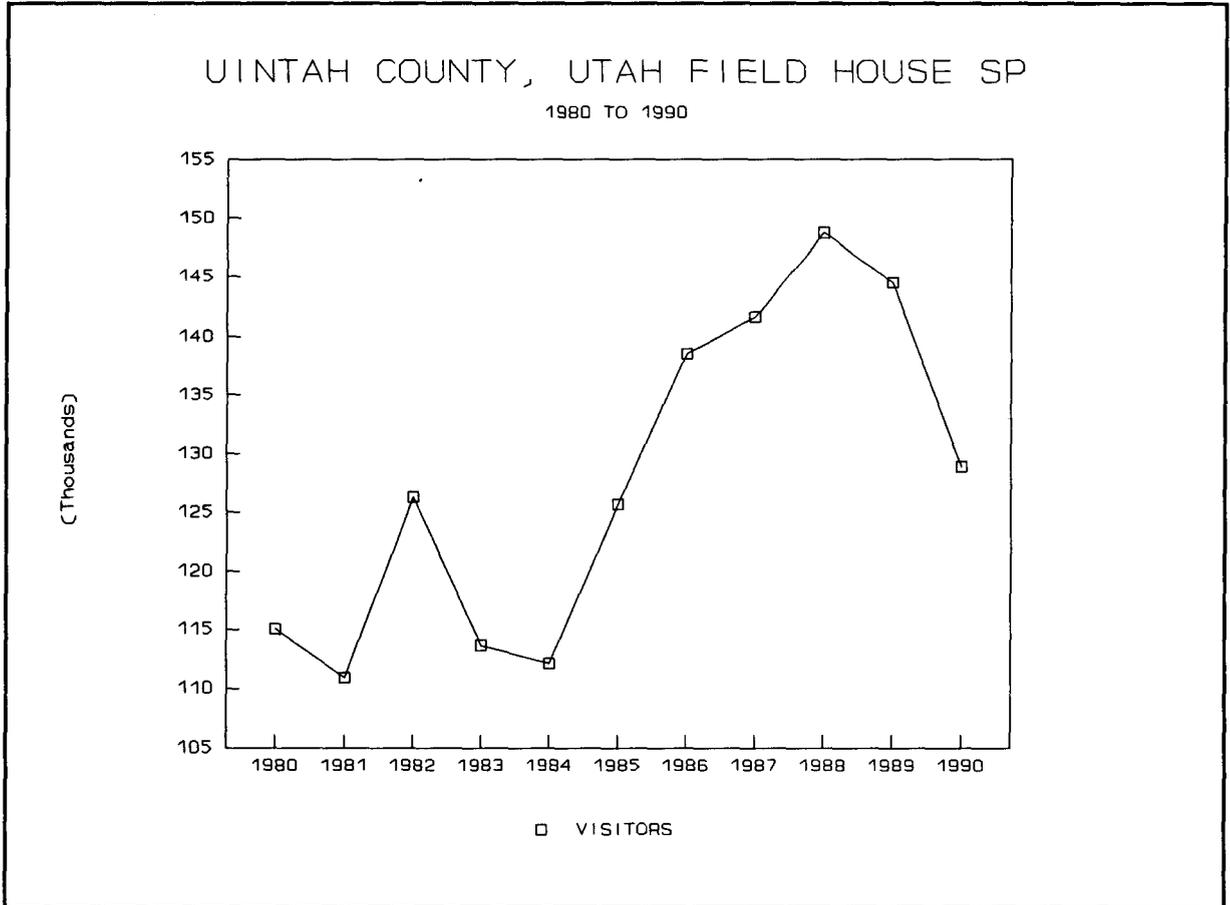
Appendix 10 - Socioeconomic Management

Graph A10-16f - Recreation, Dinosaur NM - Uintah County

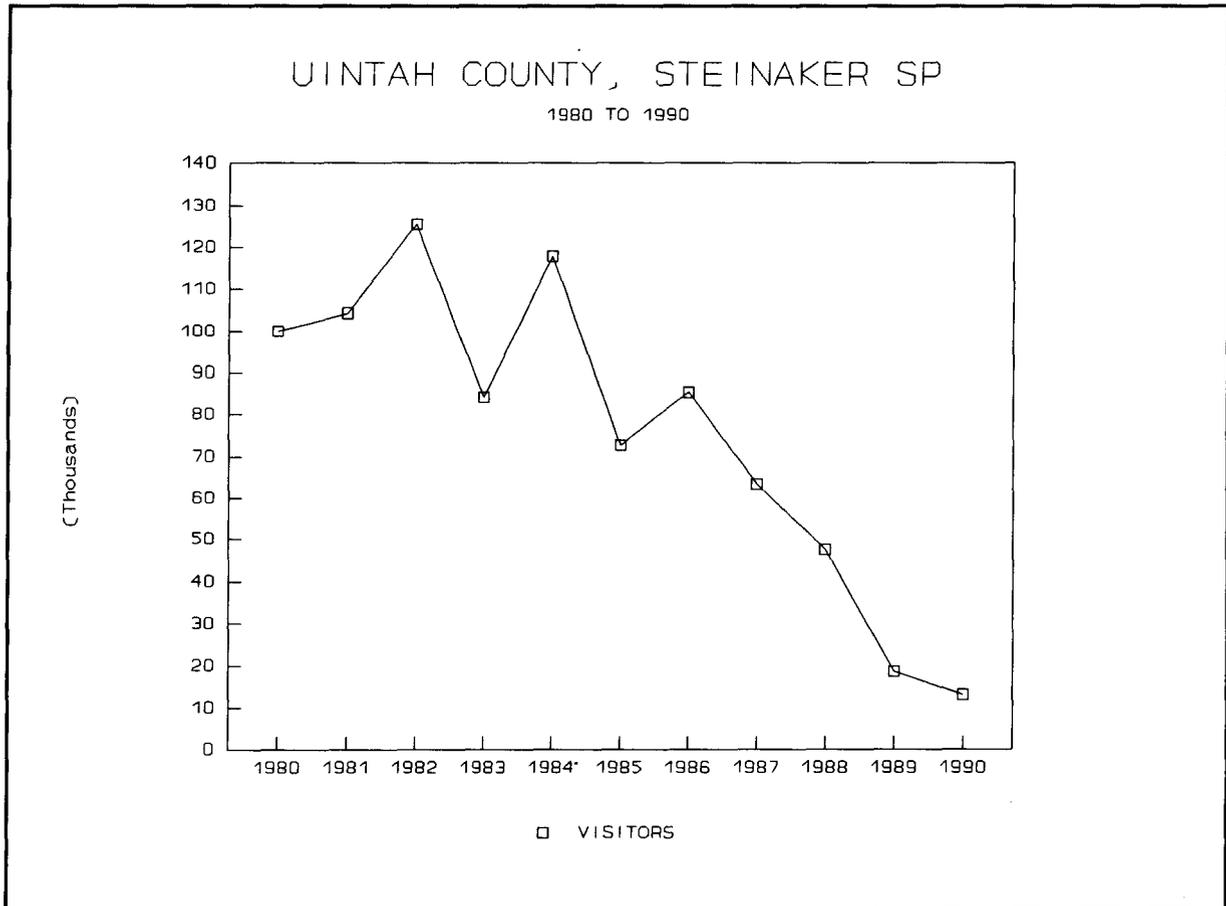


Appendix 10 - Socioeconomic Management

