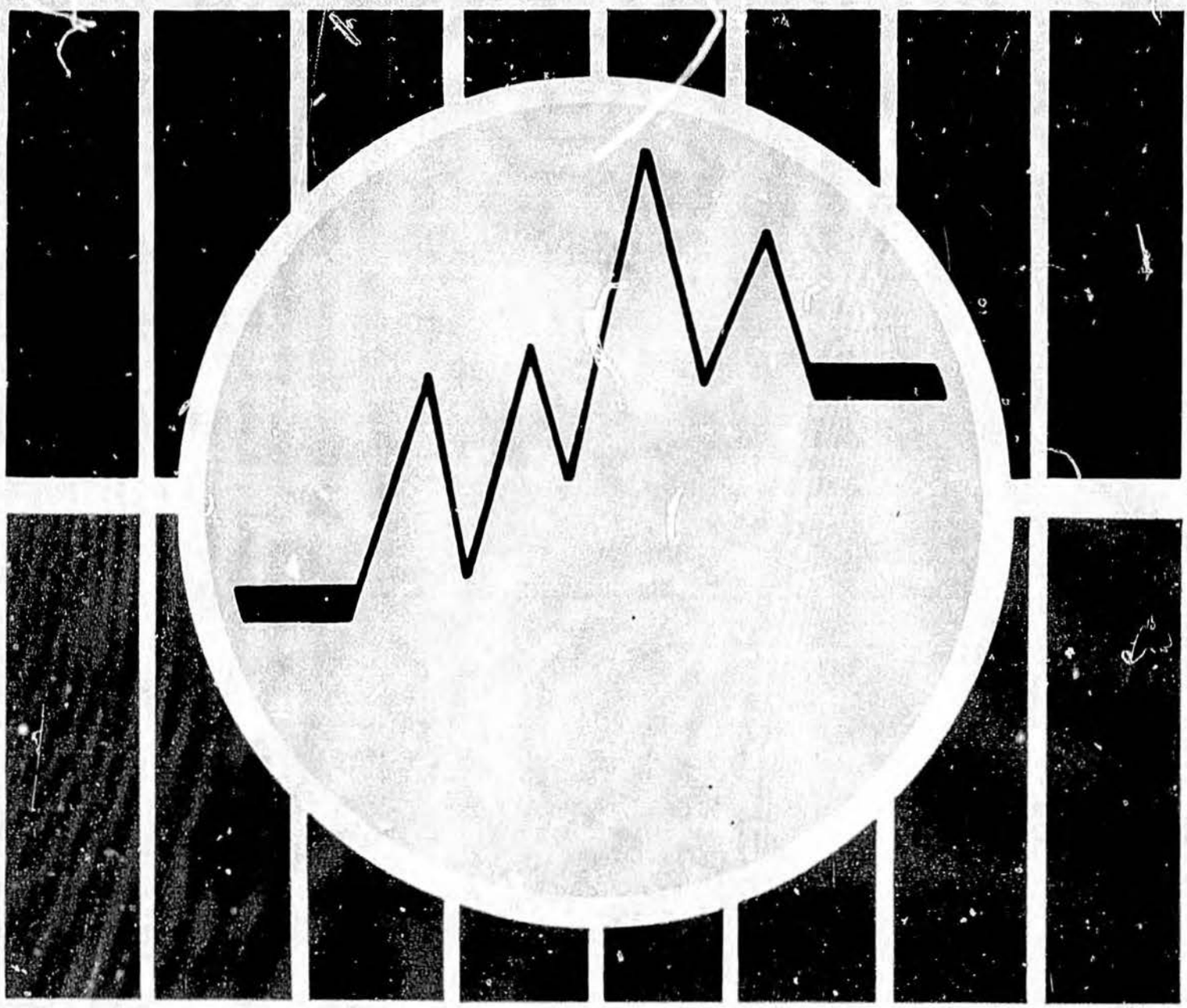
ALASKA LEGISLATURE SPECIAL COMMITTEE / SUBJECT FILES 8672
179 SCOMM 9: HOUSE SPEC. COMM. ON PERMANENT FUND 1977-78

ALASKA ECONOMIC TRENDS



STATE OF ALASKA • DEPARTMENT OF LABOR

Research and Analysis Section

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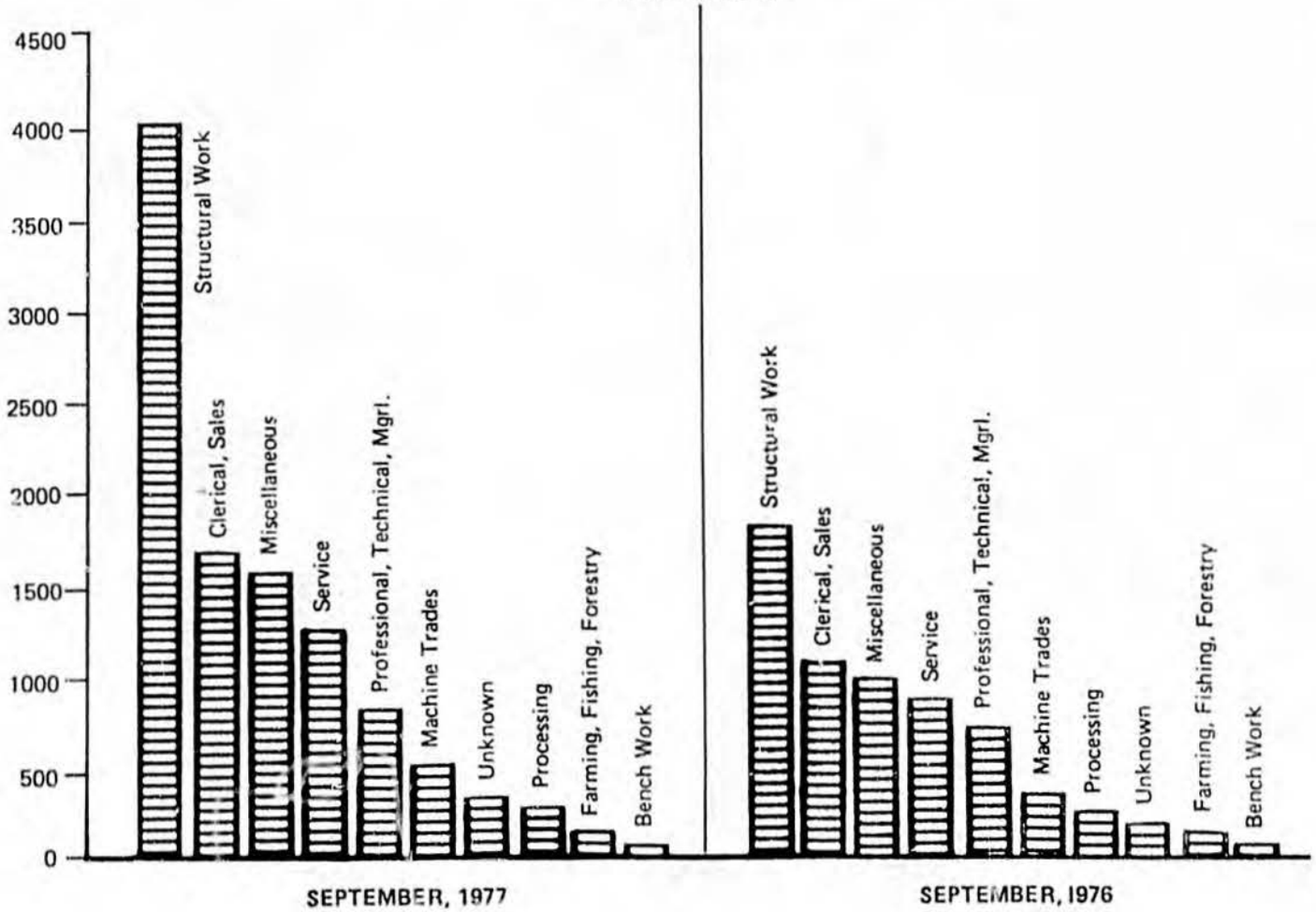
ALASKA'S LABOR MARKET IN SEPTEMBER

Employment and Unemployment: September marked the end of summer as seasonal employment in the manufacturing and construction industries dropped significantly. Normally, at this time of year, total unemployment usually begins to pick up as Alaska's seasonal industries begin to wind down for the winter. In the recent past, many of these unemployed workers remained in the State as jobs in other industries remained quite plentiful. However, this winter the tremendous demand for labor brought on by the construction of the Trans-Alaska Pipeline does not exist. In reaction to this, many seasonal workers who have become unemployed, are either dropping out of the labor force or leaving the State in search of work elsewhere. This trend of out-migration of unemployed workers, almost more than any other single factor, may be behind the decline in Alaska's unemployment rate in the past few months.

Industry Trends: Declines in employment in the mining, construction and manufacturing industries were behind the downward trends in total nonagricultural employment during the month of September. Of the three industries, the manufacturing industry experienced the most marked decline. The seasonal closure of salmon canneries around the State was responsible for the drop. Normally, the seasonal shutdown of the salmon canning industry is offset to some degree by employment in plants processing shrimp and king crab. However, due to poor king crab fishing in September and a dispute between shrimp fishermen and processors, employment in canneries supporting these fisheries did not pick up as would normally have been the case. Generally speaking, the rest of private industry experienced only a very slight decline in employment from August to September.

The beginning of a new school year was reflected in a moderate increase in employment in the

NUMBER OF WEEKS CLAIMED BY OCCUPATION
STATEWIDE



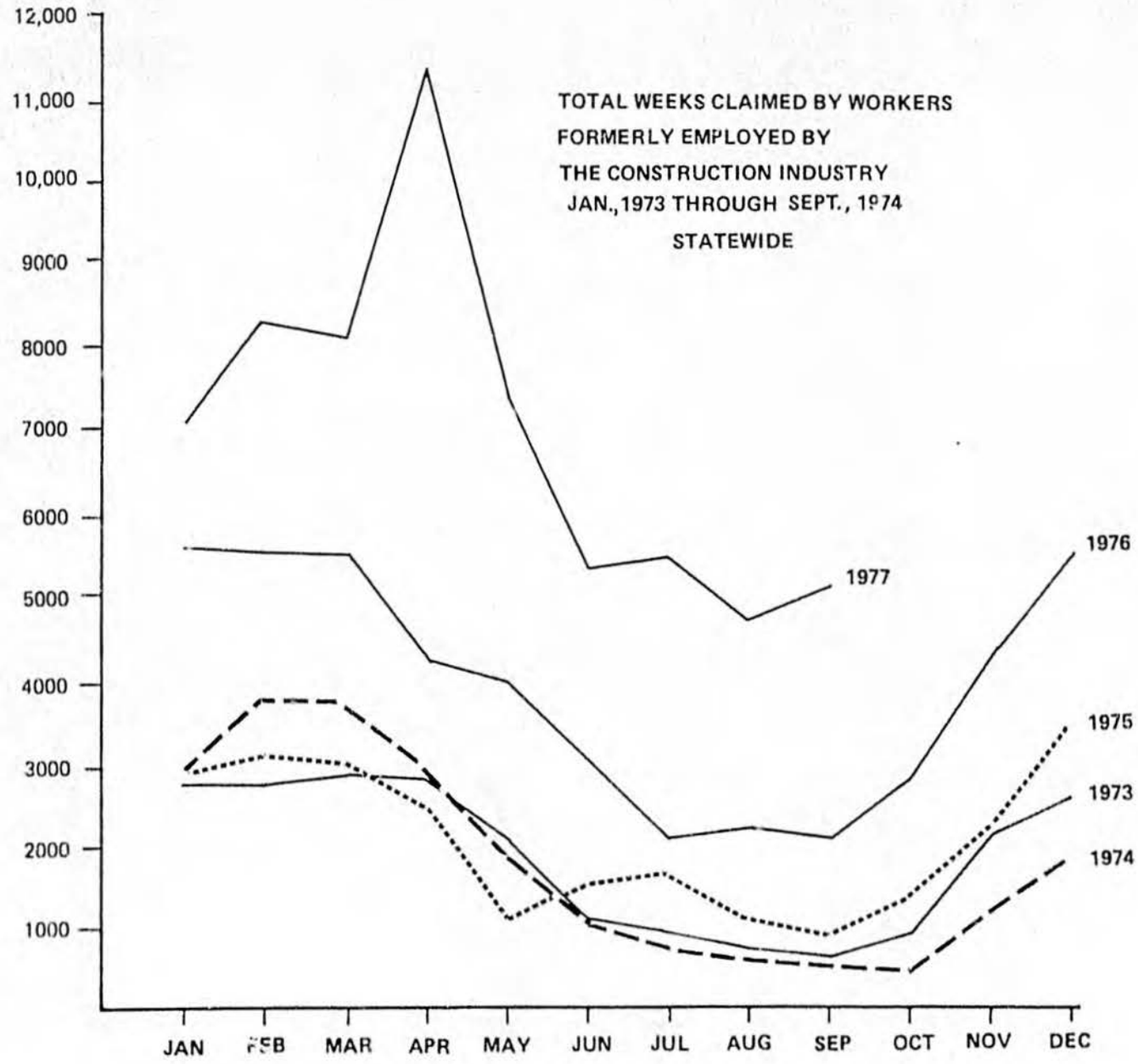
government sector, as both the State university system and most local school districts started classes in September. Both levels of government normally see an increase in employment at this time of year.

Hours and Earnings: Of all the industries reporting hours and earnings, only the construction industry has declined when compared to one year ago. This is very likely due to the end of the tremendous number of over-time hours paid to workers along the Trans-Alaska Oil Pipeline. Even though weekly earnings in the construction industry have declined significantly compared to one year ago, wages paid to workers in this industry continue to be higher than any other in Alaska.

Characteristics of the Insured Unemployed: Trends in weeks claimed by construction workers, 1973 through 1977

1973 was an average year for construction workers in Alaska: weeks claimed rose from 680 in September to 2,840 in March. This was normal as construction slows considerably from December through April.

With the advent of the pipeline in the spring of 1974, most construction workers in Alaska could find jobs. As more people were working in 1974, weeks claimed were less than 1973 totals from May through December.



Many workers from the "lower 48" started migrating to Alaska so that soon there were more workers than could be accommodated by the pipeline project. After May of 1975, weeks claimed by construction workers began to rise, which was unusual as they normally drop from March through September. For the rest of 1975, weeks claimed were higher than either of the two previous years even though pipeline employment reached its peak in August, 1975. There were two major reasons for this increase: 1) Many people came to Alaska expecting to find jobs on the pipeline, and they would file for Unemployment Insurance if or when they couldn't find jobs. And, 2) specialized workers on the pipeline would finish one job and would be laid off until a similar job came along. In the meantime, they would draw Unemployment Insurance or just quit to work in a different area.

Although smaller than the peak in 1975, pipeline employment in 1976 again reached its peak in August. Though following a similar trend, weeks claimed in 1976 were at a higher level than any of the three previous years.

Weeks claimed by construction workers rose to 11,250 in April of 1977, which represents an increase of 360 percent over September of 1975. April was the month that many pipeline workers were laid off. Gradually, weeks claimed declined to its low point in August when pipeline employment rose because of the pump station explosion, but were laid off again in September. Many construction workers, after being laid off the pipeline, found jobs on private construction projects throughout the State. So far in 1977, about half of all weeks claimed in Alaska are claimed by construction workers.

Projections for the 4th Quarter of 1977 are bad for construction workers with the first quarter of 1978 looking even worse. Starting in April of 1978, employment should pick up and the economy should start growing at the pre-pipeline growth rate. Therefore, weeks claimed by construction workers should rise from now to March, after which they will start to decline.

CHARACTERISTICS OF THE INSURED UNEMPLOYED
IN ALASKA

State Unemployment Insurance Statistics

	9-77	8-77	9-76
TOTAL WEEKS CLAIMED	10,644	10,188	8,290
CLAIMANT SEX AND AGE			
Male Claimants	7,348	6,959	4,092
Less than 25	1,485	1,506	905
25 - 34	2,557	2,465	1,448
35 - 44	1,324	1,224	688
Over 45	1,815	1,582	983
Over 65	143	87	93
Female Claimants	3,296	3,229	2,198
Less than 25	910	883	581
25 - 34	1,186	1,182	723
35 - 44	604	532	429
Over 45	534	576	368
Over 65	22	45	8
CLAIMANT'S PREVIOUS INDUSTRY OF ATTACHMENT			
Mining	157	202	194
Contract Construction	3,040	4,652	2,032
Manufacturing	684	596	500
Transportation, Communications, Utilities	923	989	787
Trade	1,238	1,229	976
Finance, Insurance, Real Estate	314	324	207
Services	1,978	1,799	1,231
Other	183	214	199
Unknown	115	75	47
CLAIMANT'S PREVIOUS OCCUPATION			
Professional, Technical, Managerial	828	871	692
Clerical, Sales	1,675	1,684	1,051
Service	1,252	1,240	877
Farming, Fishing, Forestry	117	107	117
Processing	276	277	240
Machine Trades	516	556	324
Bench Work	61	74	57
Structural Work	4,024	3,889	1,851
Miscellaneous	1,568	1,358	937
Unknown	324	137	165
DURATION OF WEEKS CLAIMED BY SEX			
Males Claimants	1,732	1,551	1,171
1 - 4 Weeks	1,614	1,767	911
5 - 14 Weeks	1,031	915	634
15 Weeks & Over			
Female Claimants	647	560	473
1 - 4 Weeks	835	994	571
5 - 14 Weeks	518	455	384
15 Weeks & Over			

INDICATORS OF ALASKA ECONOMIC ACTIVITY*

INDICATOR	Most Recent Month	Previous Month	Year Ago
	9-77	8-77	9-76
Selected Economic Activity Measures			
Total Labor Force a/	140,500	137,400	161,200
Insured Unemployment (weekly average) a/ b/	17,300	17,400	12,700
New Employers (unadjusted) c/	216	331	157
Nonagricultural Wage Payments (millions $, unadjusted)	259	270	356
Wage Payments in Mining, Manufacturing & Construction	87.6	97.7	172.5
Employment (1967=100) a/			
Nonagricultural Wage & Salary	188.9	188.7	227.0
Mining	263.9	253.3	213.3
Construction	192.6	199.9	466.4
Manufacturing	146.8	166.1	177.9
Transportation-Communications & Utilities	202.3	199.0	212.0
Trade	215.1	216.4	237.8
Finance-Insurance & Real Estate	334.7	325.7	325.9
Services	269.7	268.0	328.6
Government	150.1	143.4	148.3
Alaska State Employment Service Activities			
Nonagricultural Placements (unadjusted)	3,997	4,343	2,820
Nonagricultural Placements (daily average) a/	139	147	100
Banking Activities (millions $, unadjusted) c/			
Loans & Investments	1,106	1,091	990
Demand Deposits	598	590	572
Time Deposits	520	529	460
	7-77	6-77	7-76
Personal Income (millions $ Annual Rate) d/	NA	444.2	4119.6
Crude Petroleum Production (000 bbls., unadj.) f/	5,420	5,139	5,571

* All data seasonally adjusted unless otherwise noted. Current month preliminary.

a/ Seasonally adjusted by the 1966 U.S. Bureau of Labor Statistics seasonal adjustment method.

b/ Unemployment in Alaska insured by State law.

c/ Employers newly subject to the Alaska Employment Security Act.

d/ Source: Business Week Magazine, seasonally adjusted by the Alaska Employment Security Division.

e/ Source: Federal Reserve Bank of San Francisco. Members banks only.

f/ Source: Alaska Department of Natural Resources, Division of Mines and Minerals.

ALASKA CIVILIAN LABOR FORCE SUMMARY 1/ 4/
BY PLACE OF RESIDENCE

	p/ 9-77	r/ 8-77	9-76	Changes From: 8-77	9-76	* 9-77
CIVILIAN LABOR FORCE	145,700	147,700	168,800	-2,000	-23,100	185,500
INVOLVED IN WORK STOPPAGES	50	100	50	- 50	0	69
TOTAL UNEMPLOYMENT	13,500	14,900	11,000	-1,400	2,500	22,600
Percent of Labor Force	9.3	10.1	6.5	-	-	12.2
TOTAL EMPLOYMENT 2/	132,200	132,800	157,800	-600	-25,600	162,900

NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT 1/
BY PLACE OF WORK

	p/ 9-77	r/ 8-77	9-76	Changes From: 8-77	9-76
Nonagricultural Wage & Salary	155,900	160,000	187,400	-4,100	-31,500
Mining	5,300	5,500	4,300	-200	1,000
Construction	15,300	16,300	37,200	-1,000	-21,900
Manufacturing	10,800	15,000	13,100	-4,200	- 2,300
Durable Goods	3,500	3,500	3,500	0	0
Lumber, Wood Products	2,500	2,500	2,700	0	-200
Other Durable Goods	1,000	1,000	800	0	200
Nondurable Goods	7,300	11,500	9,600	-4,200	- 2,300
Food Processing	4,500	8,600	7,000	-4,100	- 2,500
Other Nondurable Goods	2,800	2,900	2,600	-100	200
Transp.-Comm. & Utilities	16,300	16,300	17,100	0	-800
Trucking & Warehousing	2,600	2,700	3,700	-100	- 1,100
Water Transportation	2,600	2,600	1,500	0	1,100
Air Transportation	4,500	4,500	5,000	0	-500
Other Transp.-Comm. & Utilities	6,600	6,500	6,900	100	-300
Trade	26,300	26,600	29,100	-300	- 2,800
Wholesale Trade	5,200	5,400	6,200	-200	- 1,000
Retail Trade	21,100	21,200	22,900	-100	- 1,800
General Merchandise & Apparel	4,000	3,900	4,500	100	-500
Food Stores	3,200	3,400	3,200	-200	0
Eating & Drinking Places	6,300	6,300	7,000	0	-700
Other Retail Trade	7,600	7,600	8,200	0	-600
Finance-Insurance & Real Estate	7,900	7,800	7,700	100	200
Services & Miscellaneous	25,200	25,700	30,700	-500	- 5,500
Government 3/	48,800	46,800	48,200	2,000	600
Federal	18,200	18,400	18,500	-200	-300
State	14,300	14,000	15,100	300	-800
Local	16,300	14,400	14,600	1,900	1,700

1/ Prepared in cooperation with the U. S. Bureau of Labor Statistics.