Graph A10-16g - Recreation, Utah Field House SP - Uintah County

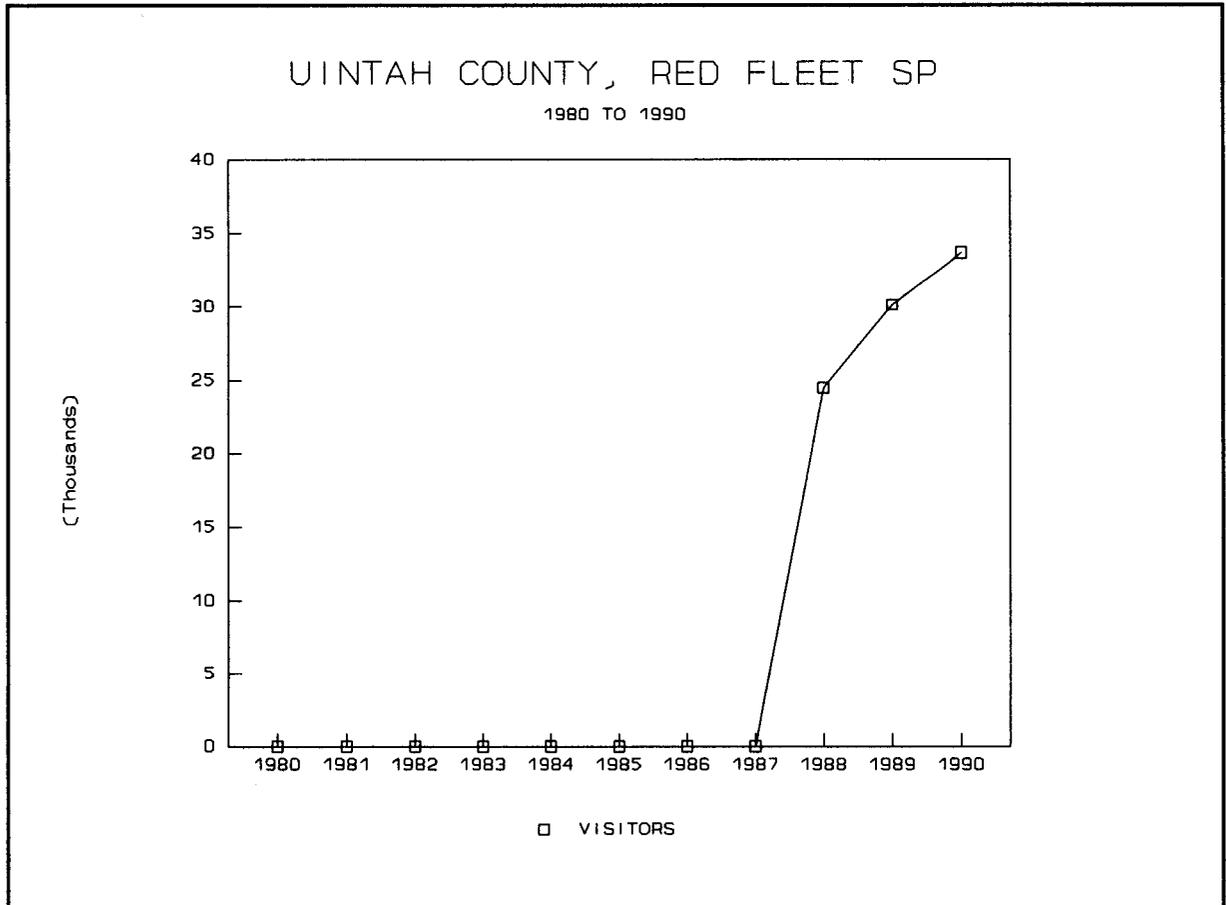


Graph A10-16h - Recreation, Steinkaker SP - Uintah County



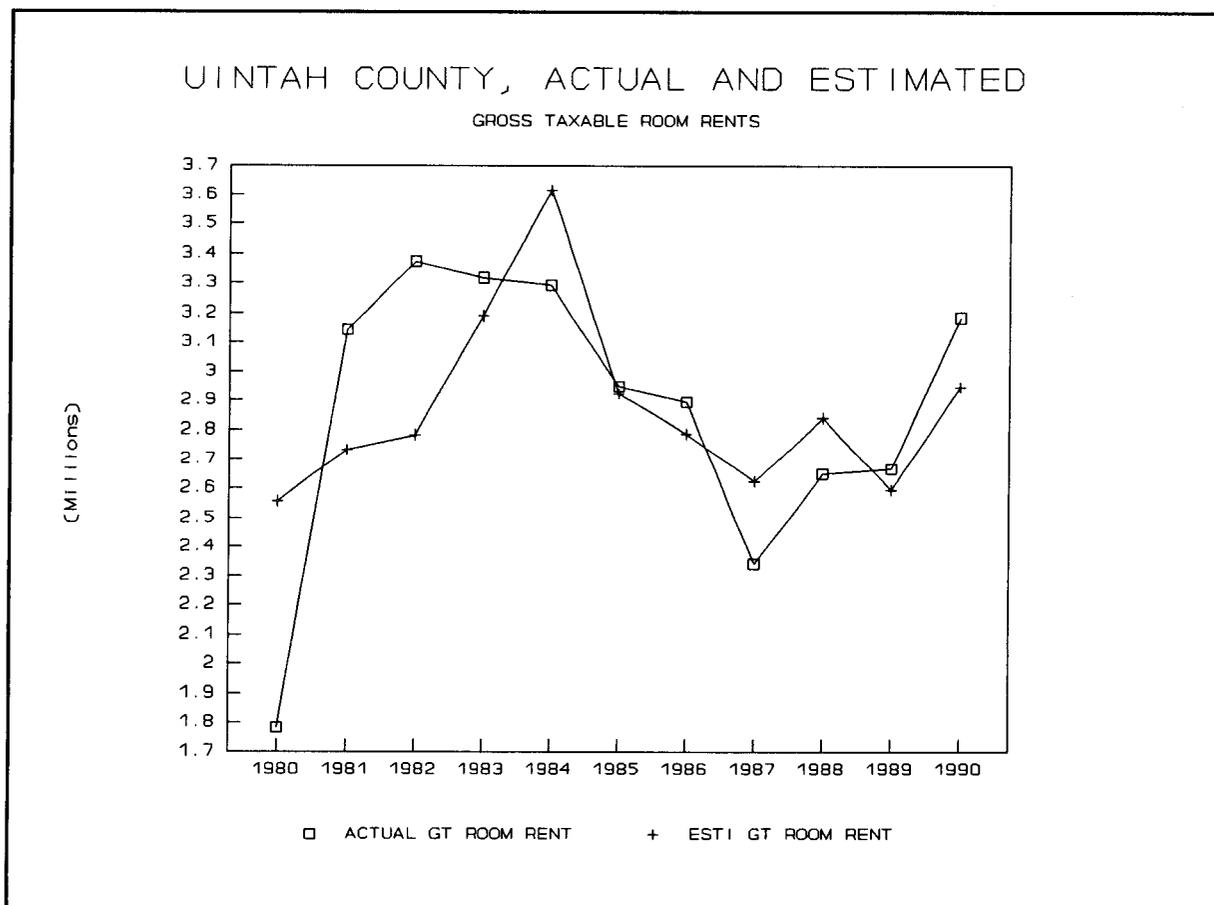
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Graph A10-16i - Recreation, Red Fleet SP - Uintah County



Appendix 10 - Socioeconomic Management

Graph A10-16j - Recreation, Gross Taxable Room Rents - Uintah County



Regression Output: For Uintah County's gross taxable room rents using Dinosaur and Utah Field House

Constant	2,359,743
Standard Error of Y estimate	422,502.3
R ²	.40
Number of Observations	11
Degrees of Freedom	8

X (independent variable) coefficient	for Utah Natural History House
	-16.9663
Standard Error of Coefficient	10.19468

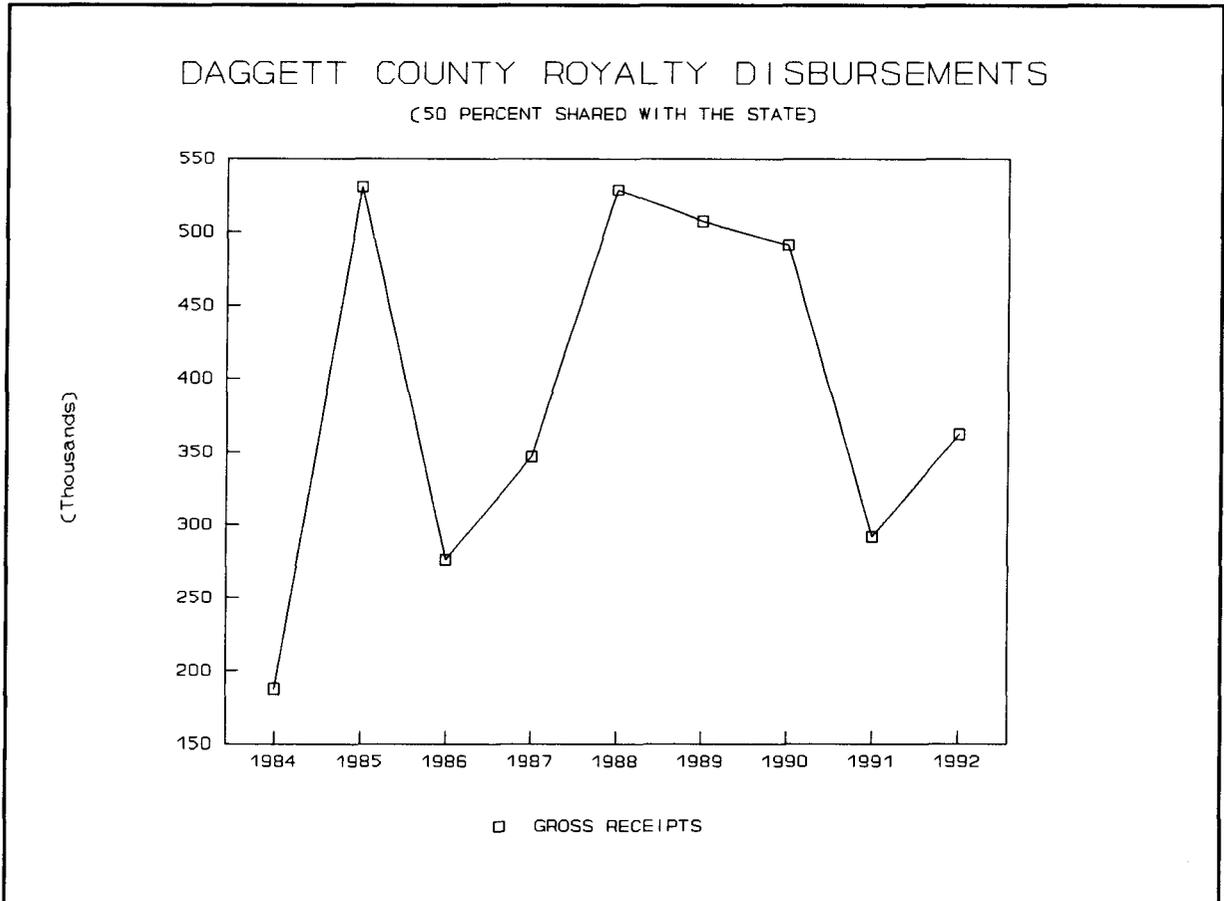
X (independent variable)	for Dinosaur National Monument
	6.154797
Standard Error of Coefficient	3.014700

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Choosing the Utah Natural History House and Dinosaur National Monument as independent variables, the above coefficients show that the Utah Natural History House has a negative and the Dinosaur National Monument has a positive relationship with gross taxable room rents for Uintah County. The R^2 value of .40 shows a rather loose goodness of fit, as illustrated in the above graph with actual and estimated gross taxable room rents.