2/ Includes: domestics, nonagricultural self-employed and unpaid family workers, agricultural workers and adjustment for commuting, multiple job-holding and unpaid absences.

3/ Includes teachers in primary and secondary schools, and personnel employed by the University of Alaska.

4/ Adjusted to add to the national totals produced by the Current Population Survey method.

* Not adjusted by the Current Population Survey method.

p/ Denotes preliminary estimates.

r/ Denotes revised estimates.

Job Openings and Applicants by Selected Occupations 1/
STATEWIDE
September, 1977

Occupation	Openings Received	Openings Filled	Unfilled Openings End of Period		Percent Hard 2/ To Fill	Active Applicants	
			Total	30 days or more		Number at End of Period	Number per Unfilled Opening
Professional, Technical & Managerial	297	237	151	73	48.3	1,802	11.9
Accountant	8	6	6	3	50.0	36	6.0
Engineer	47	34	33	13	39.4	255	7.7
Clerical	1,306	638	333	155	46.5	2,425	7.3
General Office	794	261	142	66	46.5	840	5.5
Bookkeeping	279	215	98	24	24.5	1,004	10.2
Other	233	162	93	65	69.9	581	6.2
Sales	212	180	62	21	33.9	531	8.6
Domestic Service	133	120	30	14	46.6	120	4.0
Public Oriented Service	860	754	380	192	50.5	1,989	5.2
Food & Beverage Preparation	571	513	251	135	53.8	1,073	4.3
Lodging	46	42	13	9	59.2	246	18.9
Other	243	199	116	48	38.9	670	5.8
Farming, Fishing, Forestry	395	425	14	12	85.7	165	11.8
Processing	207	198	25	11	44.0	220	8.8
Machine Trades	81	76	69	39	56.5	578	8.4
Bench Work	39	38	31	24	77.4	103	3.3
Structural Work	747	684	221	142	64.2	1,994	9.0
Electrical & Related	23	19	31	22	71.0	229	7.4
Painting & Related	56	48	14	2	14.3	71	5.1
Construction Work	561	526	88	48	54.5	1,082	12.3
Motor Freight & Transportation	238	242	67	42	62.7	723	10.8
Packaging & Materials Handling	281	271	20	10	50.0	514	25.7
Logging, Mining, Utilities	118	132	42	37	88.1	222	5.3
TOTAL	4,914	3,995	1,445	772	53.4		

1/ Source: ESARS
2/ Hard to fill positions are those unfilled for 30 days or more.

Job Openings and Applicants by Selected Occupations 1/
ANCHORAGE
September, 1977

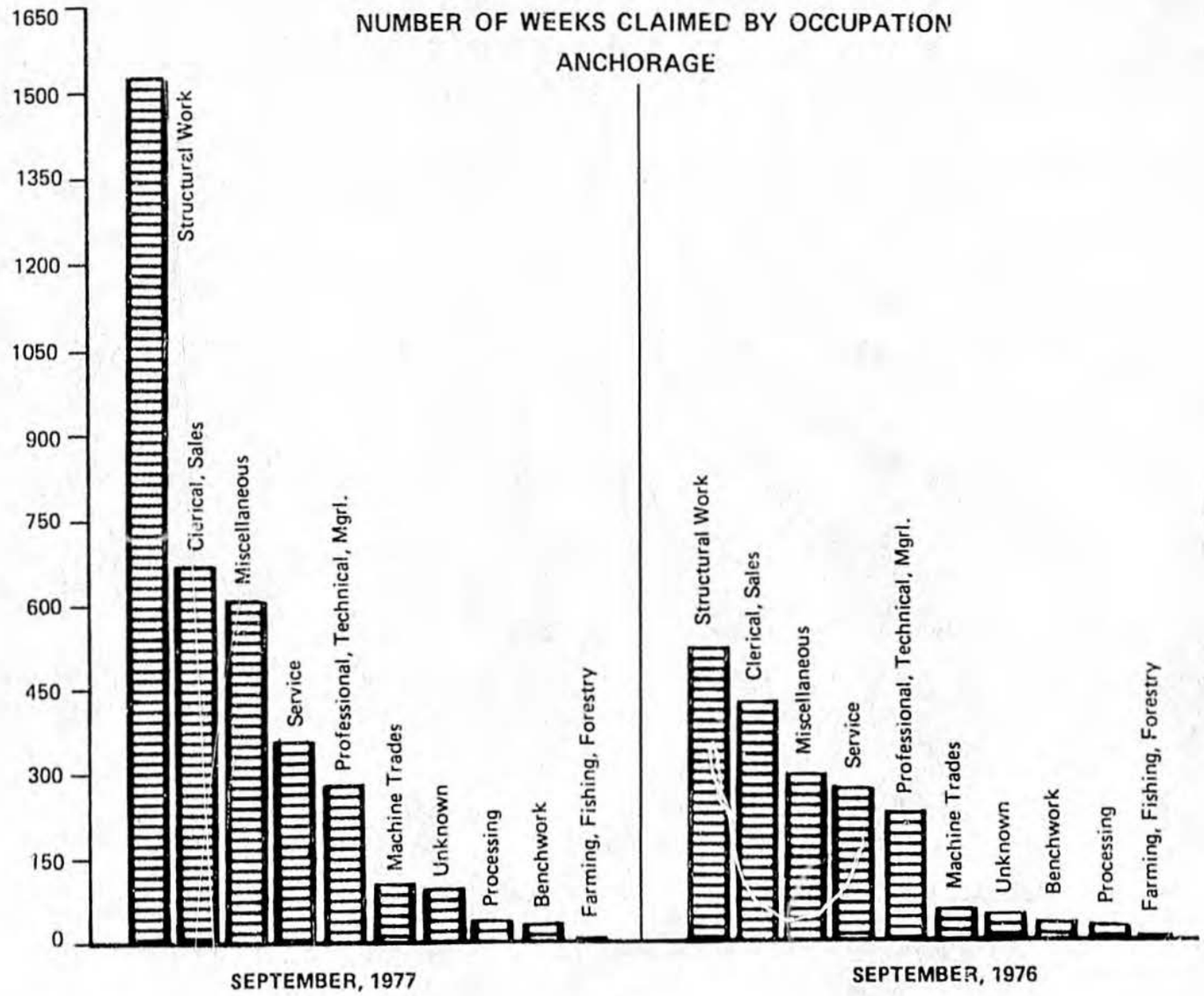
Occupation	Openings Received	Openings Filled	Unfilled Openings End of Period		Percent Hard 2/ To Fill	Active Applicants	
			Total	30 days or more		Number at End of Period	Number per Unfilled Opening
Professional, Technical & Managerial	110	70	71	23	32.4	688	9.7
Accountant	5	3	4	1	25.0	8	2.0
Engineer	26	18	18	5	27.8	110	6.1
Clerical	409	299	187	58	31.0	853	4.6
General Office	138	118	79	32	40.5	260	3.3
Bookkeeping	166	109	71	12	16.9	350	4.9
Other	105	72	37	14	37.8	243	6.6
Sales	128	72	45	15	33.3	199	4.4
Domestic Service	50	37	15	6	40.0	19	1.3
Public Oriented Service	494	399	289	144	49.8	666	2.3
Food & Beverage Preparation	349	298	200	107	53.5	381	1.9
Lodging	21	14	6	2	33.3	72	12.0
Other	124	87	83	35	42.2	213	2.6
Farming, Fishing, Forestry	120	137	5	4	80.0	21	4.2
Processing	17	12	8	3	37.5	30	3.7
Machine Trades	59	45	60	33	55.0	157	2.6
Bench Work	26	24	10	4	40.0	48	4.8
Structural Work	284	243	141	90	63.8	448	3.2
Electrical & Related	18	16	26	19	73.1	81	3.1
Painting & Related	36	29	8	2	25.0	26	3.2
Construction Work	182	160	29	6	20.7	185	6.4
Motor Freight & Transportation	80	77	52	33	63.5	212	4.1
Packaging & Materials Handling	211	203	10	2	20.0	182	18.2
Logging, Mining, Utilities	11	25	37	35	94.6	51	1.4
TOTAL	1,999	1,643	930	450	48.4		

1/ Source: ESARS
2/ Hard to fill positions are those unfilled for 30 days or more.

ANCHORAGE LABOR MARKET IN SEPTEMBER

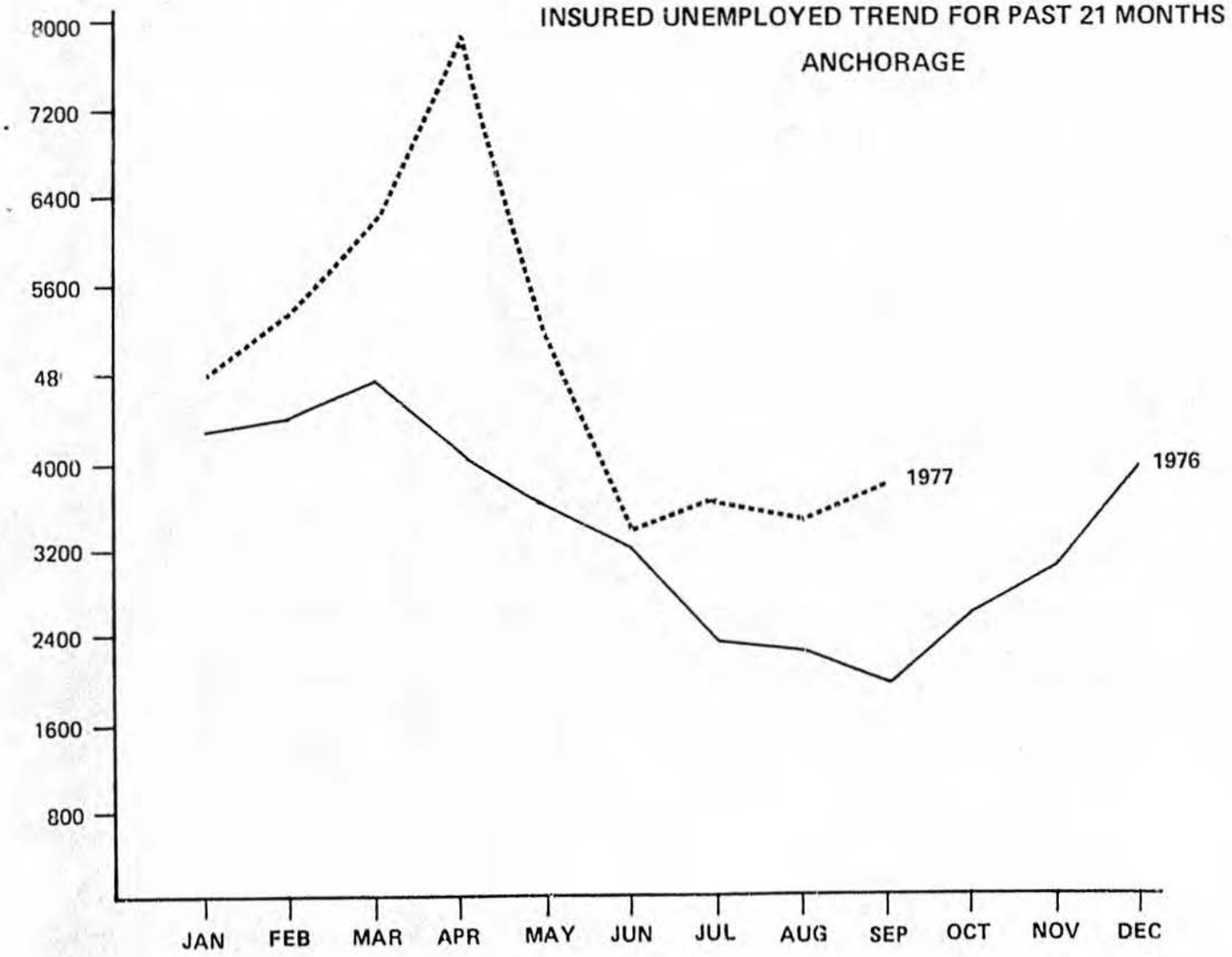
Industry Trends: The overall trend has been for stability as reflected by nonagriculture wage and salary employment. Non-agriculture employment was up by 2 percent compared to September 1976. Anchorage's growth rate began to moderate after July as pipeline construction was completed. Since then little or no growth has occurred. The seasonal peak in employment has been reached or passed for most industries.

The industry with the biggest decline was construction with a loss of 2,650 workers compared to one year ago. Most of this decline was directly associated with the pipeline since there has been considerable local construction activity. The number of building permits issued for single family housing by the Municipality was half again as much as last year. Multi-family units were also up, but not by as much. By the end of the year there may be as many single family residences built as multi family units. This will be the first time that has happened since 1974. The underlying reason seems to be that single family homes are now competitive with one bedroom condominium units. Major construction has also increased this year with many projects underway or soon to be completed. The $6 million Cook Inlet Region building is essentially completed and has been assured of total occupancy by early next year. The



National Bank of Alaska headquarters building will be completed next spring. The total cost of this building is $14 million. It was originally planned to be four stories with an expansion capability, but the two story addition was put on this summer while the basic structure was still under construction. The new twenty story tower for the Captain Cook Hotel is being closed in for winter and is scheduled for opening next spring. The new $72 million Federal Building is being closed in with its precast concrete skin. This building won't be finished for better than a year, and will therefore give a boost to construction and manufacturing employment throughout 1978. There is also a $5 million five story bank/office building under construction in the C Street and Benson area and various office buildings in the L and N street areas. The new Sheraton Hotel is still stalled and its beginning to look as if it won't be completed in 1978 as planned. Even though there is another hotel tower planned for downtown it seems likely that with a number of these major projects being completed and a likely slowdown in residential housing that a further decline in construction employment will occur next year.

The industry with the big gain over the year has been services. Employment was almost flat with some seasonality in 1976 and then in January it began a new trend. By September employment had begun to slide, but was still 1,800 above September 1976. The service industry was actually expected to decline this year because of the strong correlation with pipeline construction employment. The industry is supported by the Hotel/Motel sector which has been growing and with continued construction will grow in years to come. Tourism seems to have been off slightly this year, but businessmen and conventions have kept the occupancy rates up. By September the number of persons entering Alaska by the highway was down approximately 5 percent,



however, arrivals at Anchorage International Airport have been up nearly every month this year. The increase hasn't been very large, for example only 1 percent in August, but certainly a long way from a post-pipeline bust. Other types of firms within the industry often have a relatively small capital investment and can easily desert the economy, but this trend has yet to be noted. The unemployment rate was 6.5 percent and will begin to rise with seasonal unemployment. It is significant to note, that this year's seasonal increase in unemployment has begun at a higher level. The total number of unemployed was up 10 percent from last September. On the positive side, we don't have the big pipeline layoffs to look forward to that we had last fall.

Available Job Openings: The pipeline jobs were union dispatched and therefore the workers who are creating the excess supply of labor are union workers. With the end of pipeline construction this component of the job market has a definite over supply. The non-union section which does business with Anchorage Job Service (A.J.S.) has been a different story. During the quarter which ended in September, A.J.S. received nearly the same number of openings as during this quarter in 1976. September was a particularly good month. Openings increased by a third over last year.

The rise in offered wages was also indicative of strong demand in the non-union portion of the job market although the amount of increase varies from job to job. After a steady rise earlier this year, wages have leveled off in August and September and in some cases there were slight declines. Occupations with the greatest increase in wages were: carpenters, warehousemen, and accountants all of which had increases of over 20 percent. Most occupations have shown an increase near, or slightly above the Consumer Price Index. The C.P.I. for Anchorage currently is increasing at an annual rate of 7.6 percent, and only a few occupations have not kept up with that pace. Wages for general clerks, both trainees and those with experience, increased only 2.2 and 3.9 percent respectively. Though these occupations were active during the past year, demand has not been as great as it was in 1976. It seems the wage has stabilized after being pulled very high during the pipeline years.

Generally speaking, there were more openings in September than in the previous two months. There have also been considerably more placements. In most cases the percent hard-to-fill also went down with the only major exceptions being food and beverage preparation which rose from 38 percent to 53 percent. With all the new fast food restaurants in Anchorage there has been considerable demand. The number of applicants per unfilled opening also points out a tight market. This ratio is the lowest of any major group at 1.9.

CHARACTERISTICS OF THE INSURED UNEMPLOYED
IN ANCHORAGE

State Unemployment Insurance Statistics

	9-77	8-77	9-76
TOTAL WEEKS CLAIMED	3,726	3,424	1,922
CLAIMANT SEX AND AGE			
Male Claimants	2,671	2,504	1,234
Less than 25	534	592	279
25 - 34	921	845	426
35 - 44	498	455	199
Over 45	712	601	316
Over 65	40	32	31
Female Claimants	1,055	920	688
Less than 25	289	289	200
25 - 34	393	296	220
35 - 44	204	148	136
Over 45	173	188	131
Over 65	8	13	2
CLAIMANT'S PREVIOUS INDUSTRY OF ATTACHMENT			
Mining	60	71	73
Contract Construction	1,861	1,731	618
Manufacturing	135	119	86
Transportation, Communications, Utilities	301	300	234
Trade	522	505	414
Finance, Insurance, Real Estate	99	90	61
Services	692	576	401
Other	35	31	25
Unknown	12	0	7
CLAIMANT'S PREVIOUS OCCUPATION			
Professional, Technical, Managerial	280	241	227
Clerical, Sales	670	622	432
Service	355	330	275
Farming, Fishing, Forestry	12	5	5
Processing	36	25	22
Machine Trades	103	117	60
Bench Work	32	9	31
Structural Work	1,531	1,451	523
Miscellaneous	612	584	297
Unknown	94	39	51
DURATION OF WEEKS CLAIMED BY SEX			
Males Claimants			
1 - 4 Weeks	723	522	360
5 - 14 Weeks	561	583	279
15 Weeks & Over	246	272	108
Female Claimants			
1 - 4 Weeks	258	184	162
5 - 14 Weeks	244	244	166
15 Weeks & Over	97	93	79

Human Resources: The situation hasn't changed much from previous months where the ranks of the unemployed have been dominated by former pipeliners. There has been only a small shift away from the characteristics which were typical of the pipeliners. By the end of September, some pipeliners were exhausting their claims and new claimants were coming in from other industries. When the local construction industry begins its seasonal layoff shortly the trend may reverse, but in the long run the present trend will have to be resumed.

The percentage of male claimants declined this month to 72 percent. This was only slightly below August, but still considerably above other years. The percentage of claimants with pipeline related occupations also declined. Structural work and miscellaneous occupations, which includes equipment operators and truck drivers, comprise almost 58

ANCHORAGE CIVILIAN LABOR FORCE SUMMARY 1/ 4/
BY PLACE OF RESIDENCE

	p/ 9-77	r/ 8-77	9-76	Changes From: 8-77	9-76	* 9-77
CIVILIAN LABOR FORCE.....	65,050	64,500	71,550	550	-6,500	80,450
INVOLVED IN WORK STOPPAGES.....	50	50	0	0	50	69
TOTAL UNEMPLOYMENT.....	4,200	4,700	3,800	-500	400	7,000
Percent of Labor Force.....	6.5	7.3	5.3	-	-	8.7
TOTAL EMPLOYMENT 2/.....	60,850	59,800	67,750	1,050	-6,900	73,450

NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT 1/
BY PLACE OF WORK

	p/ 9-77	r/ 8-77	9-76	Changes From: 8-77	9-76
Nonagricultural Wage & Salary.....	78,800	78,900	77,000	-100	1,800
Mining.....	2,400	2,400	1,550	0	850
Construction.....	7,050	7,200	9,700	-150	-2,650
Manufacturing.....	2,450	2,500	1,950	- 50	500
Food Processing.....	550	500	500	50	50
Other Manufacturing.....	1,900	2,000	1,450	-100	450
Transp.-Comm. & Utilities.....	7,750	7,700	7,900	50	-150
Trucking & Warehousing.....	1,450	1,550	1,500	-100	- 50
Water Transportation.....	450	400	450	50	0
Air Transportation.....	2,750	2,750	2,850	0	-100
Other Transp.-Comm. & Utilities..	3,100	3,000	3,100	100	0
Trade.....	15,600	15,750	16,600	-150	-1,000
Wholesale Trade.....	4,050	4,050	4,300	0	-250
Retail Trade.....	11,550	11,700	12,300	-150	-750
General Merchandise & Apparel..	2,000	1,950	2,400	50	-400
Food Stores.....	1,600	1,600	1,400	0	200
Eating & Drinking Places.....	3,300	3,300	3,950	0	-650
Other Retail Trade.....	4,650	4,850	4,550	-200	100
Finance-Insurance & Real Estate....	4,750	4,750	4,550	0	200
Services & Miscellaneous.....	17,550	17,700	15,750	-150	-1,800
Government 3/.....	21,250	20,900	19,000	350	2,250
Federal.....	9,800	10,150	9,900	-350	-100
State.....	4,500	4,400	4,250	100	250
Local.....	6,950	6,350	4,850	600	2,100

1/ Data contained in this report cover the Anchorage Election District area, which includes the City of Anchorage, the residential communities of Campbell, Spenard, Merrill Field, Mountain View, Elmendorf Air Force Base, Fort Richardson, and the interconnecting highways.