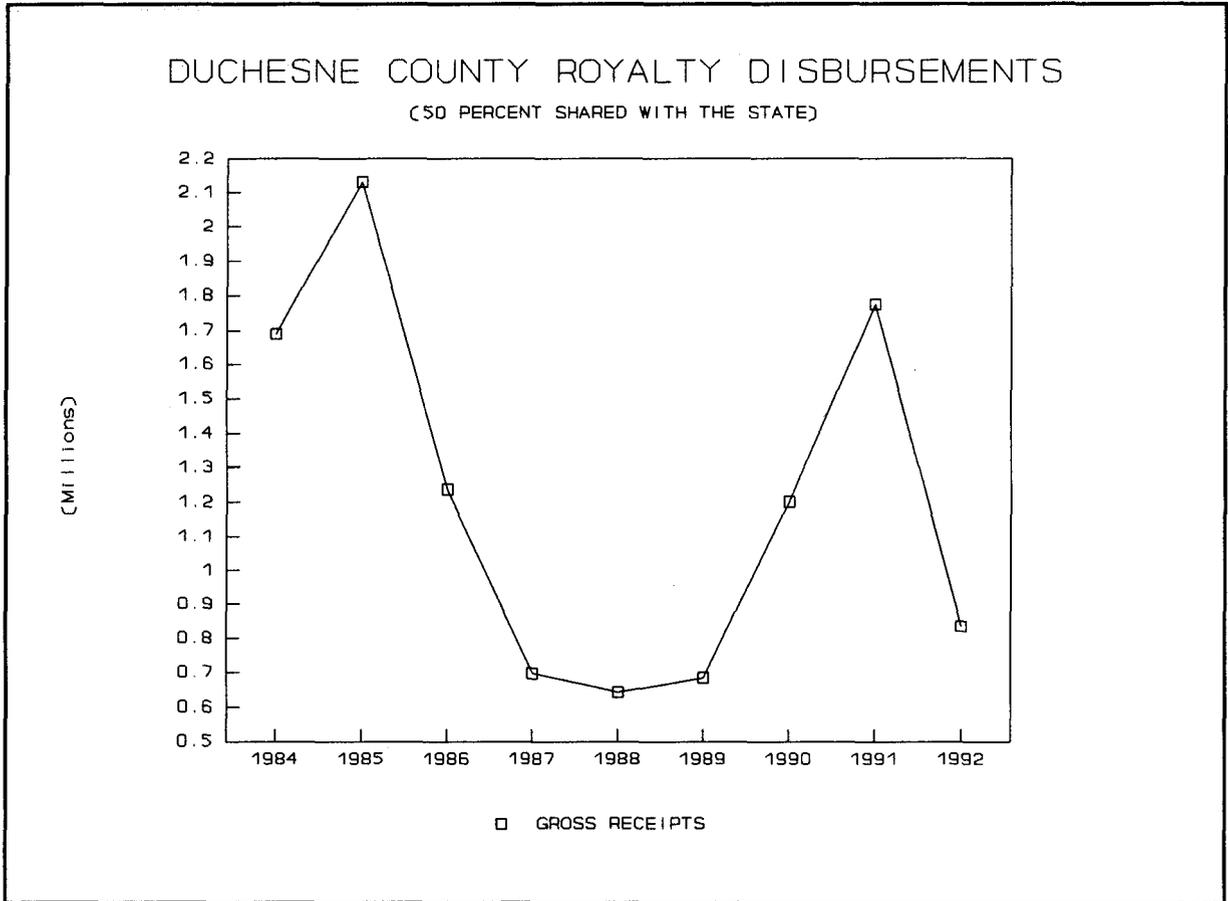
Appendix 10 - Socioeconomic Management

Graph A10-17a, Royalty Disbursements - Daggett County



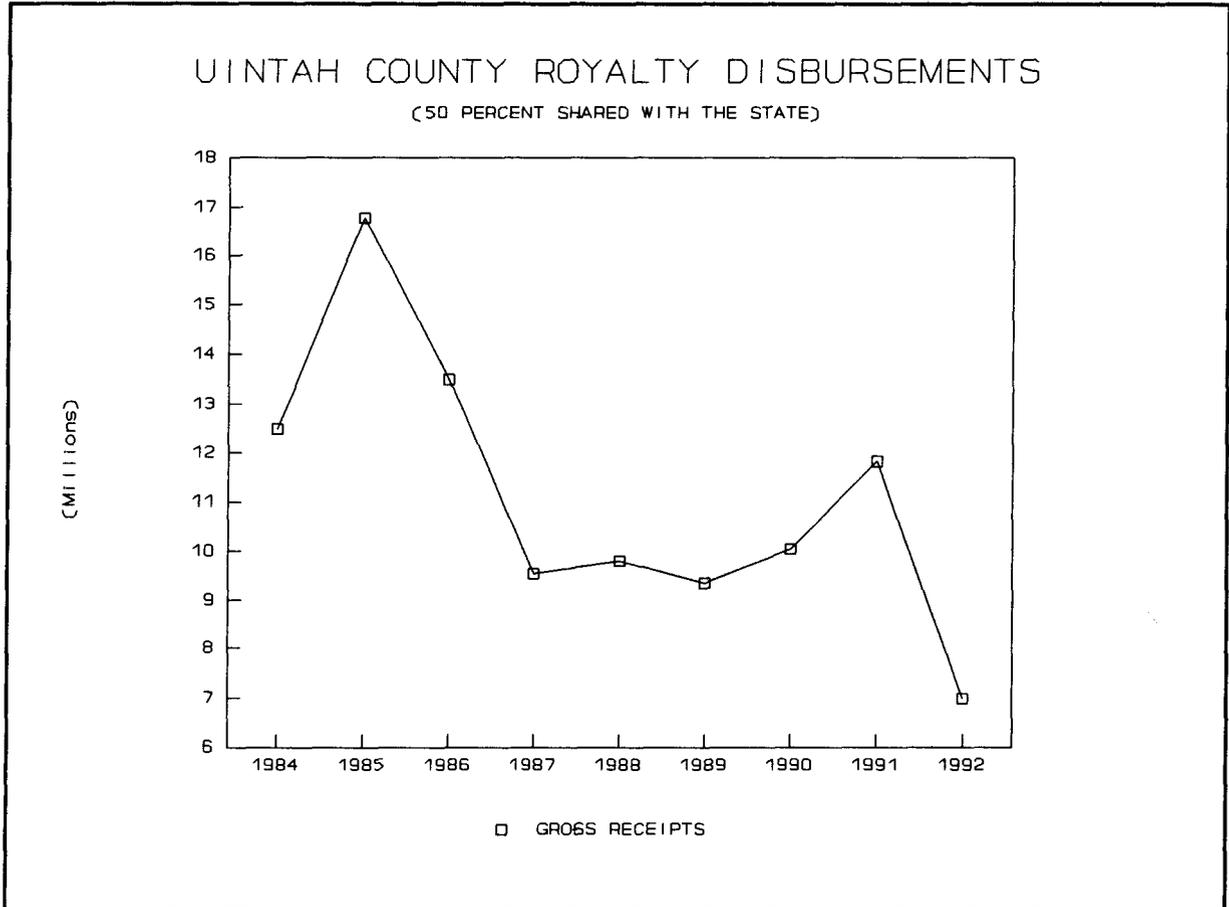
Appendix 10 - Socioeconomic Management

Graph A10-17b, Royalty Disbursements - Duchesne County



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Graph A10-17c, Royalty Disbursements - Uintah County



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**TABLE A10-1:
BLM UTAH LIST OF ECONOMIC VALUES USED
IN ANALYSIS OF PROPOSED PROJECTS - 1990**

1990 ECONOMIC VALUES		
ACTIVITY	UNITS	VALUE/UNIT
Livestock Average	AUM	\$9.91
Livestock Seasonal	AUM	\$9.91
Deer Hunting	HD	\$40.52
Elk Hunting	HD	\$40.52
Antelope Hunting	HD	\$40.52
Other Big Game Hunting	HD	\$40.52
Waterfowl Hunting	HD	\$24.84
Upland & Small Game	HD	\$24.84
Warm Water Angling	AD	\$14.38
Cold Water Angling	AD	\$14.38
Developed Site Recreation	AD	\$6.54
Dispersed Site Recreation	AD	\$11.76
Non Game Wildlife Viewing	AD	\$23.53
Permittee Labor Cost	Day	\$51.05
BLM Labor Cost	Day	\$148.84
Other:		
Sedimentation (Colorado River)	Ton	\$0.07
Sedimentation (Structures)	Ton	\$3.92
Salinity	Ton	\$65.36

Source: BLM Information Bulletin UT 92-15

References:

Federal Reserve 91. Federal Reserve Bank of St. Louis, National Economic Trends: Implicit Price Deflator for the Gross National Product; June 1991; St. Louis, MO.