2/ Includes: domestics, nonagricultural self-employed and unpaid family workers, agricultural workers and adjustment for commuting, multiple job-holding and unpaid absences.

3/ Includes teachers in primary and secondary schools, and personnel employed by the University of Alaska.

4/ Adjusted to add to the national totals produced by the Current Population Survey method.

* Not adjusted by the Current Population Survey method.

p/ Denotes preliminary estimates.

r/ Denotes revised estimates.

percent of all claimants. It is unusual to have this many of these workers unemployed during the height of the construction season, but their numbers have been unusually high all summer.

The number of people receiving unemployment insurance payments at the end of September was greater than it has been since last May. Just as in past years, this number will continue to increase until April, but this year the increase shouldn't be as dramatic as last year. Next summer the number of people drawing compensation should be about equal to this year.

FAIRBANKS LABOR MARKET IN SEPTEMBER

Following the economic boom created by construction of the Trans-Alaska pipeline, many Fairbanks observers have attempted to forecast the new shape of the region's economy. A change that has occurred is a 31 percent decrease in nonagricultural wage and salary employment from September 1976 to September 1977. Some industry groups, however, have been stronger than expected in this post-pipeline contraction. Trade and finance employment for example have had only 13 percent and 10 percent reductions respectively. This may be a result of consumer expenditures generated from pipeline savings. In the fourth quarter of 1970 the average monthly salary for nonagricultural wage and salary workers was $922 as compared with $2,325 in the corresponding quarter of 1976. Inflation of course accounts for some of this increase, a 52 percent rise in the Anchorage consumer price index provides a rough guide, but the monthly income additions were still substantial. Even through the first half of 1977 this is somewhat evident as pointed out by Robert Richards, Executive Vice President of the Alaska Pacific Bank; "Total deposits at Fairbanks banks were up about 6 percent for the first half of this year, which is about one quarter of the rate of increase experienced last year. This is a respectable rate of growth and reflects rather substantial increases in savings." It is hypothesized then that unusually high incomes have provided a large savings base capable of powering the economy over the short term. This situation has softened post-pipeline impact and provided a level of economic activity above what might otherwise have been expected.

Employment–Unemployment Trends: The unemployment rate slid to 11.8 percent in September down from 14.1 percent in August. A slightly smaller civilian labor force is partially responsible as seasonal workers have begun to leave the labor force. Trade and government employment groups were the only sectors to show gains over the month. Both increases were in part the result of the reopening of area schools.

Industry Trends: Mining employment had a seasonal peak of 200 in 1977 similar to its highest level recorded in 1976. Winter weather will cause a reduction in hard rock mining and that will be the significant influence on this industry until next spring. Other developments include a recent disclosure by the U.S. Bureau of Mines that indicates there may be a significant uranium deposit in the Mount Prindle area 50 miles northeast of Fairbanks. No commercial quantities have been discovered but stream sediments evidence uranium concentrations of 400 to 570 parts per million. The area is included in the proposed Beaver Creek National Wild River Sanctuary as designated by current D–2 lands legislation. The Bureau of Mines is reportedly preparing another press release concerning the discovery of a major silver deposit on the Alaska Petroleum Reserve, formerly Pet 4.

CHARACTERISTICS OF THE INSURED UNEMPLOYED
IN FAIRBANKS

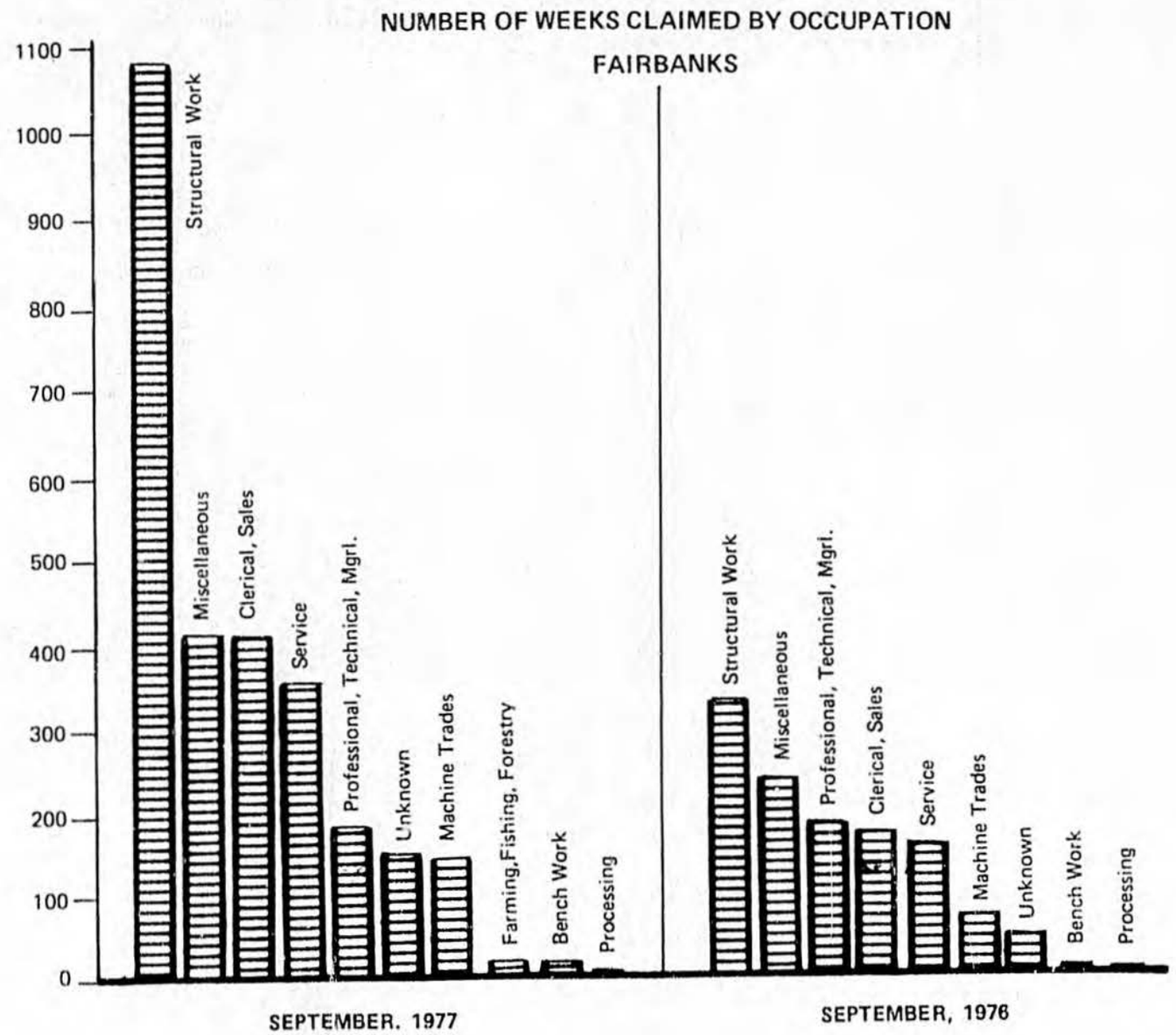
State Unemployment Insurance Statistics

	9-77	8-77	9-76
TOTAL WEEKS CLAIMED	2,759	2,599	1,218
CLAIMANT SEX AND AGE			
Male Claimants	1,868	1,807	789
Less than 25	390	407	177
25 - 34	697	685	326
35 - 44	311	316	96
Over 45	452	382	167
Over 65	54	15	18
Female Claimants	891	792	429
Less than 25	283	224	124
25 - 34	308	319	161
35 - 44	154	103	86
Over 45	132	134	58
Over 65	6	5	2
CLAIMANT'S PREVIOUS INDUSTRY OF ATTACHMENT			
Mining	8	13	10
Contract Construction	1,368	1,401	518
Manufacturing	33	35	35
Transportation, Communications, Utilities	300	299	190
Trade	287	272	155
Finance, Insurance, Real Est.	40	50	20
Services	487	494	252
Other	11	24	32
Unknown	24	11	7
CLAIMANT'S PREVIOUS OCCUPATION			
Professional, Technical, Managerial	183	245	182
Clerical, Sales	407	284	172
Service	351	338	156
Farming, Fishing, Forestry	17	3	-
Processing	3	5	6
Machine Trade	143	162	72
Bench Work	17	-	12
Structural Work	1,081	1,038	329
Miscellaneous	409	462	236
Unknown	149	59	53
DURATION OF WEEKS CLAIMED BY SEX			
Males Claimants			
1 - 4 Weeks	419	323	256
5 - 14 Weeks	372	437	138
15 Weeks & Over	307	229	50
Female Claimants			
1 - 4 Weeks	168	137	100
5 - 14 Weeks	212	208	99
15 Weeks & Over	132	110	35

Another development on the Petroleum Reserve is Husky Oil's 190 million dollar contract for drilling six exploratory oil wells, three gas wells and some site preparation for future drilling. The Federal Energy Administration has estimated that there may be up to five billion barrels of oil in the reserve although admittedly this is only a tentative evaluation.

Construction employment has started its fall slowdown with a decrease of 150 this month. Next year's construction season is already beginning to take shape. In the private sector a 75 unit efficiency apartment building is in the planning stages. The building will be located across the river from the Chena View Hotel and it may be linked to the south side of the river by a pedestrian bridge. Other plans for renovation of the old St. Josephs hospital are still to be decided. Public sector construction grants of 3 million dollars were announced this month, the funds are made available by the Federal Economic Development Administration. $2.3 million of these grants will be used to extend water lines in South Fairbanks. The 1978 construction season may not equal this years level, however, due to a continued reduction in post-pipeline economic activity.

In the manufacturing group an award of a 13.2 million dollar contract to the North Pole refinery was the most important development. The contract is for the jet fuel and was awarded by the Defense Logistics Agency. Manufacturing employment is at an



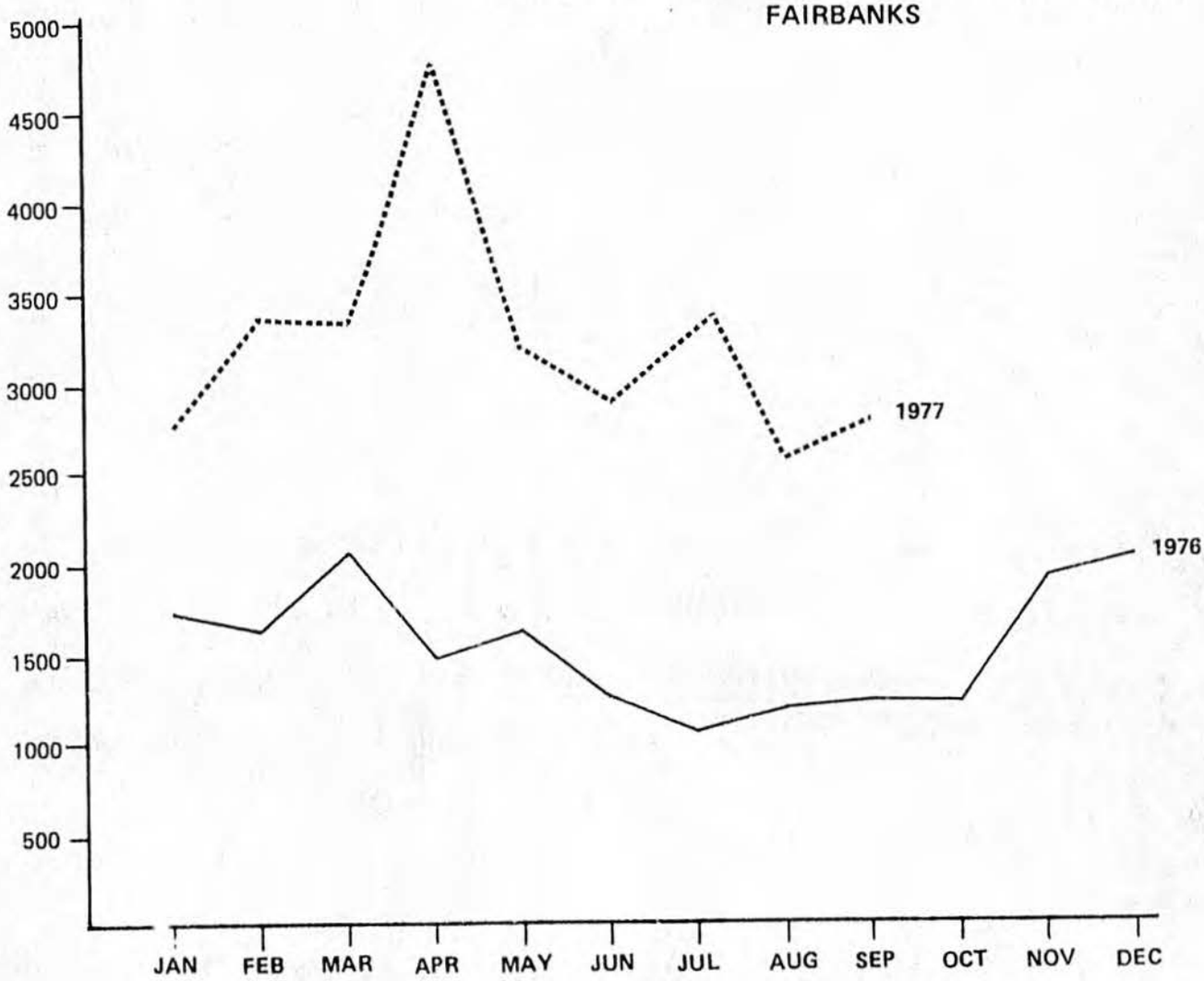
all time high largely due to the refinery's addition to the area labor market.

Transportation employment continued to decline as trade employment increased slightly over the month. The increase in trade employment may be attributable to a small surge in consumer demand with "back to school" shopping. A downturn of less than 13 percent in retail and wholesale trade employment over the year, is surprising contrasted with larger percentage declines in construction, service and transportation groups. Using the pipeline savings theory mentioned earlier it may be possible to attribute the current health of the trade and finance sectors to high pipeline earnings and savings.

Government employees are the final group whose employment has had a significant change over the month. The opening of schools resulted in an increase of 250 in employment, with the University of Alaska leading the trend. Enrollment numbers in North Star Borough schools indicate a 6 percent decrease in the number of students. Apparently the economic contraction of 1977 is not going to have any major impact upon the school system.

Characteristics of the Insured Unemployed: Unemployment insurance trends show that September's claims activity was equal to January's. September would normally be one of the months with the least claims and January one of the months

INSURED UNEMPLOYED TREND FOR PAST 21 MONTHS
FAIRBANKS



FAIRBANKS CIVILIAN LABOR FORCE SUMMARY 1/ 4/
BY PLACE OF RESIDENCE

	p/ 9-77	r/ 8-77	9-76	Changes From: 8-77	9-76	* 9-77
CIVILIAN LABOR FORCE.....	15,250	15,300	23,050	- 50	-7,800	22,550
INVOLVED IN WORK STOPPAGES.....	0	0	0	0	0	0
TOTAL UNEMPLOYMENT.....	1,800	2,150	1,600	-350	200	3,000
Percent of Labor Force.....	11.8	14.1	6.9	-	-	13.3
TOTAL EMPLOYMENT 2/.....	13,450	13,150	21,450	300	-8,000	19,550

NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT 1/
BY PLACE OF WORK

	p/ 9-77	r/ 8-77	9-76	Changes From: 8-77	9-76
Nonagricultural Wage & Salary.....	20,650	20,600	29,650	50	-9,000
Mining.....	150	200	200	- 50	- 50
Construction.....	1,750	1,900	6,800	-150	-5,050
Manufacturing.....	600	600	400	0	200
Food Processing.....	50	50	50	0	0
Other Manufacturing.....	550	550	350	0	200
Transp.-Comm. & Utilities.....	3,150	3,200	3,800	- 50	-650
Trucking & Warehousing..	1,200	1,200	1,400	0	-200
Water Transportation.....	50	50	50	0	0
Air Transportation.....	600	600	800	0	-200
Other Transp.-Comm. & Utilities..	1,300	1,350	1,550	- 50	-250
Trade.....	4,100	4,000	4,700	100	-600
Wholesale Trade.....	600	600	950	0	-350
Retail Trade.....	3,500	3,400	3,750	100	-250
General Merchandise & Apparel..	550	550	550	0	0
Food Stores.....	600	600	600	0	0
Eating & Drinking Places.....	950	950	1,100	0	-150
Other Retail Trade.....	1,400	1,300	1,500	100	-100
Finance-Insurance & Real Estate....	900	900	1,000	0	-100
Services & Miscellaneous.....	3,100	3,150	5,600	- 50	-2,500
Government 3/.....	6,900	6,650	7,150	250	-250
Federal.....	2,250	2,500	2,600	-250	-350
State.....	2,900	2,600	2,850	300	50
Local.....	1,750	1,550	1,700	200	50

1/ Data contained in this report covers the Fairbanks Election District area which includes the city of Fairbanks, the residential communities of College, International Airport, Fort Wainwright, Eielson Air Force Base, Farmer's Loop Road, Slaterville, Gilmore, Tok Junction, Big Delta and the inter-connecting highways.

2/ Includes: domestics, nonagricultural self-employed and unpaid family workers, agricultural workers and adjustment for commuting.

3/ Includes teachers in primary and secondary schools, and personnel employed by the University of Alaska.

4/ Adjusted to add to the national totals produced by the Current Population Survey method.

* Not adjusted by the Current Population Survey method.

p/ Denotes preliminary estimates.

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with the greatest but this has obviously been an unusual year. Claims have been abnormally high especially in April and July as large pipeline layoffs occurred. These layoffs have driven the claims load up in September. The question arises, can claims continue at this level now that we are out of the immediate post-pipeline period? It seems likely that they will as the seasonal addition of more displaced workers boosts the current number of claimants. Also secondary employment declines which were expected to accompany the loss of pipeline jobs are still working their way through the economy. Until this cycle is complete the unemployment insurance claims load will be as great as last year. This trend has also been projected for statewide unemployment by the labor departments econometric model.

Human Resources: Claimants who previously worked in the construction industry have increased in proportion to all other claimants. Construction claims are now 57 percent of the total sample. The service sector with an 18 percent share was the next largest group followed by the transportation sector with 11 percent. Construction's proportional increase of all claims over the year has been fed by pipeline layoffs. With the bulk of these layoffs complete, the increase of construction claims should slow. However additional workers will become seasonally unemployed in construction work unrelated to the pipeline. Other seasonal adjustments should also be upcoming in trade, transportation mining and service employment.

Occupational statistics follow from the industry of attachment relationships with 54 percent of claims in structural work and miscellaneous occupations. These comprise many construction skills. Another development this month was the increase in clerical and sales workers claims, their proportion of the insured unemployed was up from 11 percent in August to 15 percent in September.

A substantial pool of experienced construction, clerical, and sales workers are unemployed in Fairbanks. The booming pace set by the Alyeska project has influenced the labor market for the past three years and it cannot be expected that the after affects will be smoothed out in only a few months. Dislocations in the labor market are bound to persist for some time. This situation is compounded in the short run due to the expected construction of the Alcan gas pipeline. The prospect of a gasline has temporarily frozen the local market as people hope to gain gas pipeline work. This theory is supported by the increasing duration of many unemployment insurance claims. The problem is further compounded in that the next pipeline's construction will require fewer workers and is not expected to begin for at least 16 months. The imbalance in the labor market therefore is likely to persist for some time driving up the unemployment insurance load.

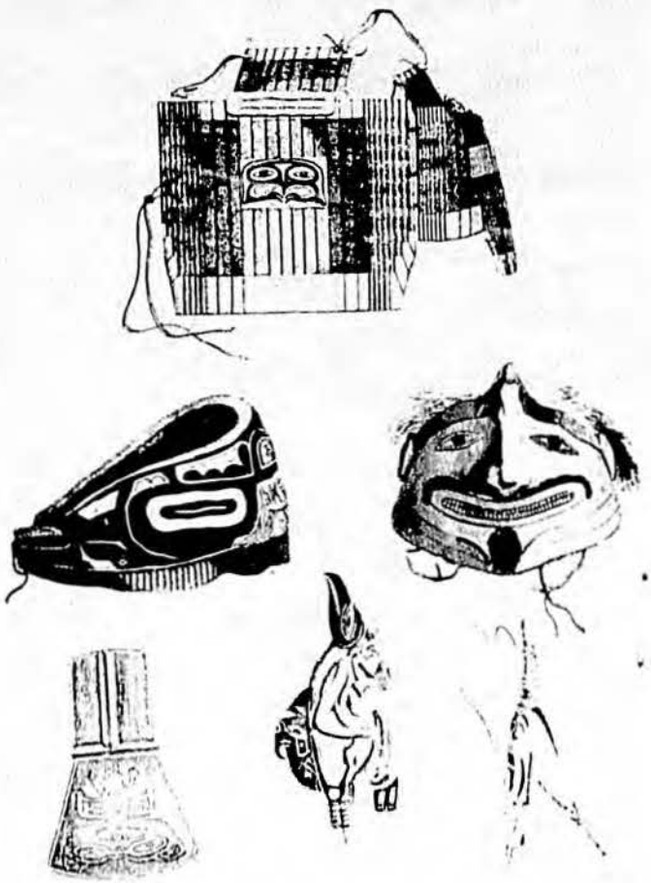


Photo: Alaska Historical Library

HOURS AND EARNINGS - SELECTED INDUSTRIES 1/

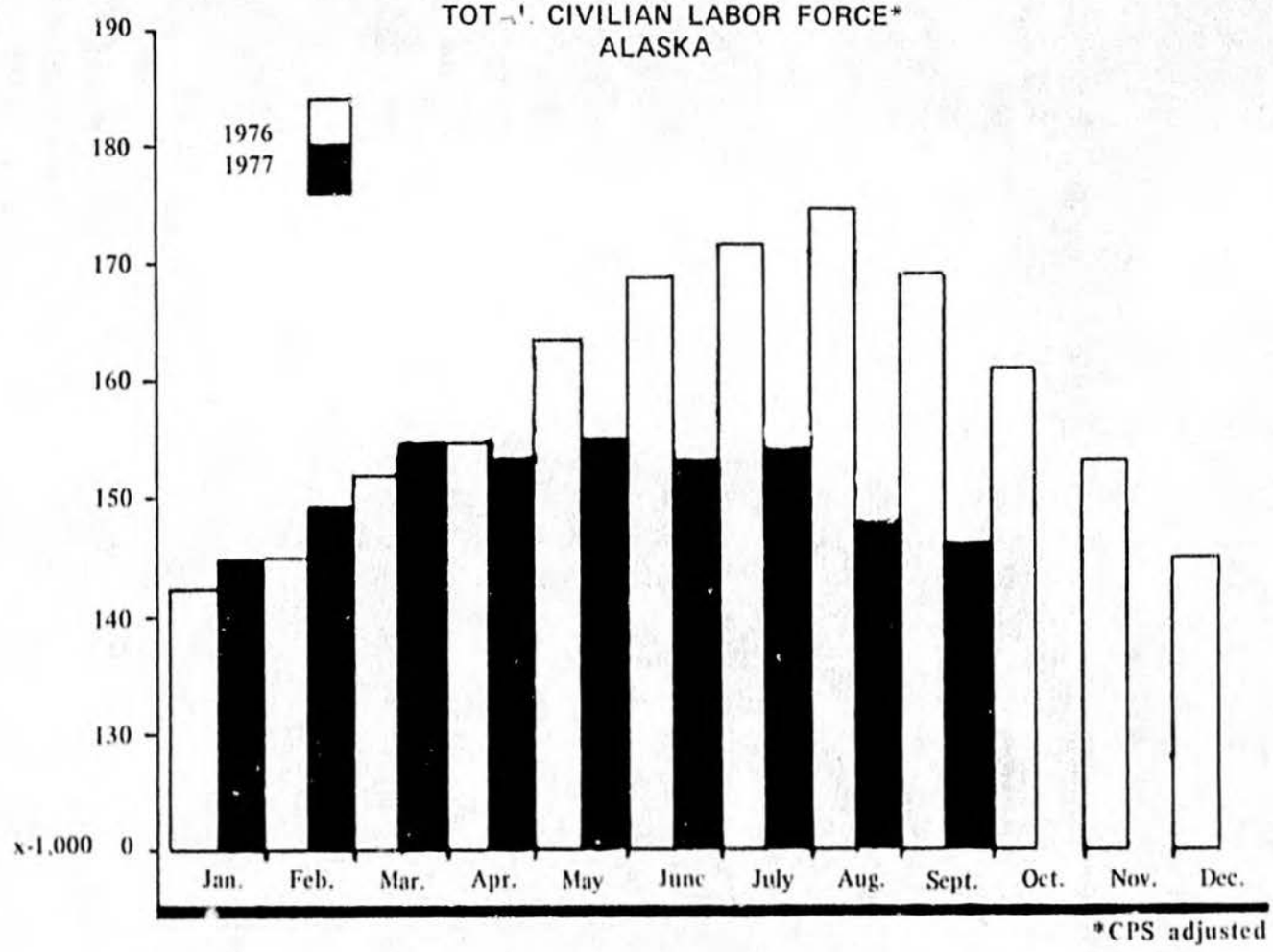
	Average Weekly Earnings			Average Weekly Hours			Average Hourly Earnings		
	9-77	8-77	9-76	9-77	8-77	9-76	9-77	8-77	9-76
MINING	760.78	727.08	665.91	51.3	49.8	48.5	14.38	14.60	13.73
CONTRACT CONSTRUCTION	1011.10	1046.64	1229.57	53.3	56.0	60.6	18.97	18.69	20.29
MANUFACTURING	391.84	373.18	302.86	39.5	42.6	36.8	9.92	8.76	8.23
Food Processing	204.70	268.27	176.79	35.6	41.4	32.8	5.75	6.48	5.39
Logging-Lumber & Pulp	498.18	491.96	424.00	43.7	45.3	42.4	11.40	10.86	10.00
WHOLESALE TRADE	364.29	362.48	358.75	29.9	40.5	40.4	9.13	8.95	8.88
RETAIL TRADE 2/	245.05	255.27	242.68	32.5	33.5	35.9	7.54	7.62	6.76
FINANCE-INSURANCE & REAL ESTATE	209.21	226.58	199.14	-	-	-	-	-	-

EXPLANATION NOTES:

AVERAGE HOURS & EARNINGS SERIES: Averages are based on data for full- and part-time production and non-supervisory workers and are for gross earnings and hours worked, or paid for, including overtime pay and hours. Administrative, supervisory, technical, and office personnel are excluded.

1/ Prepared in cooperation with Bureau of Labor Statistics, U. S. Department of Labor.

2/ Excluded eating and drinking places.


TOTAL CIVILIAN LABOR FORCE*
ALASKA
1976
1977
190
180
170
160
150
140
130
x-1,000 0
Jan.
Feb.
Mar.
Apr.
May
June
July
Aug.
Sept.
Oct.
Nov.
Dec.
*CPS adjusted

ALASKA
DEPARTMENT OF LABOR
EMPLOYMENT SECURITY DIVISION
P.O. BOX 3-7000 JUNEAU, ALASKA 99802

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STATE OF ALASKA

JAY S. HAMMOND, GOVERNOR

DEPARTMENT OF LABOR

OFFICE OF THE COMMISSIONER

BOX 1149 – JUNEAU 99811

Dear Reader:

This publication has been designed to provide a wide variety of people with an overview of statewide industry composition and recent trends in the Alaskan economy. Three areas of interest have been provided to the reader: a short description and history of major Alaskan industries, an analysis of current trends and pipeline impact on those industries that were affected, and a base line forecast to 1978 from the Alaska Department of Labor's econometric model.

Industry employment, unemployment, population, and wage forecasts on the following pages were generated using conservative assumptions about economic activity in 1977 and 1978, e.g., no gas pipeline or significant outer continental shelf (OCS) development until after 1978; no significant government spending in 1977 and 1978, etc. As a consequence, the forecasts can be considered "base case forecasts". Hopefully, this approach will provide a foundation for which planners, business leaders, and others can build their own assumptions and forecasts of future economic activity.

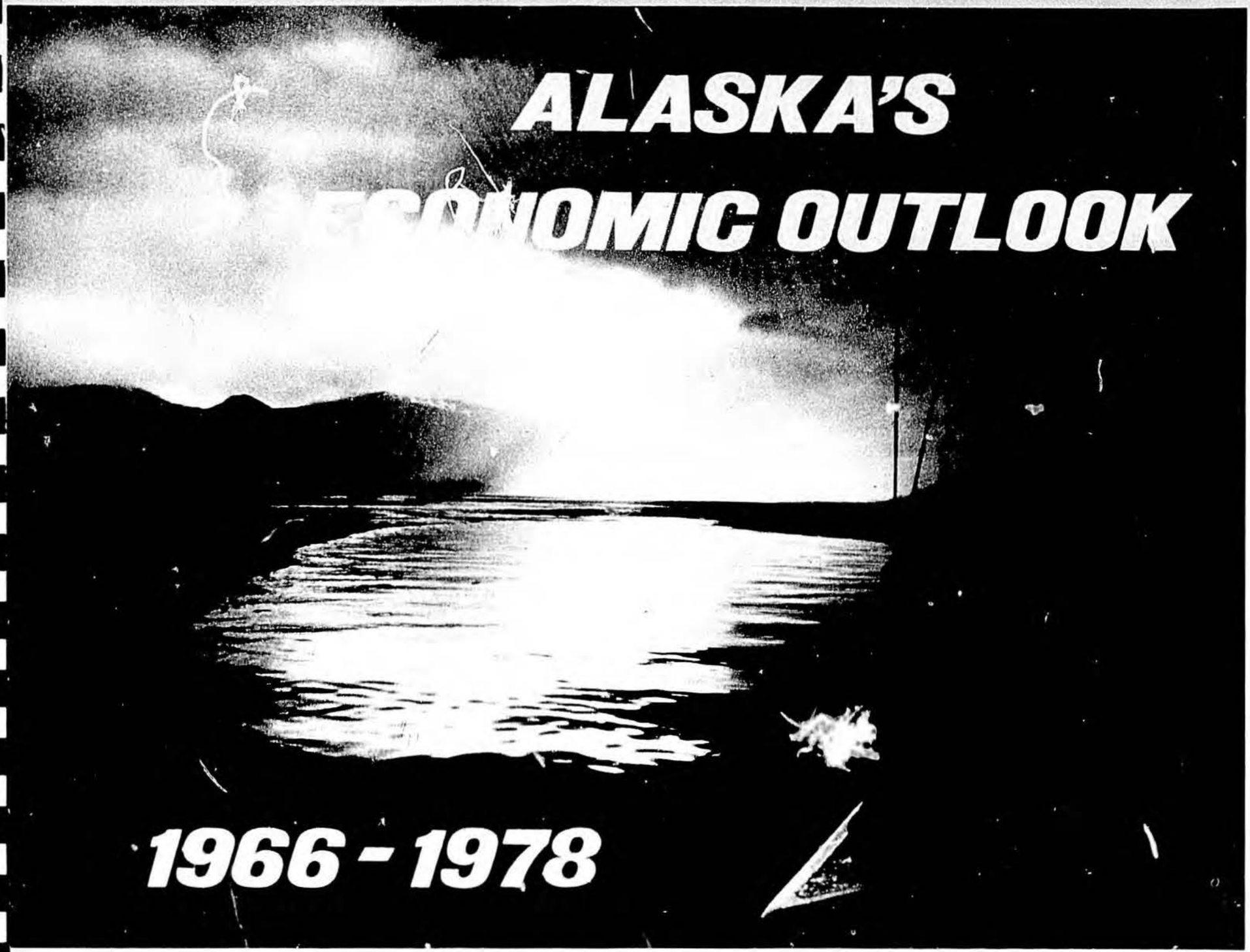
For those interested in other opinions on post-pipeline trends in economic activity, the Institute of Social and Economic Research-University of Alaska, released economic forecasts in March of 1977 and the Alaska Department of Commerce and Economic Development will release their forecasts sometime in October of 1977. Also the National Bank of Alaska and the Alaska Pacific Bank maintain economic research units. Ralph Waldo Emerson once said, "Our knowledge is the amassed thought and experience of innumerable minds".

We hope this publication will serve as a valuable tool to decision makers and others who are concerned with the past, present, and future direction of the Alaskan economy. Any comments or questions concerning this publication will be welcome and can be directed to the Research and Analysis Section at the Alaska Department of Labor.

Sincerely,

Rod Brown

Rod Brown, Chief
Research and Analysis
(907) 465-4500


ALASKA'S
ECONOMIC OUTLOOK
1966 - 1978

ALASKA'S ECONOMIC OUTLOOK

1966 – 1978

Jay S. Hammond, Governor
State of Alaska

Edmund N. Orbeck, Commissioner
Department of Labor

David L. Gale, Chief
Research and Analysis

July, 1977

This publication was prepared through joint efforts of:

Lynn Pistoll, Labor Economist
Steve Harrison, Labor Economist

TABLE OF CONTENTS

PREFACE

The seed for this publication was planted nearly a year ago as a requisite for labor market information forecasts traditionally provided by the Research and Analysis section of the Department of Labor. The task then, was to provide employment forecasts by industry over a two year period for use by planners, educators, business organizations, government agencies, and others who are concerned about what tomorrow may have in store.

In the recent past, employment growth among most industries in Alaska showed trends of consolidated growth and reasonable accuracy in forecasting employment for various sectors could almost be achieved by using a straight line "ruler methodology". Unfortunately, or perhaps fortunately, forecasts were required for 1977 and 1978, the period immediately following completion of the Trans-Alaska Pipeline project. Since several major industries in Alaska experienced abnormally rapid increases in employment during the project, forecasting post-pipeline impact became a more complicated undertaking. The "ruler methodology" was therefore abandoned for a more sophisticated technique.

The project took root and began to flourish when on line access to a computer in Juneau was achieved. Steve Harrison and Lynn Pistoll with the Research and Analysis Section of the Department of Labor, programmed an intricate computer software package, established a working data bank, and developed a simulation model for the Alaska economy based on their extensive research of industry structures in the state.

As is generally the case, much of the credit in a project like this belongs to those who are least recognized. Much appreciation is extended to the entire staff of the Research and Analysis Section, most of whom diligently contributed to the modeling effort and the finished publication. Also, special thanks is extended to John Larsen with the Research Section of the Department of Revenue for his work in the beginning of the project. And finally, much tribute is extended to economists and business leaders throughout the state who have taken time to review and discuss the results of this project.

INTRODUCTION

The Alaskan economy is one of the most unique economic structures in the United States. Even during peak economic activity in 1975 and 1976, which was induced by the Trans-Alaska Oil Pipeline Project, the Alaskan economy provided work for only 180,000 people, by far the smallest employer in the union. Although the Alaskan economy is young, it could also be considered one of the richest, having a vast store-house of natural resources and having the highest per-capita income levels in the nation.

This youthfulness, smallness, and richness combined with the stabilizing effect of a large government sector and large seasonal variations in economic activity makes the Alaskan economy very unique. As a consequence, relatively little is known about the structural relationships that exist between various sectors of the economy. Even less is known about the quantitative magnitudes of the relationships involved.

There are good reasons to believe Alaska's economic activity is fairly independent of the economies with which it interacts. The combined effect of the factors contributing to Alaska's uniqueness can be expected to produce short-term patterns of economic activity that vary noticeably from those observed in the rest of the United States. More so, the large capital and labor intensive activities which have recently been characteristic in the development of Alaska's oil resources has even added to this effect by creating large demands on Alaska's small economic base; for example, during the construction of the Trans-Alaska Oil Pipeline, employment in Alaska grew 56 percent while the rest of the nation suffered through a slight recession.

This study then, is an attempt to examine industry relationships in Alaska as an independent system, interacting in response to exogenous interests operating within the state as well as the overall growth in state and local government, population, and the export sector of the economy.

Industry employment data, the oldest and most consistent data series in the state, was used as a measure for evaluating Alaska's overall growth. By reviewing significant events in the past and their effects on the historical industry employment series, certain statistical relationships were achieved, reduced to a set of equations, then organized into a modeling format.

The graphs and tables of employment by industry discussed in the succeeding pages have been organized to show actual quarterly employment from 1966 to 1976, the model

forecasts over the same period and, a continuation of the model forecasts to 1978. Because the model is driven into the future using basic assumptions, careful consideration was given to include only those assumptions which were likely to have a significant influence on the economy over the next two years. The model forecasts then, should be considered as a base case, or the most likely path of future growth.

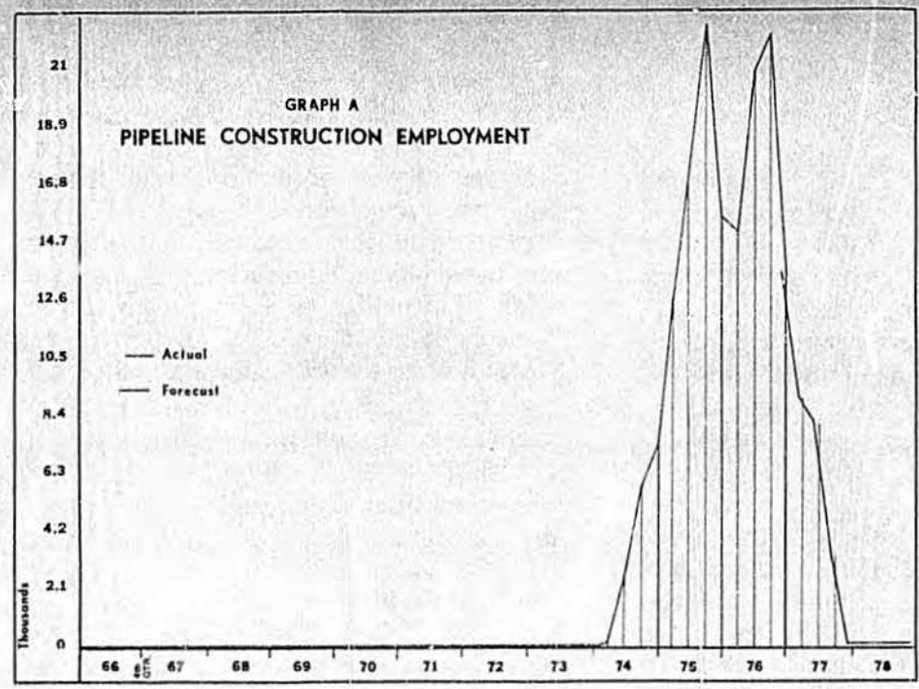
Economic model building is a never ending process: as the structure of the economy changes so must the model. This work marks only a beginning to the research and understanding of basic structures in the Alaskan economy. The model equations and even the model structure will be subject to continuous refinement as more and more information comes to light. We sincerely solicit input from our readers as to ways in which both the modeling effort and the contents of this publication can be improved to better meet their needs.

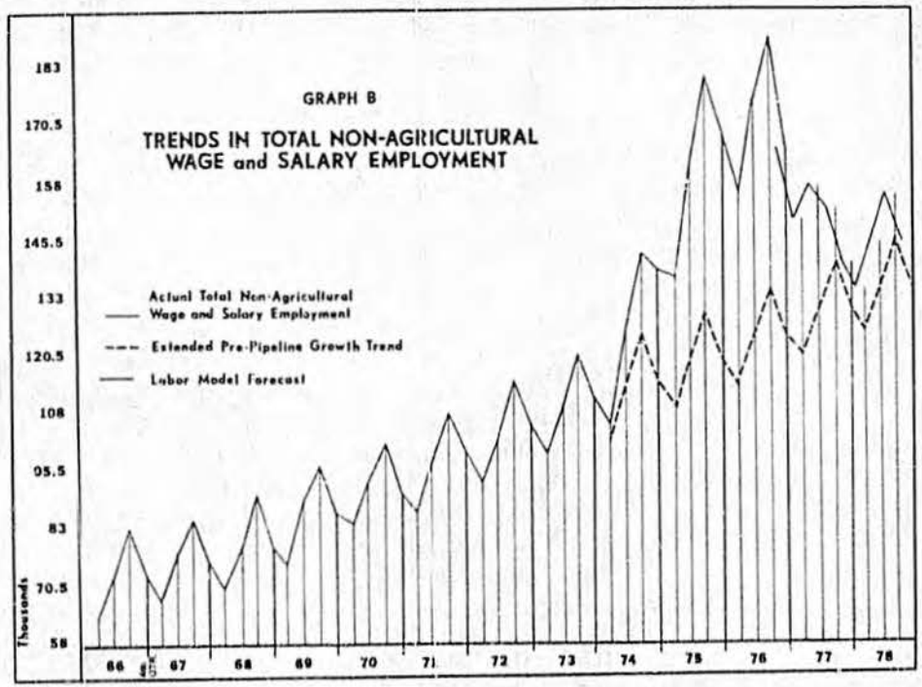
IN A NUTSHELL

Most people are aware that total employment in Alaska has increased substantially over the last three years due to direct and indirect effects of the Trans-Alaska Oil Pipeline project, the biggest private construction project in history.

Two graphs have been presented in this section which clearly summarize pipeline construction employment, and the effect it had on the overall growth trend in Total Non-agricultural Wage and Salary employment.

Graph A exhibits the quarterly average





employment for pipeline construction. Work began in 1974 and employment on the project increased rapidly peaking in the summer of 1975. Seasonality in employment which is common for the construction industry in Alaska was virtually eliminated with regard to pipeline construction employment. Work on the pipeline dropped a bit during the winter of 1976, clearly showing a double peak in the pipeline construction effort. Pipeline construction employment has since been falling off much the way it went up and should be bottoming out in the summer of 1977.

Graph B illustrates the quarterly pre-pipeline growth trend (1966 through 1973) of Total Non-agricultural Wage and Salary Employment extended through the pipeline construction period into 1978, the actual growth as a consequence of pipeline construction, and the most likely direction in total non-agricultural employment after pipeline completion. Briefly, from 1966 to 1973 Total Non-agricultural Wage and Salary employment experienced an annual growth rate of nearly 6 percent. Over a three year period, 1973–1976, the annual growth in Total Non-agricultural employment increased to over 16 percent for a total increase of 56 percent during the three year construction period. As economic activity slows down with the completion of the pipeline, the Labor Model forecasts a 15 percent decline in employment over a two year period, bottoming out in the winter of 1978 and then continuing growth at a level slightly higher than the extended pre-pipeline growth level.

TOTAL NON-AGRICULTURAL WAGE AND SALARY EMPLOYMENT

DESCRIPTION

Total employment in Alaska includes all those who are working within the state excluding military. Non-agricultural Wage and Salary employment on the other hand excludes agricultural workers, military personnel, unpaid family workers, domestics, and other self-employed persons. The source for total Non-agricultural Wage and Salary Employment is largely the Unemployment Insurance contribution reports filed by employers in the State and is the most accurate and consistent series available which enumerates workers at their place of work. Total employment, rather, is an estimate based on certain adjustment factors to Total Non-agricultural Wage and Salary employment. The adjustment ratios were established from 1970 Census Information and "statistically account" for agricultural workers, unpaid family workers, domestics, self-employed persons, and multiple job holders. The ratios also adjust the series to account for workers by their place of residence rather than their place of work. Since 1970, Non-agricultural Wage and Salary employment has made up at least 95 percent of the estimated total employment in the State.