Sorg & Loomis. Sorg, Cindy F. and John B. Loomis; Empirical Estimates of Amenity Forest Values: A Comparative Review; U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; Technical Report RM-107 Ft. Collins, CO; March 1984.

U.S.D.I. 1980. Colorado River Salinity Economic Impacts on Agricultural, Municipal, and Industrial Users. U.S. Department of the Interior, Bureau of Reclamation. Denver CO.

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USDA 90. U.S. Department of Agriculture, National Agricultural Statistics Service; 1990 June Livestock Enumerative Survey.

USDA 86. U.S. Department of Agriculture, U.S. Forest Service; Final Environmental Impact Statement 1985-2030 Resources Planning Act Program; October 1986, Washington DC.

UTAH 91. Utah Department of Agriculture; Utah Agricultural Statistics 1990, Salt Lake City, UT.

**TABLE A10-2:
ESTIMATED RANGELAND IMPROVEMENT COSTS, INCLUDING LABOR**

RANGELAND IMPROVEMENT	ESTIMATED COST PER UNIT*
Fence	\$ 4,000/mile
Pipeline	\$ 4,500/mile
Guzzler, fenced	\$12,000/each
Guzzler, antelope	\$ 4,000/each
Reservoirs, 2 acre-foot capacity	\$ 1,500/each
Spring Development	\$ 3,000/each
3-Way Exclosure	\$ 9,000/each
Vegetation Treatment:	
Chaining, with seeding	\$ 75/acre
Burning, with seeding	\$ 30/acre
Burning, without seeding	\$ 3/acre
Chemical treatment	\$ 15/acre
Contour furrow with seeding	\$ 35/acre
*1992 dollar values	

Source: Vernal District Files