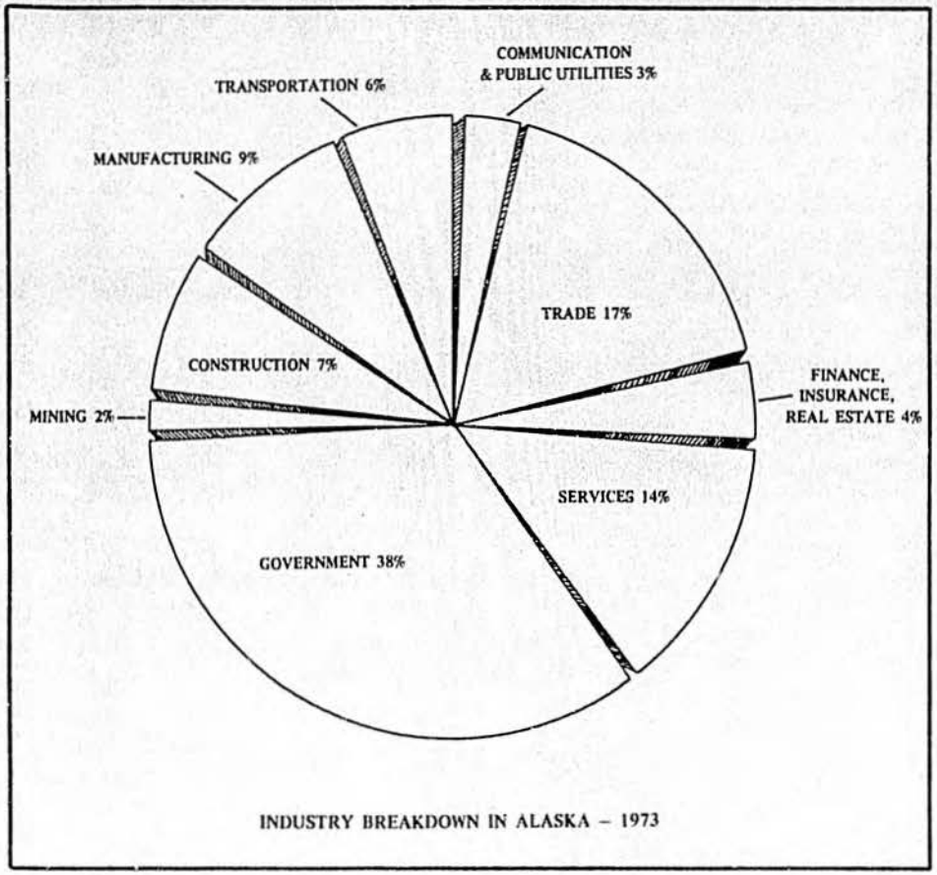
HISTORY & RECENT TREND

Traditionally, Alaska's employment has been dependent upon the development of the state's natural resources. The mineral, fishing and timber industries formed the basis for the early period of economic expansion. Following World War II employment related to natural resources began losing significance as defense related employment grew. The 33,000 military personnel in Alaska in 1965 was nearly half as large as total Non-agricultural Wage and Salary employment during the same year.

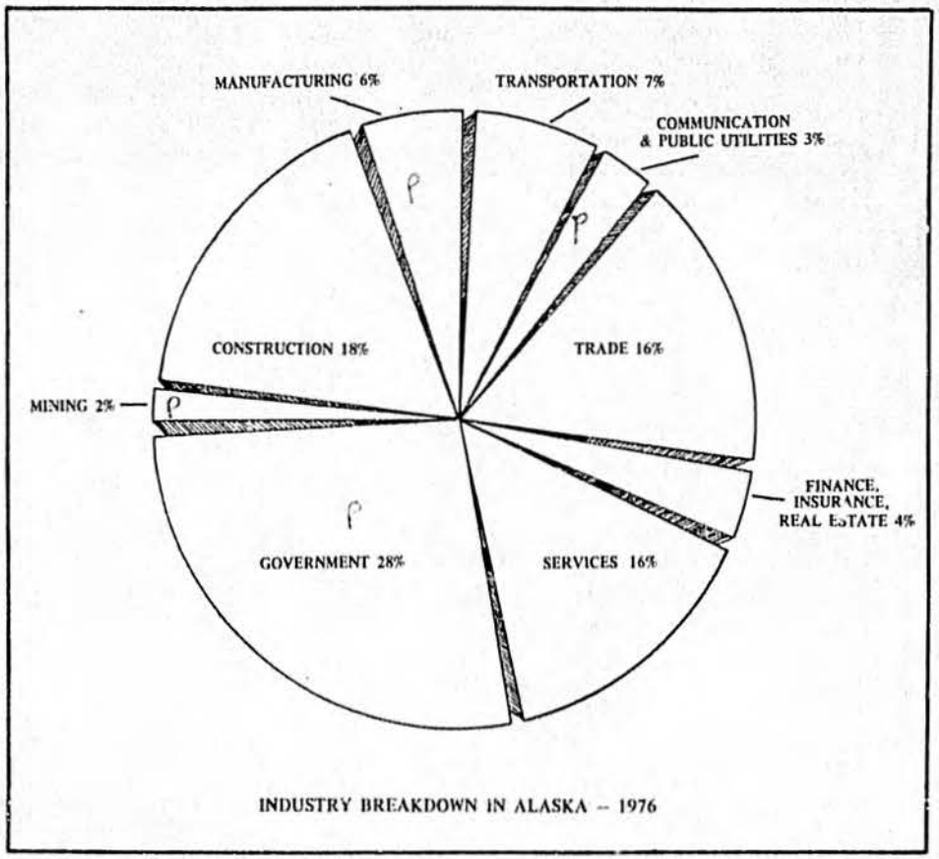
Non-agricultural Wage and Salary employment in Alaska has been growing at a much faster rate than the national average. The period from 1966 to 1973 showed an average annual growth rate of 6 percent as compared to 2.7 percent for the nation. In 1974, with the beginning of the Trans-Alaska Pipeline project, Total Non-agricultural Wage and Salary employment increased 16.7 percent over 1973. Over a three year period, 1974–1976, Total Non-agricultural Wage and Salary employment increased 56.3 percent.

FORECAST

The pipeline project along with its multiplier effects has essentially been responsible for the large increase in Total Non-agricultural Wage and Salary employment during 1974, 1975, and 1976. Although pipeline employment added roughly 23,000 to the work force at peak, total Non-agricultural Wage and Salary employment from the third quarter of 1973 to the third quarter of 1976 went up nearly 70,000. The forecast for calendar year 1977 shows a 12.7 percent decline in Total Non-agricultural Wage and Salary employment. Employment should continue to decline to a low in the winter of 1978 before it begins adjusting to normal growth. 1978 will offer approximately another 3 percent decline in employment for a total drop of 15.5 percent in two years.



INDUSTRY BREAKDOWN IN ALASKA – 1973



INDUSTRY BREAKDOWN IN ALASKA – 1976

Construction employment will take the largest fall, dropping over 60 percent in two years. Services, next in line, will drop over 20 percent by calendar year 1978. Finance, Insurance, Real Estate, and Transportation should decline by roughly 15 percent by 1978 while Trade will drop around 13 percent. Federal Government employment will remain relatively stable while state and local government, manufacturing, and public utilities will increase by roughly 12 percent, 3 percent, and 8 percent respectively by 1978. Mining a difficult industry to follow, is assumed to increase 15 percent by 1978.

EMPLOYMENT BY NON-BASIC INDUSTRIES

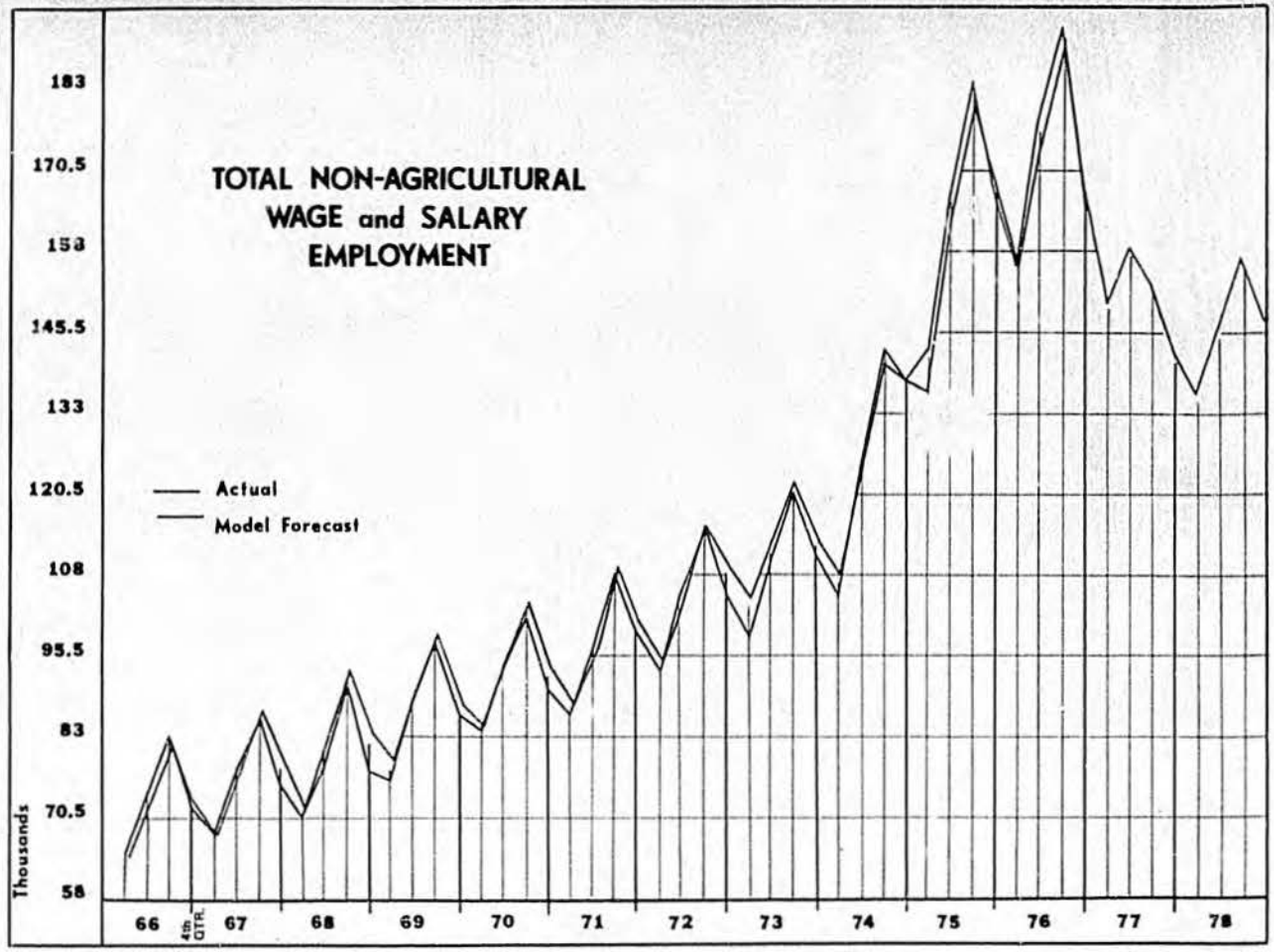
CONSTRUCTION

DESCRIPTION

Essentially there are two kinds of construction in Alaska; general building construction, involving the construction of residential dwellings, office buildings, stores, and other projects of similar character; and heavy construction, which involves construction of public facilities such as highways, airports, bridges, or large private concerns such as oil and gas pipelines, processing plants, and connecting facilities.

HISTORY

Construction has always played an important role in the development of the Alaskan economy. In the early 1900's when the economy was essentially oriented toward resource extraction (fishing and mining), construction employment was required for the building of canneries, docks, mining facilities, and support communities. Later,



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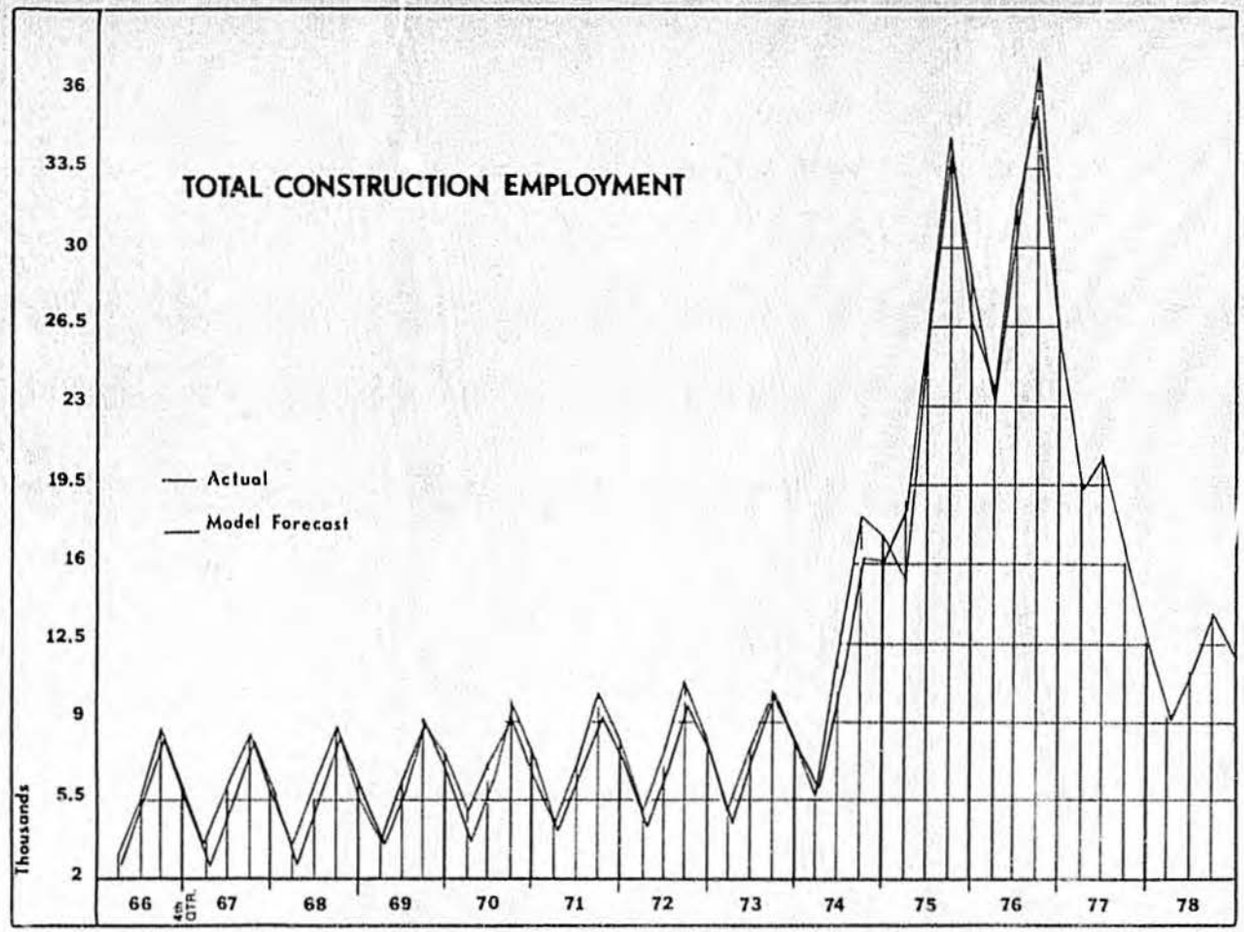

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construction shifted largely to national defense and related activities. In 1964, the year of the earthquake, construction received a shot in the arm. Employment jumped 33 percent to 5,600. 1966 to 1973 represented a period of steady straight-line growth for the construction industry. The annual growth for this 7 year period was 4.1 percent as compared to 3 percent for the nation during the same time. In 1974, with the beginning of the Trans-Alaska Pipeline project, employment in construction jumped 70.5 percent. And over a three year period, 1974–1976, employment increased a dramatic 288 percent.

FORECAST

Construction employment experienced the sharpest increase in employment in the state during the pipeline construction project and will most likely experience the largest decline after the project. The forecast for 1977 shows construction dropping 46 percent over 1976 and another 33 percent in 1978, leveling off somewhere slightly above the extended pre-pipeline growth trend. This represents a 64 percent decline over a two year period.

WHOLESALE AND RETAIL TRADE

DESCRIPTION

The Wholesale and Retail Trade industry in Alaska is similar in composition to the trade industry in the lower 48. Wholesale establishments are primarily engaged in selling merchandise to retailers, industrial, commercial, institutional, farm, and professional users. Retail establishments on the other hand, usually buy from wholesalers and sell for personal or household consumption.

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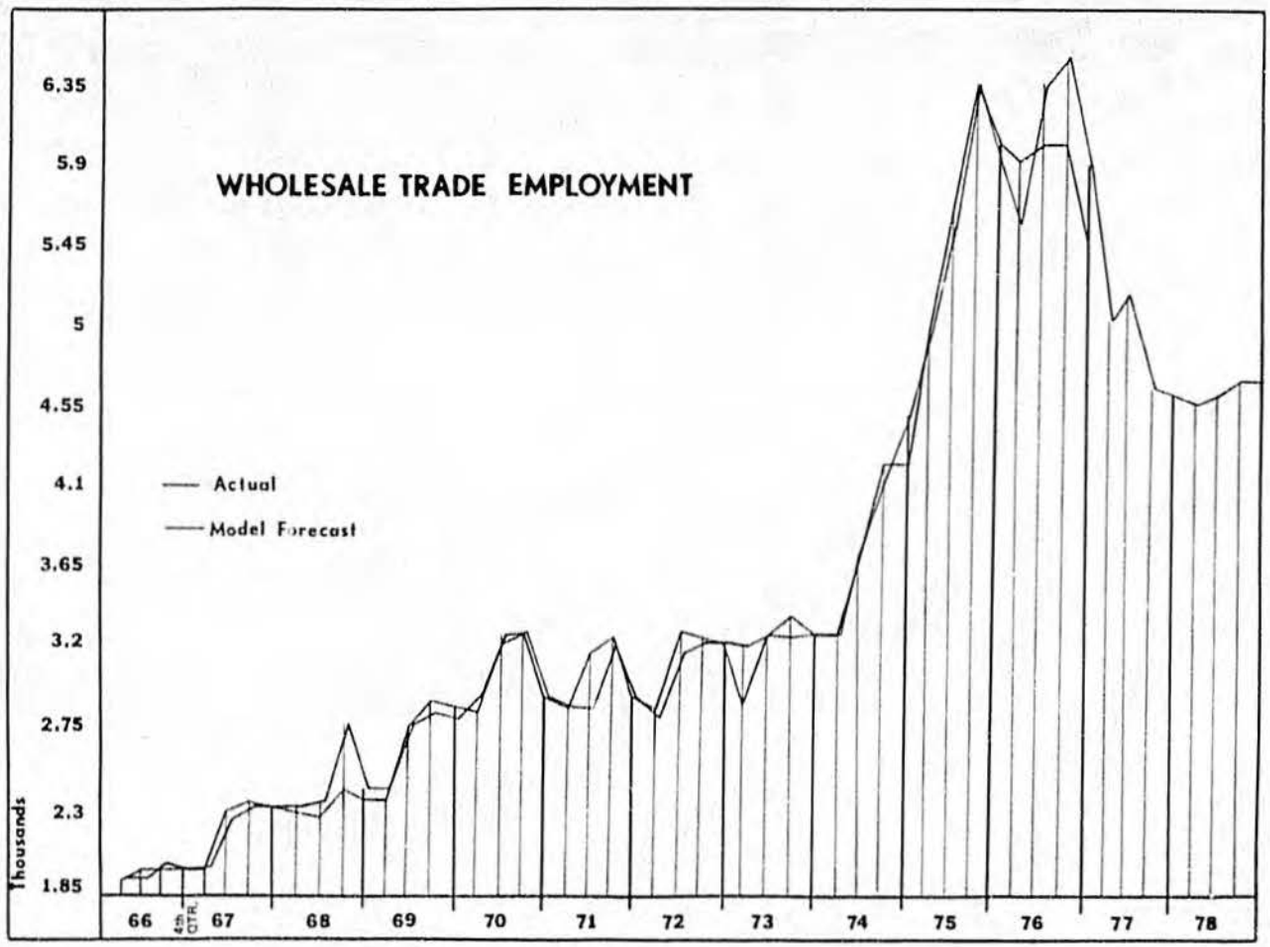


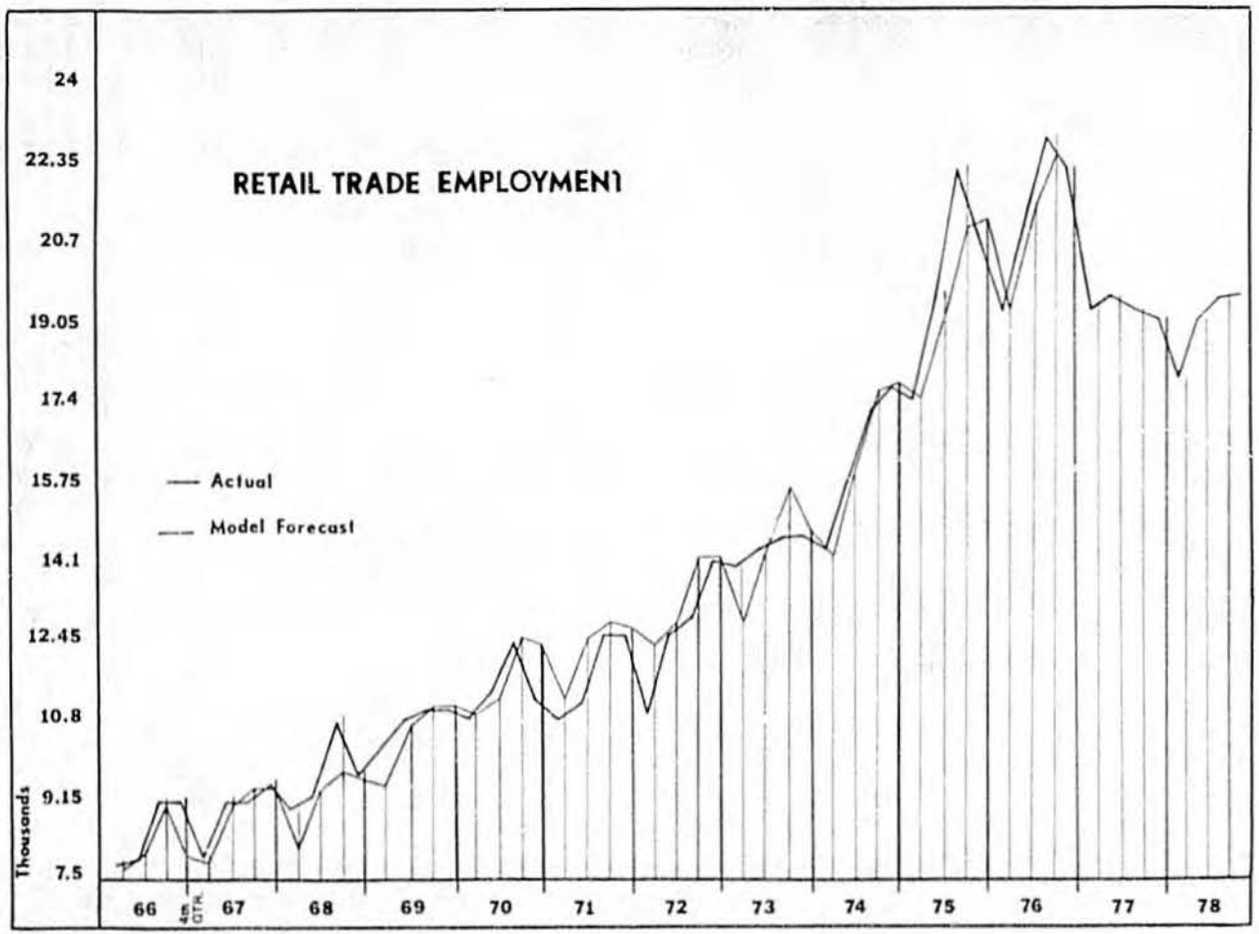
HISTORY AND RECENT TRENDS

Historically, retail trade employment in Alaska has claimed a larger share of the total Wholesale and Retail Trade Industry when compared to the national average. Wholesale outlets in the past, and much so today, are located primarily outside of the state, particularly in Seattle, Washington. More recently, with the expansion of the oil and gas industry and rapid population growth, the 1973 employment for retail trade comprised 81 percent of total Wholesale and Retail Trade employment within the state. The period from 1966 to 1973 showed retail trade increasing rather steadily at an annual rate of 7.4 percent. Wholesale during the same period increased at a slower annual rate of 6.8 percent. During the pipeline construction boom there was a distinct shift in industry relationship between these two components. Although retail trade increased 47.4 percent from 1973 to 1976, wholesale trade increased 77.4 percent, a much more responsive increase. The fact that wholesale increased over one and a half times faster than retail trade during the boom period indicates that the wholesale industry in Alaska is extremely responsive and competitive in relation to industrial and commercial demand within the state, as well as increases in demand for consumer goods th[illegible] the retail trade industry.

FORECAST

The forecast for Wholesale and Retail trade shows a drop in employment of 11.8 percent in 1977 and another 1.8 percent decline in 1978. Wholesale trade, which was much more responsive to the recent increase in economic activity, should also be more responsive to a decrease in economic activity. Wholesale

NOTE: Please see accompanying statistics on page 29



trade employment should decline by 15.4 percent in 1977 and another 5.1 percent in 1978 or a total of 19.7 percent over a two year period. Retail trade employment will take less of a decline, dropping 10.8 percent in two years, most of which will be experienced in 1977.

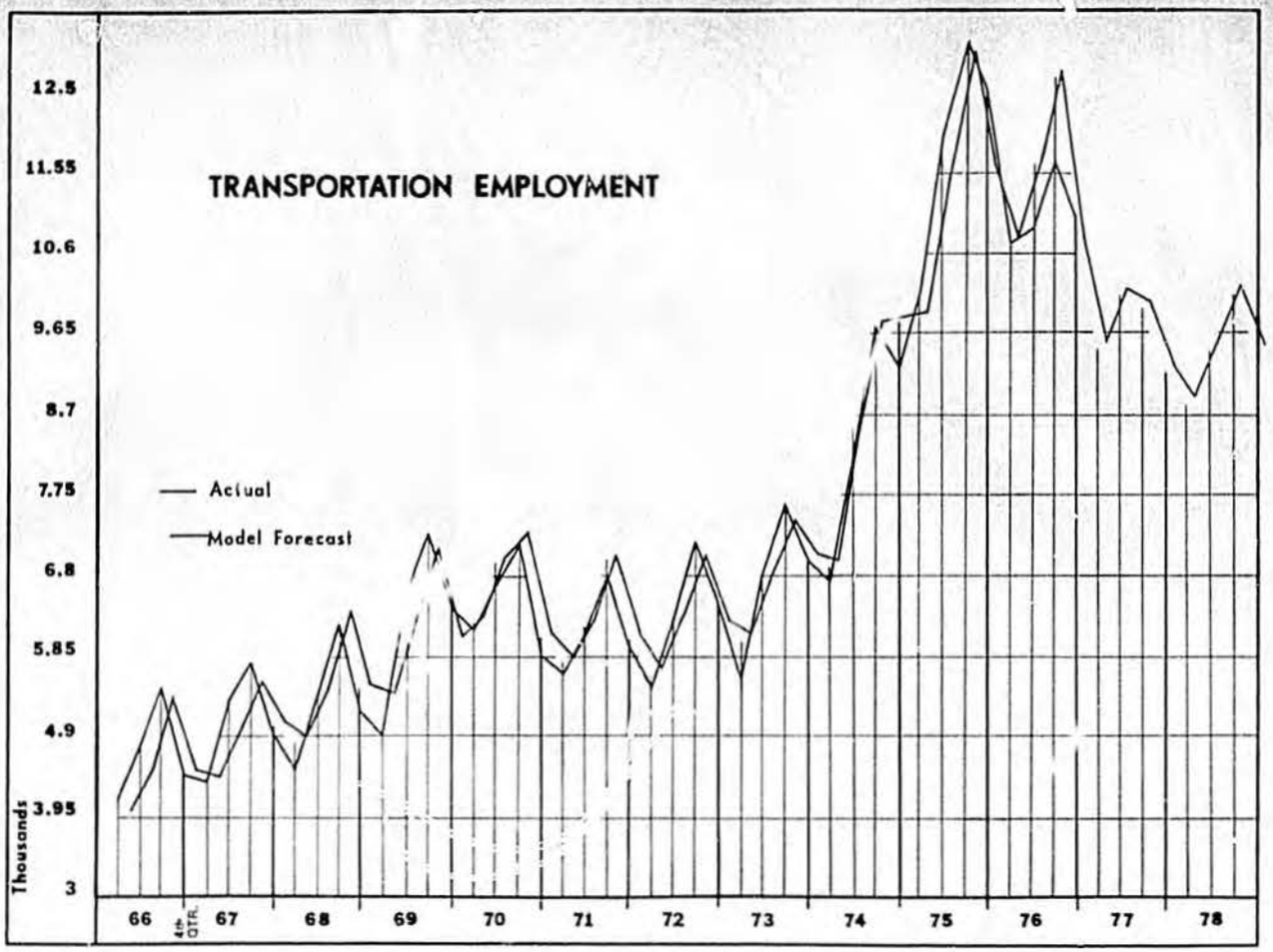
TRANSPORTATION

DESCRIPTION

Air, Water, and Trucking and Warehousing make up the bulk of employment in Alaska's transportation industry. Air transportation made up approximately 40 percent of total transportation employment in 1975 while trucking and warehousing comprised about 33 percent. Although water transportation is very important in Alaska's transportation industry, technological breakthroughs such as cargo containerization have reduced employment levels even though waterborne commerce continues to grow. Water transportation made up only 12 percent of total transportation employment in 1975.

HISTORY AND RECENT TREND

Prior to the advent of the plane, water transportation was the primary mode of moving people and supplies to and from Alaska. The building of the Alaska–Canada Highway and other defense related roads by the military and technological leaps in the air industry gave way to a changing transportation system. Air transportation became increasingly popular for providing more timely services to both bush and urban communities. By the early 1970's there were approximately 500 airstrips in Alaska, one for every 650 people. From 1966 to 1973 total



NOTE: Please see accompanying statistics on page 30

transportation employment grew sporadically increasing 43.7 percent for an annual growth rate of 5.3 percent. Employment jumped 19 percent in 1969 as the North Slope oil boom generated the largest demands for air cargo in Alaska's history. Because of the delay in pipeline construction, employment levels decreased in 1970. 1974 marked another surge in employment sparked by the beginning of the pipeline project. By 1975 transportation employment increased 75.7 percent over 1973 employment levels.

FORECAST

1976 showed a slowing down of employment in the transportation industry as the pipeline neared completion. Although some activity will continue as surplus pipeline construction materials and equipment are removed from the state, 1977 should show a decline in employment, of approximately 12.5 percent leveling off in 1978 with another 2.1 percent drop.

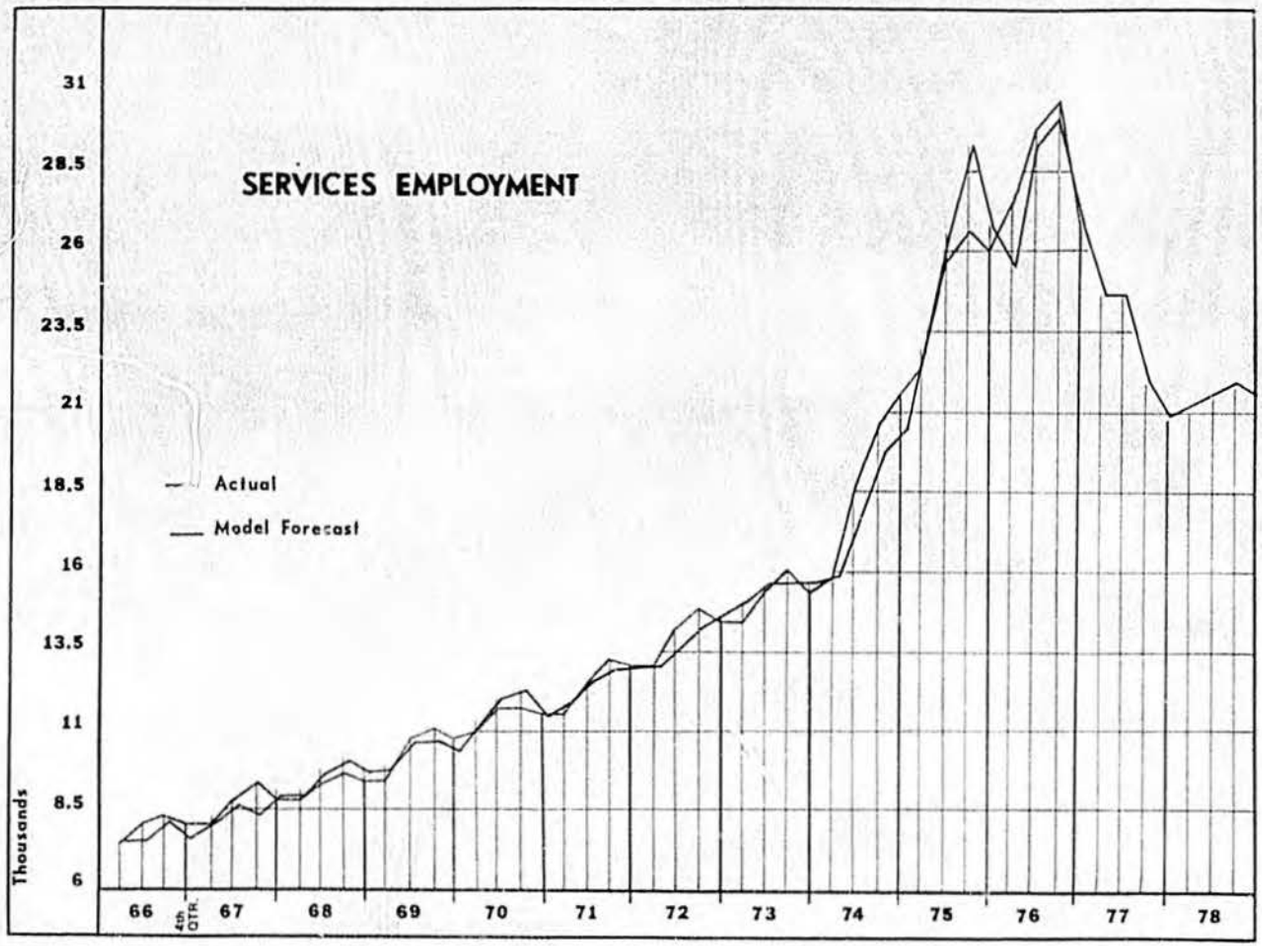
SERVICES

DESCRIPTION

Alaska's growing diversity with respect to population and industry has recently attracted many personal and business services, which in the past have been provided outside the state or simply were not available. The Service industry is primarily engaged in providing a wide variety of services for individuals, business and government establishments, and other organizations. The largest components of the Alaskan service industry are business services, medical services, lodging services, and personal services respectively.

HISTORY AND RECENT TRENDS

As the natural resource foundation of the prewar economy (fishing and mining) succeeded to an upward thrust of growth in public enterprise (particularly military and government) services became an increasingly important component of the economy. Looking at the period from 1966 to 1973, the service industry in Alaska experienced an annual growth rate of 10 percent, growing over two times faster than the national average during the same period. During the Trans-Alaska Pipeline project, services, a major support sector, grew at an annual rate of 24 percent peaking in the third quarter of 1976 with slightly more than 30,000 workers. Business services experienced the greatest change responding directly to the specialized and highly technical needs of pipeline construction. Personal services also experienced large increases in employment, responding to pipeline induced increases in population and disposable income.



NOTE: Please see accompanying statistics on page 31

FORECAST

The low capital nature of the service industry provides for fast entry and fast exit. With respect to market conditions, services are among the first to move into a "boom" situation and among the first to leave a "bust" situation. Besides construction, services experienced the largest increase in employment during the three year pipeline project, increasing 88.5 percent. The forecast shows services declining by 18.7 percent in 1977 and another 5.9 percent in 1978 for a total decline of 23.5 percent over a two year period.

FINANCE, INSURANCE, AND REAL ESTATE

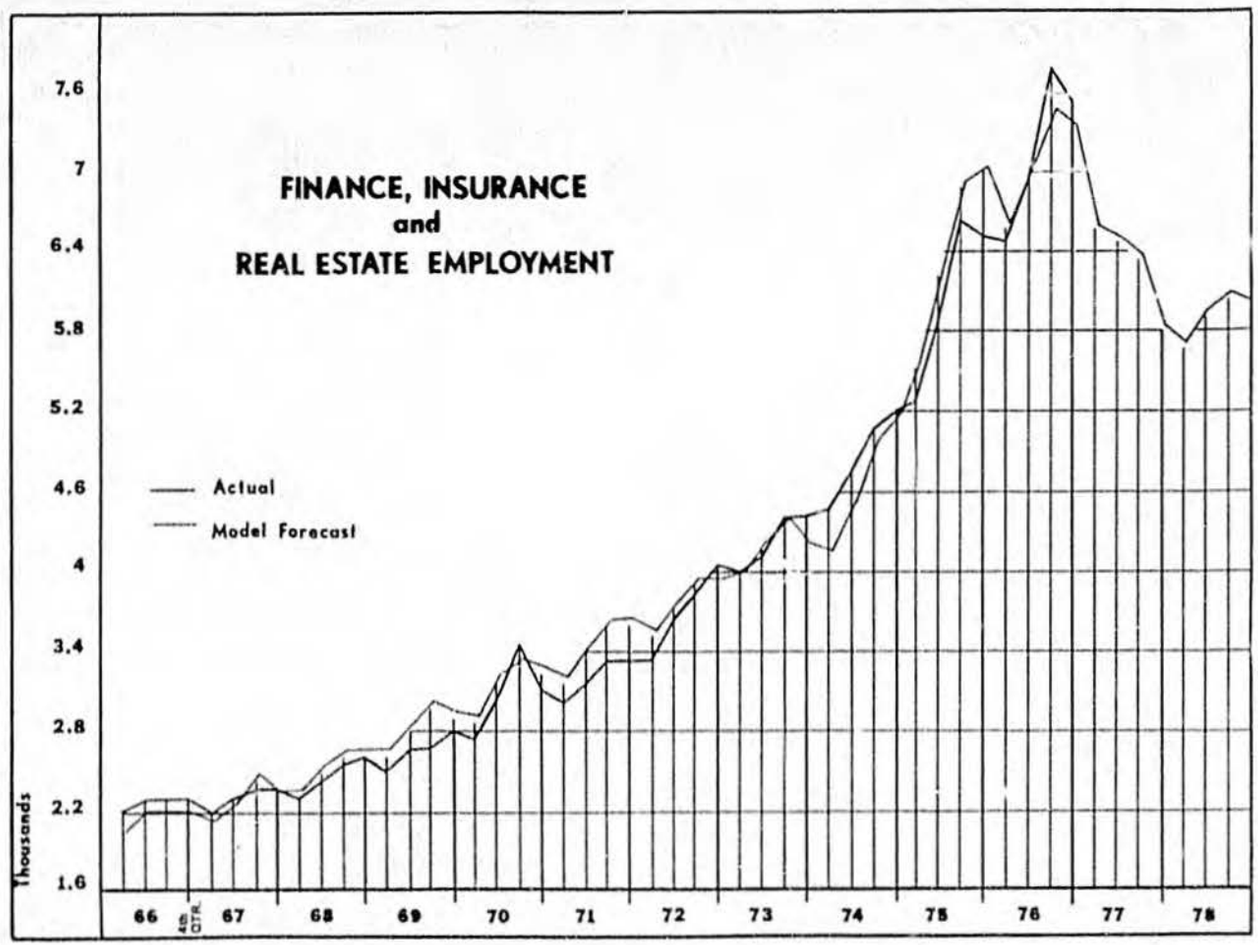
DESCRIPTION

This industry division includes establishments operating in the field of finance, insurance, and real estate; where finance can be broken down more specifically into banking, credit, investment, and securities and commodity activities. As of the third quarter of 1976 banking activities provided the largest share of employment for this division with 39 percent. Insurance and real estate activities made up a majority of the remainder, each providing 20 percent of total employment in the division. Trusts and investment management offices appear to be gaining importance with respect to employment distribution in the Finance, Insurance, and Real Estate division in Alaska, having nearly 12 percent of this industries employment in 1976.

RECENT TREND

From 1966 to 1976 employment in Finance, Insurance, and Real Estate increased at an increasing rate. Three distinct periods of growth can be seen. The slower growth period from 1966 to 1969 showed employment increasing at an annual growth rate of 5.1 percent. Most likely sparked by the discovery of oil at Prudhoe Bay in 1969, the rate of increase picked up, increasing at an annual growth rate of 12.5 percent through 1973. The third period of growth began with pipeline construction start up in 1974. From 1973 to 1976 employment in Finance, Insurance, and Real Estate increased 70 percent for an annual growth rate of 19.2 percent.

NOTE: Please see accompanying statistics on page 32



The fastest growing sector of the finance industry during the pipeline construction period was trust and investment management offices, increasing in employment by 268 percent grasping another 7 percent of the total employment in the Finance, Insurance, and Real Estate industry division. Employment in Insurance increased 91 percent from the third quarter of 1973 to the third quarter of 1976 increasing its share of total employment in the division by 2 percent. Although banking employment increased by 68 percent during the same period, it dropped 2 percent of its relative share in total division employment. Likewise, real estate dropped 3 percent of its employment share and credit agencies – 2 percent, although they experienced absolute increases in employment of 54 and 33 percent respectively.

FORECAST

Because much of the Finance, Insurance, and Real Estate industry is characteristic of not reducing their staff in proportion to immediate decreases in economic activity, it is believed that employment in this industry may not drop as far as the forecast may indicate. The forecast shows a 10 percent drop in employment in 1977 and another 6 percent decline in 1978. The sectors which experienced the largest increases in employment from 1973 to 1976, primarily investment management and insurance, should show the largest decline in employment responding directly to decreases in disposable personal income and population.

EMPLOYMENT BY BASIC INDUSTRIES

MANUFACTURING

DESCRIPTION

Manufacturing in Alaska can essentially be viewed as the basic link between the resource sector of the Alaskan economy and the consuming sectors of national and international economies. Fishing and timber are the states two largest renewable resources. These are linked directly to fish processing and logging–lumber and pulp, which accounts for eighty percent of all manufacturing employment in the state. Although manufacturing is the largest and most dynamic sector of the national economy, comprising 25 percent of total nonagricultural employment, manufacturing in Alaska makes up only six percent of the state's total nonagricultural employment.

HISTORY AND RECENT TREND

Prior to statehood, the processing of salmon provided the strongest link of Alaska's resource sector to the national economy. Lumber was primarily used for local consumption until 1954 when pulping operations were introduced. Although there have been expansions in the wood products industry prior to statehood, the food processing industry grew very slowly due to lower volumes of returning salmon.

The period from 1966 to 1973 showed total employment in manufacturing increasing at an annual growth rate of 5.1 percent. Although manufacturing has experienced reasonable growth over the last 10 years, the industry is characteristic of experiencing no growth or even small declines during so called "bad seasons" when fishing does not meet up to expectations.

FORECAST

Manufacturing is expected to grow more slowly over the next two years due to growth limiting factors in the wood products industry and no exceptionally optimistic forecasts for the fishing industry. Manufacturing should remain relatively constant through 1977 increasing approximately three percent in 1978.

MINING

DESCRIPTION

Mining is often used in a broad sense to describe various activities involved in the process of extracting minerals from the earth. Included among these activities is oil and gas exploration and development, which in 1975, made up 90 percent of all mining in Alaska. Even though oil and gas mining activity has its "ups and downs", the low in oil and gas employment following the "oil rush" to Prudhoe Bay in 1969 still made up 84 percent of total mining employment in Alaska.

HISTORY AND RECENT TREND

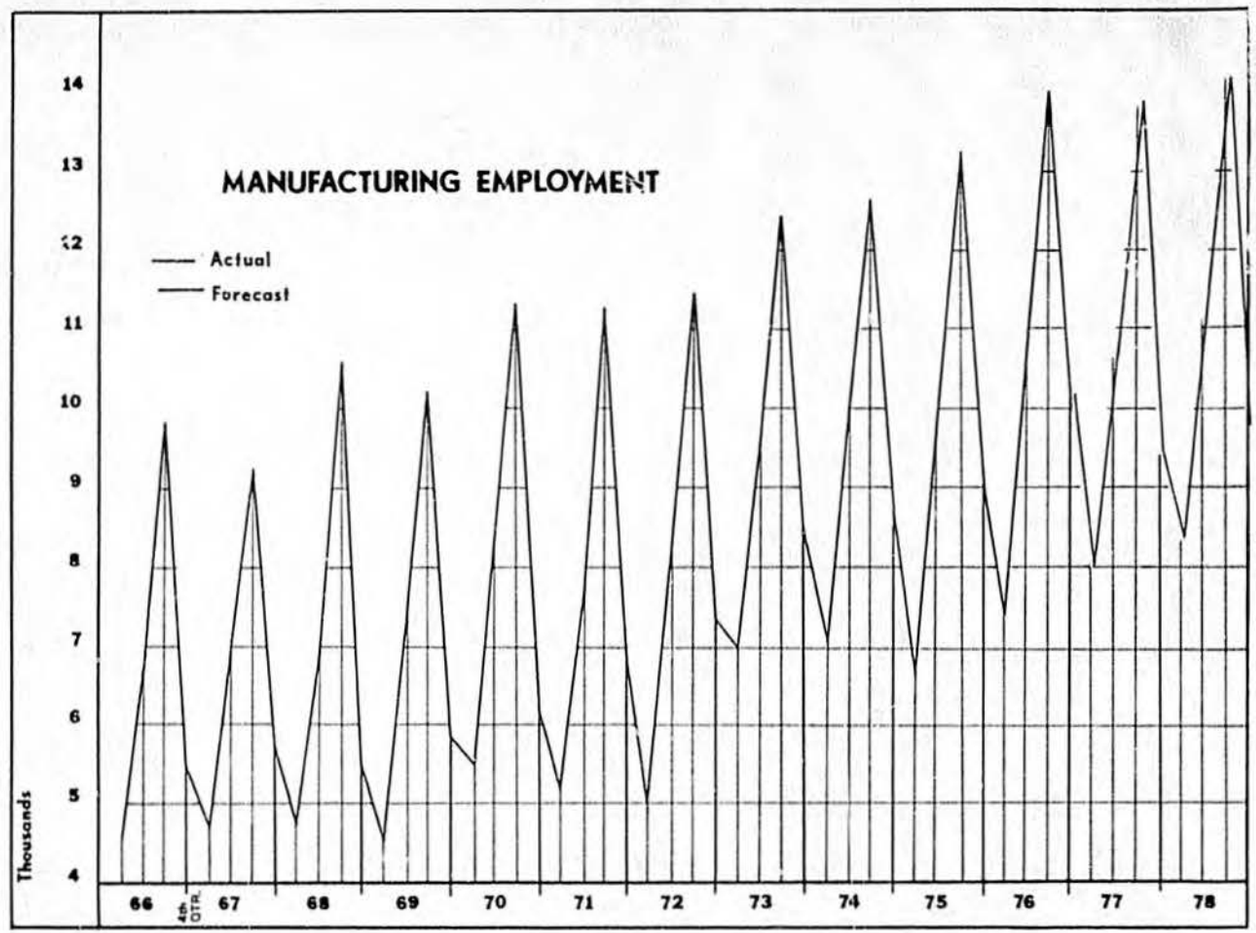
Mining employment in Alaska goes back to the late 1800's when gold was the active ingredient in the economy. Prospecting, quarrying, milling and other activities associated with gold extractions provided the essence of employment in the mining industry, which lasted well into the 1900's.

Oil mining came on the scene as early as 1921 when the Standard Oil Company made an effort to stake claims to potential oil lands southeast of Barrow on the Arctic Coast. Oil mining really didn't come to life until the discovery of oil in 1957 on the Kenai Peninsula. Exploration, development, and production activities continued throughout the 1960's and by 1969 with the discovery of oil at Prudhoe Bay, oil and gas mining employment reached 3,700. The delay in pipeline construction started oil and gas employment on a downward trend which bottomed out in the fourth quarter of 1972 with 1,700 employees. In anticipation of the beginning of pipeline construction, oil and gas employment reversed its trend, growing fast and peaking in the second quarter of 1975 and once again in the second quarter of 1976 with roughly 3,800 employees.

MODELING ASSUMPTION

Forecasting employment in mining is difficult due to the highly fluctuating nature of the oil and gas industry which makes up nearly all of mining employment. Mining activity will most likely slow down when oil development in Prudhoe Bay shifts to production when oil begins to flow in the summer of 1977. Exploration will continue in Petroleum Reserve No. 4, and more largely in the Gulf of Alaska. Those employed in mining operations in the Gulf of Alaska will be operating outside the jurisdictional boundaries of the State of Alaska and will not be counted into the states mining employment. Because these exploratory activities are staged from shore facilities on the Alaska Coast we can expect some direct and indirect effects on certain Alaskan industries, specifically services, construction,

NOTE: Please see accompanying statistics on page 33



and transportation. Since mining activities are important in forecasting employment in other industries we assumed mining would increase at a rate slightly lower than the overall trend, increasing 15.3 percent by 1978. This assumption could be optimistic given the cyclical nature of the mining industry.

GOVERNMENT

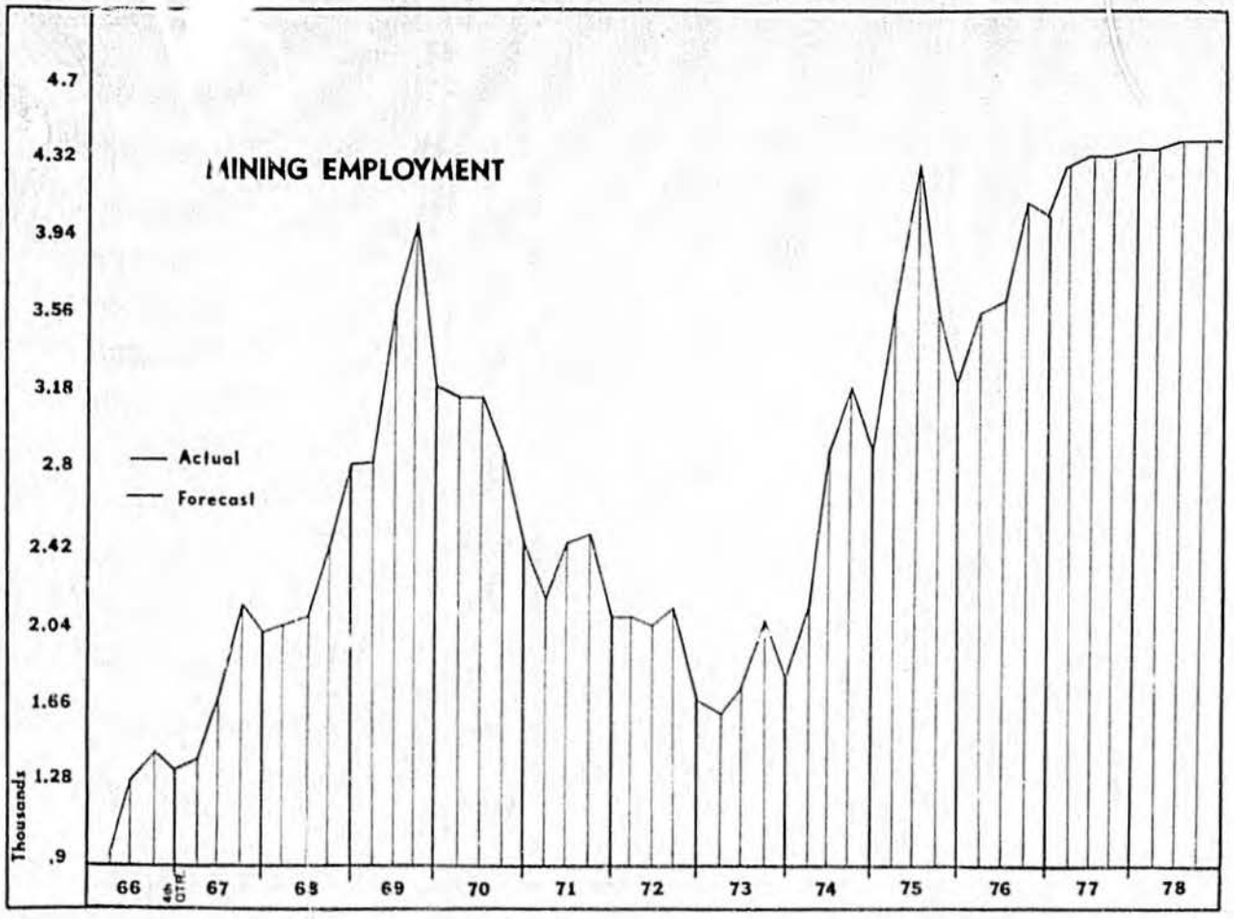
DESCRIPTION

Federal, State, and Local government makes up total government employment in the State of Alaska. Civilian government employment is included in non-agricultural wage and salary employment and includes all government employment except for the military, which amounts to roughly 25,000 active personnel.

HISTORY AND RECENT TREND

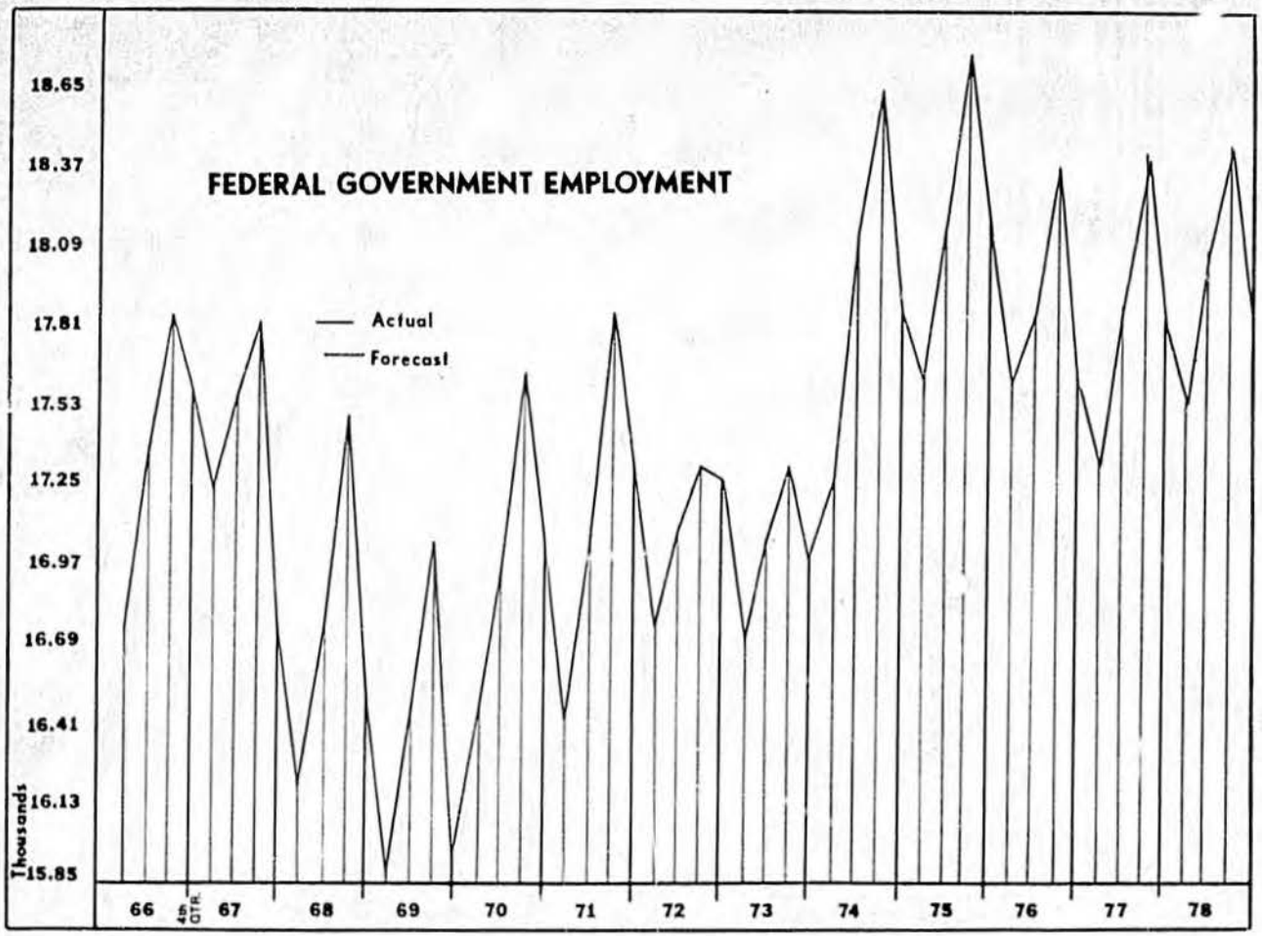
Alaska's first form of government was a civil and judicial district established by the Organic Act of 1884, which marked the beginning of Federal government control in Alaska. This form of government consisted of a sketchy judicial system under federal control and a presidentially appointed governor with extremely limited powers. Under the Organic Act of 1912, Alaska became a United States territory with its own legislature, but under the federal law, local authority was limited and prescribed entirely by congressional committees and federal officials in Washington (who were believed by many to be representing the exploitation of Alaska's resources by absentee interests). Both federal and territorial administrative agencies expanded and by 1950 there were over 100 different agencies in the state.

NOTE: Please see accompanying statistics on page 34



With the outbreak of the Second World War, military construction triggered major transformations in Alaska's population and economy. Population grew rapidly in Southcentral Alaska and together with the growing dominance of the construction industry, absentee interests of Alaska's mining and fishing industries began losing power in Alaska's political system. Thus, the stage was set for the statehood movement.

NOTE: Please see accompanying statistics on page 35



In 1965, six years after statehood, federal government continued to dominate the government employment scene with 60 percent of total civilian government employment, not including the presence of 33,000 military personnel. From 1966 to 1976 civilian federal government grew only 2.5 percent as state and local government began adopting many of the administrative functions and responsibilities of federal agencies. State and Local government during the same 10 year period grew 118 percent for an annual growth rate of 8.1 percent.

FORECAST – FEDERAL GOVERNMENT

Civilian Federal Government growth prior to the pipeline construction project had a downward sloping trend. Recent federal pipeline monitoring, land claims, and leasing activities associated with oil development in the state could be largely responsible for a reverse in this trend from 1973 through 1976. Civilian federal government employment should increase slightly over the forecast period as the gas pipeline, federal lease sales, and native claims dominate the political air. The forecast for civilian federal employment shows an increase of 0.7 percent by 1978.

FORECAST–STATE AND LOCAL GOVERNMENT

Because of the opposing forces in state and local government, one, the temptation to spend oil revenues for the expansion of government services and the other, to limit state growth by "paying as we go", State and local government will likely continue on its overall trend through the forecast period increasing 12.8 percent by 1978 over 1976.

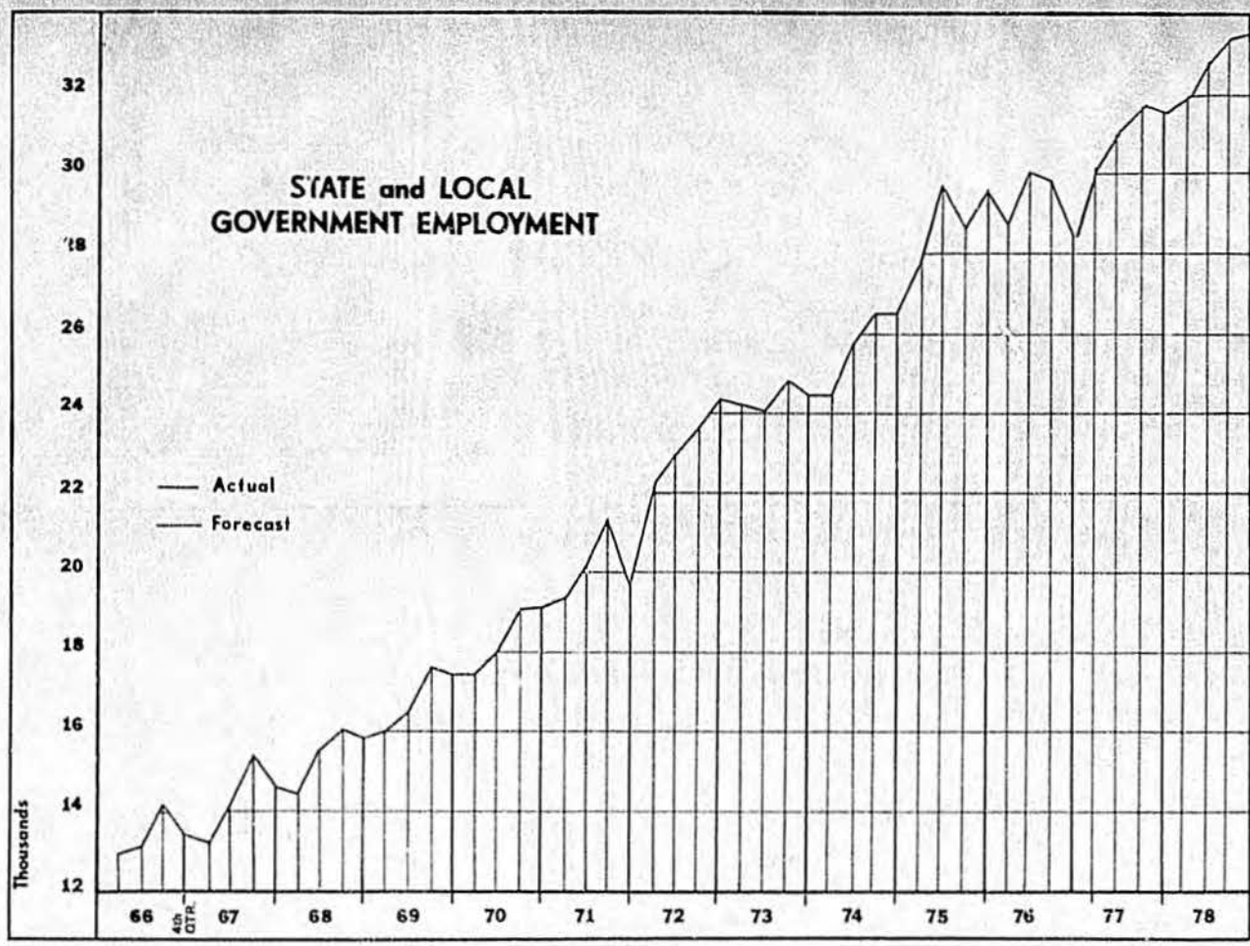
COMMUNICATIONS AND PUBLIC UTILITIES

DESCRIPTION

Communications and other Public Utilities are often grouped together to include basic services provided to communities within the State. More distinctly, communications employment in Alaska is based around telephone, radio, television, and point to point communication services whereas the Public Utilities employment is concentrated in electric, gas, water, and sanitary functions.

HISTORY AND RECENT TREND

Public Utilities in Alaska grew largely as a function of population increases, military demands, and technological expansion. In the 1960's the Public Utilities sector was reasonably stable fluctuating at or around 2,500 workers. In January of 1971 when RCA took over the Alaska Communications System from the military, employment jumped 42 percent to 3,700 workers as federal workers were transferred to RCA payrolls. The industry experienced reductions in employment in 1973 as a result of operating economics and technological improvements.



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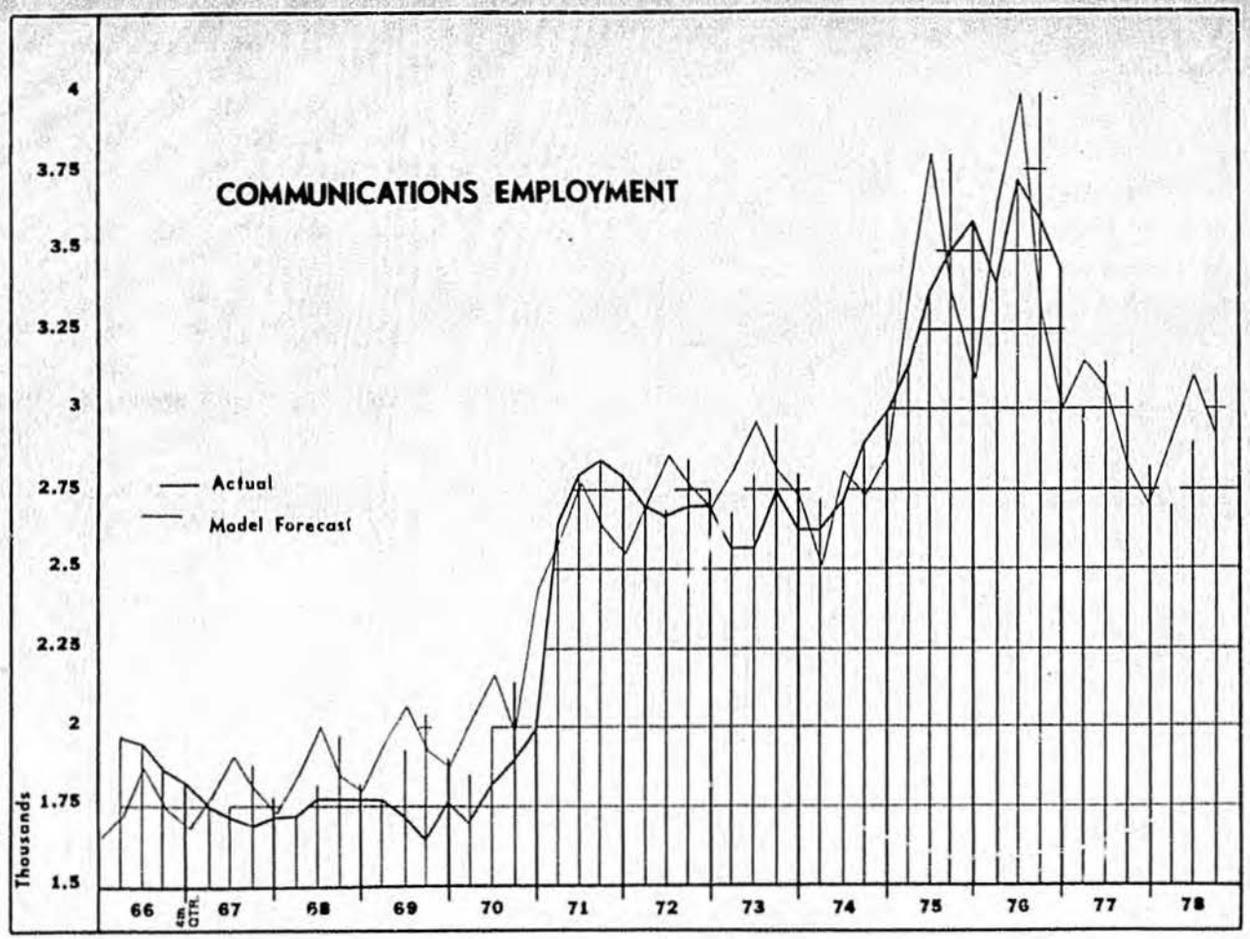


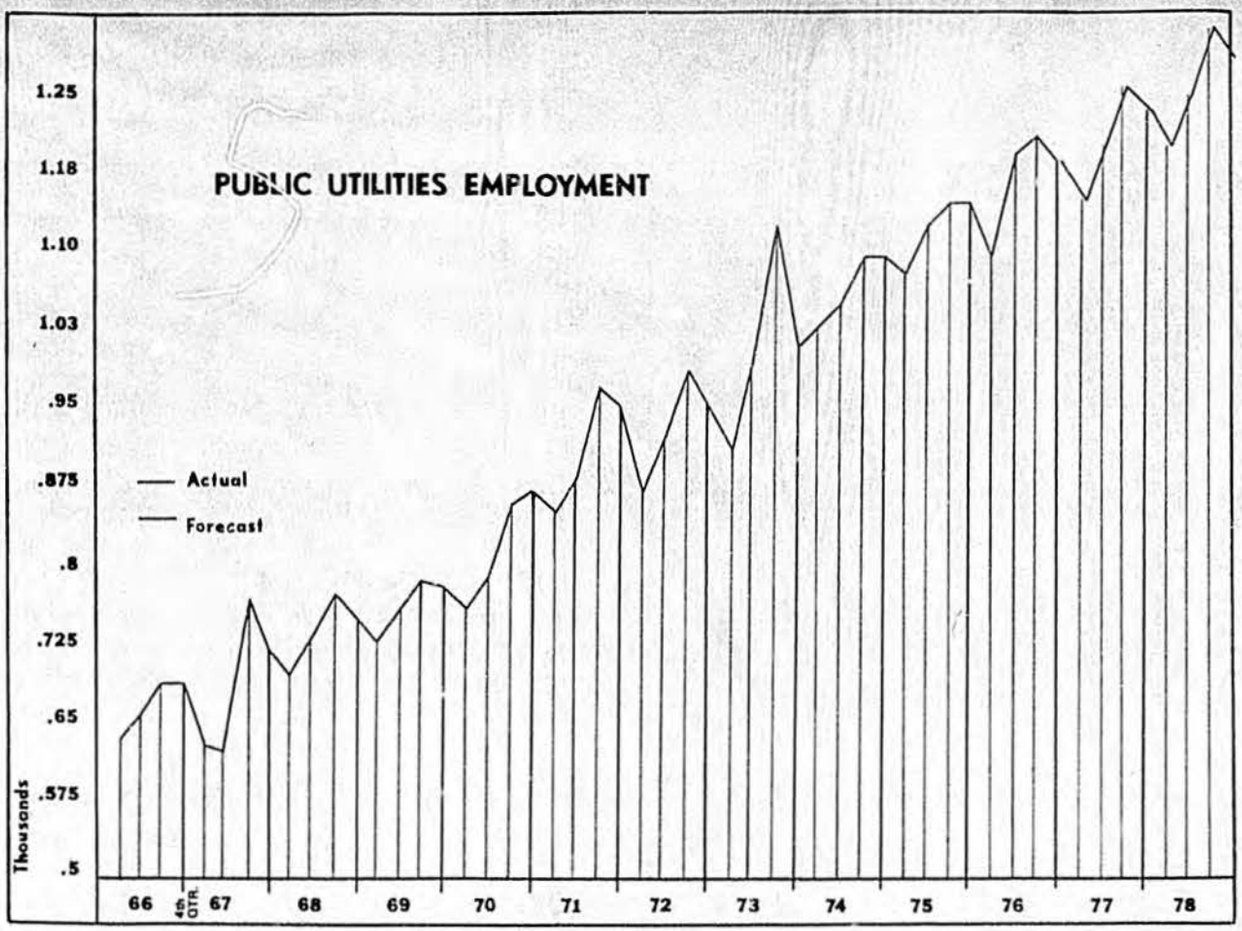
NOTE: Please see accompanying statistics on page 37

The need for an intricate communications network for the 800 mile pipeline construction project is most likely responsible for the 34.6 percent increase in communications employment from 1973 to 1976. The annual growth rate over this three year period was 10.4 percent.

Other Public Utilities, specifically electric, gas, water, and sanitary services experienced an increase in employment of 75.5 percent from 1966 to 1976 for an annual growth rate of 5.8 percent. This industry experienced straight line growth from 1966 to 1976 and virtually was unaffected by the pipeline project. Because of the large investment nature of this industry, which plans for long term growth, pipeline induced increases in population may have been considered only temporary. It is interesting to note that this industry's overall growth rate in employment is similar to the pre-pipeline growth rate for the states total employment which may indicate that Public Utilities could be a key for understanding long term growth in the economy.

FORECAST

Communications employment in Alaska has grown in leaps and plateaus sparked by national defense demands, transfers in ownership, and technological innovations, all of which are independent in response to overall growth in the economy. The recent increase in communications employment during the pipeline construction indicates that communications services are responsive to large scale projects operating in remote undeveloped regions of Alaska. Assuming communications employment also responds to the scaling down of large projects, employment in communications should drop



NOTE: Please see accompanying statistics on page 38

17 percent by 1978. However, the Airforce has recently contracted with RCA Service Company for support functions at 13 Aircraft Control and Warning (AC&W) Squadrons throughout Alaska. The contract will eliminate over a thousand military jobs at these locations. The result of this contract will most likely result in another sudden increase of civilian workers into the communication industry. At this time, the magnitude and timing of the transfers are uncertain.

Other Public Utilities can be expected to increase along its overall trend, increasing 8 percent by 1978.

POPULATION

DESCRIPTION

Alaska's population is unique in composition and the pattern in which it grows and subsides to seasonal and cyclical changes in economic activity.

Alaska typically has expanded through a series of major economic surges characterized by a large in-migration of people in search of new and better opportunities. These surges in population have subsequently evolved into; a leveling-off period as economic activity slows down, some out-migration, and then a period of consolidated growth.

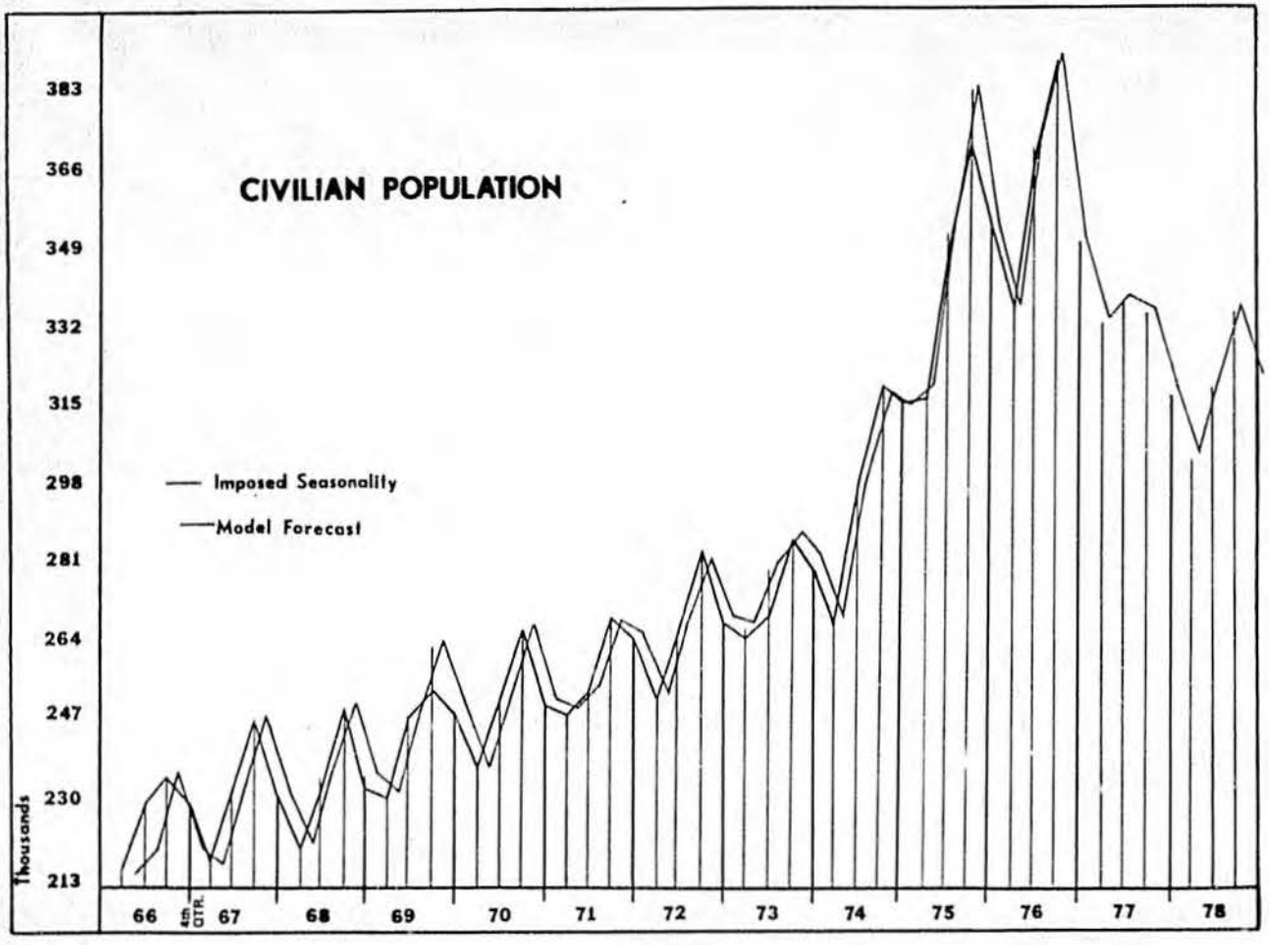
Population surges in the past were sparked by the gold rush of 1898, the rapid build-up of military forces and related activities after World War II, the Alaska earthquake of 1964 and its reconstruction aftermath, the north slope oil boom in 1969, and most recently the Trans-Alaska Oil Pipeline construction project. For the near future we can expect

increases in in-migration as a consequence of the gas pipeline and capital move construction projects.

Military personnel and their dependents stationed in Alaska after World War II made up a significant part of Alaska's population. Although the trend in Military personnel has been declining and recently has leveled off at or about 25,000, it still made up 6 percent of the states total population in 1976. In 1880, 99 percent of Alaska's population were natives. Although the native population has been growing at a fast rate, the in-migration of non-natives has grown faster, thus reducing the native share of Alaska's population to approximately 16 percent today.

From 1966 to 1973, Alaska's population grew at an annual rate of 2.8 percent, growing nearly three times faster than the United States as a whole. Through the pipeline construction period the State's population experienced abnormal growth of approximately 7.8 percent per year.

NOTE: Please see accompanying statistics on page 39



SEASONALLY ADJUSTED CIVILIAN POPULATION

Despite the importance of seasonality in Alaska's basic life, no real attempt has been made to study the effect of seasonal fluctuations in employment on Alaska's population migration. By reviewing past events it appears that surges in population are largely a result of employment opportunities within the state. Although employment does seem to be the primary determinant of in and out population migration in Alaska, population in return creates demand for housing and other basic necessities, thus, affecting employment in other sectors (for

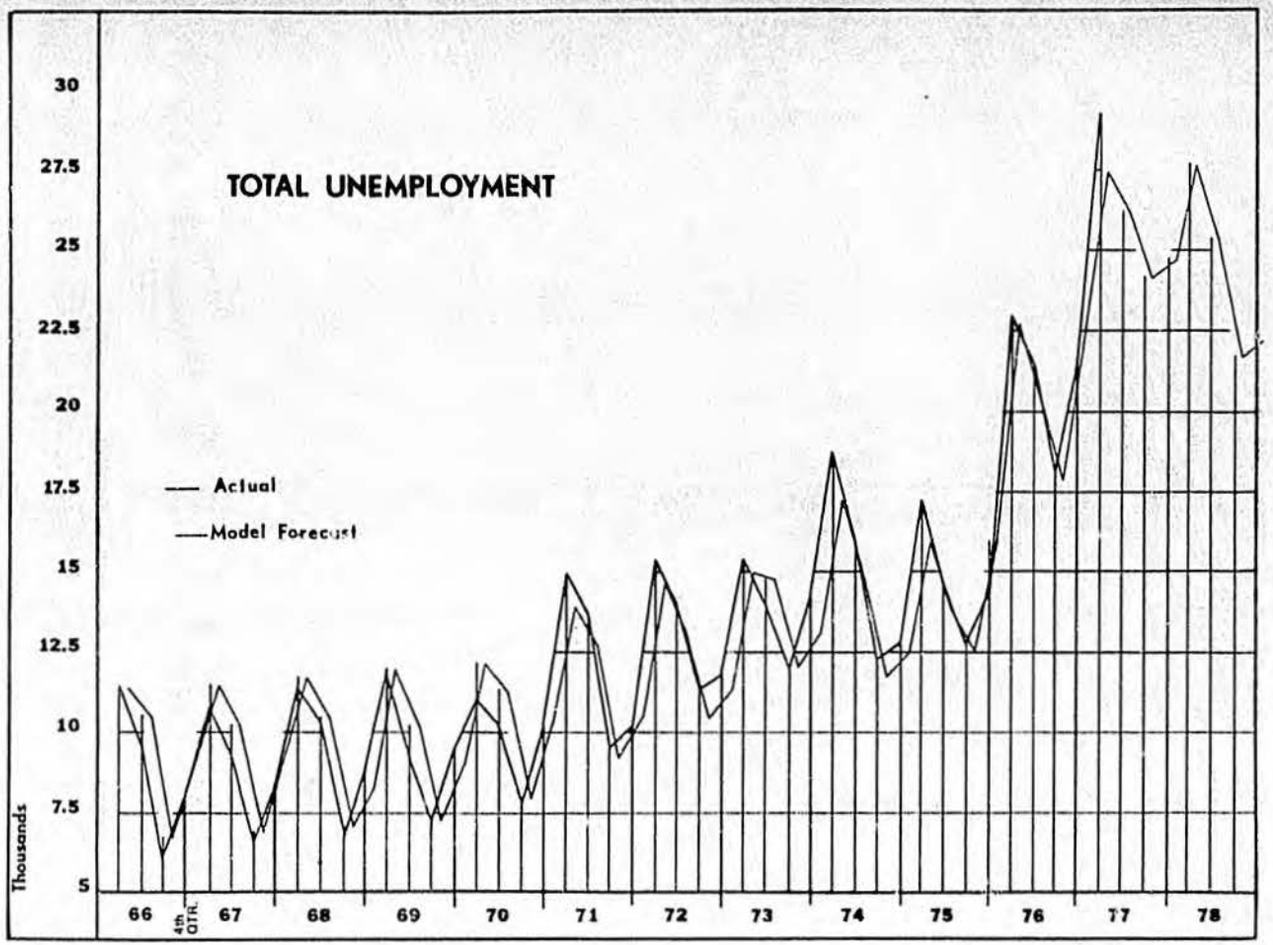
instance, retail trade and residential construction).

Because the Labor Model was designed to provide a quarterly forecast of employment it became necessary to adjust civilian population to its most likely seasonal fluctuations so that the effect of population on employment and visa versa could be more accurately understood.

The Department of Labor provides population estimates as of July 1, on an annual basis in accordance with the Bureau of Census Methodology for estimating populations. Since these estimates reflect Alaska's population during a peak employment month, they have a seasonal bias. The relationship of third quarter employment to July's population estimate was therefore determined. Then, assuming this relationship held during the remainder of the year, the population estimates were adjusted to seasonal changes in employment.

FORECAST

Alaska experienced between a 25 and 30 percent increase in civilian population from 1973 to 1976. With a reduction of economic activity as pipeline construction nears completion, a resulting tighter job market should induce a considerable amount of out-migration. The forecast shows an 8 percent decline in civilian population in 1977 from 1976 and a 2 percent decline in 1978 for a total drop in civilian population of 10 percent in two years.



NOTE: Please see accompanying statistics on page 40

UNEMPLOYMENT

DESCRIPTION

The unemployed in Alaska can be simply described as those who are "actively seeking work" in the state and cannot find work. Theoretically, the unemployment rate, which many follow dearly, is the ratio of all those who are unemployed ("actively seeking work") to all those who are in the labor force (all those employed and unemployed). Because the unemployment rate is computated by a 70 step statistical methodology rather than an actual count, it appears to be somewhat ambiguous and subject to significant change through difinitional and statistical manipulation. The current population survey (CPS), in which a sample number of households throughout the state are interviewed to determine, among other things, whether family members are actively in the labor force, is the latest definitional change. The net effect of this change on the statistical estimation of total unemployment in Alaska has reduced the number of unemployed by nearly 40 percent in 1976 and a fixed 8,672 per month in 1977.

Understanding unemployment then, it is not so much knowing how many people are unemployed, but rather, who are defined as being unemployed and the net effect of various, sometimes outdated or inappropriate, adjustment factors in deriving "the total unemployed" figure.

RECENT TREND

Alaska has always managed to maintain a significantly higher unemployment rate than the rate for the lower 48. The boom periods of the past have, traditionally, attracted more people than there are jobs for, thus causing the work force to grow at a faster rate than employment, resulting in more unemployed workers and a higher unemployment rate. Seasonality in employment, especially in natural resource industries and construction is also a major contributor to unemployment. The number of unemployed can increase as much as 70 percent from summer to winter. The number of unemployed from 1966 to 1976 has grown 141 percent through a series of stepping periods. From 1966 to 1970 the number of unemployed grew at a slow annual rate of 2.7 percent. The rate of increase in the number of unemployed picked up from 1970 to 1973 to an annual rate of 12.8 percent, most likely sparked by Prudhoe Bay activity. 1973 to 1976 marked another period of increase, where the number of unemployed increased at 14.7 percent a year, responding directly to pipeline induced in-migration of job seekers.

FORECAST

The forecast shows the number of unemployed increasing 20.4 percent in 1977 and remaining relatively high throughout the year. The number of unemployed should peak again in the winter or first quarter of 1978 then begin tappering off into the third quarter as summer employment picks up. The overall forecast for 1978 shows the number of unemployed declining 7.5 percent over 1976.

TOTAL NON-AGRICULTURAL WAGES AND SALARIES

DESCRIPTION

Non-agricultural Wages and Salaries in Alaska are wages earned by all those working in the state excluding self-employed persons, domestics, agricultural workers, and military personnel. The source of this series is derived from quarterly Unemployment Insurance contribution reports filed by most employers in Alaska in which employers are required to submit their monthly total employment levels and quarterly payrolls in compliance with the Alaska Employment Security Act.

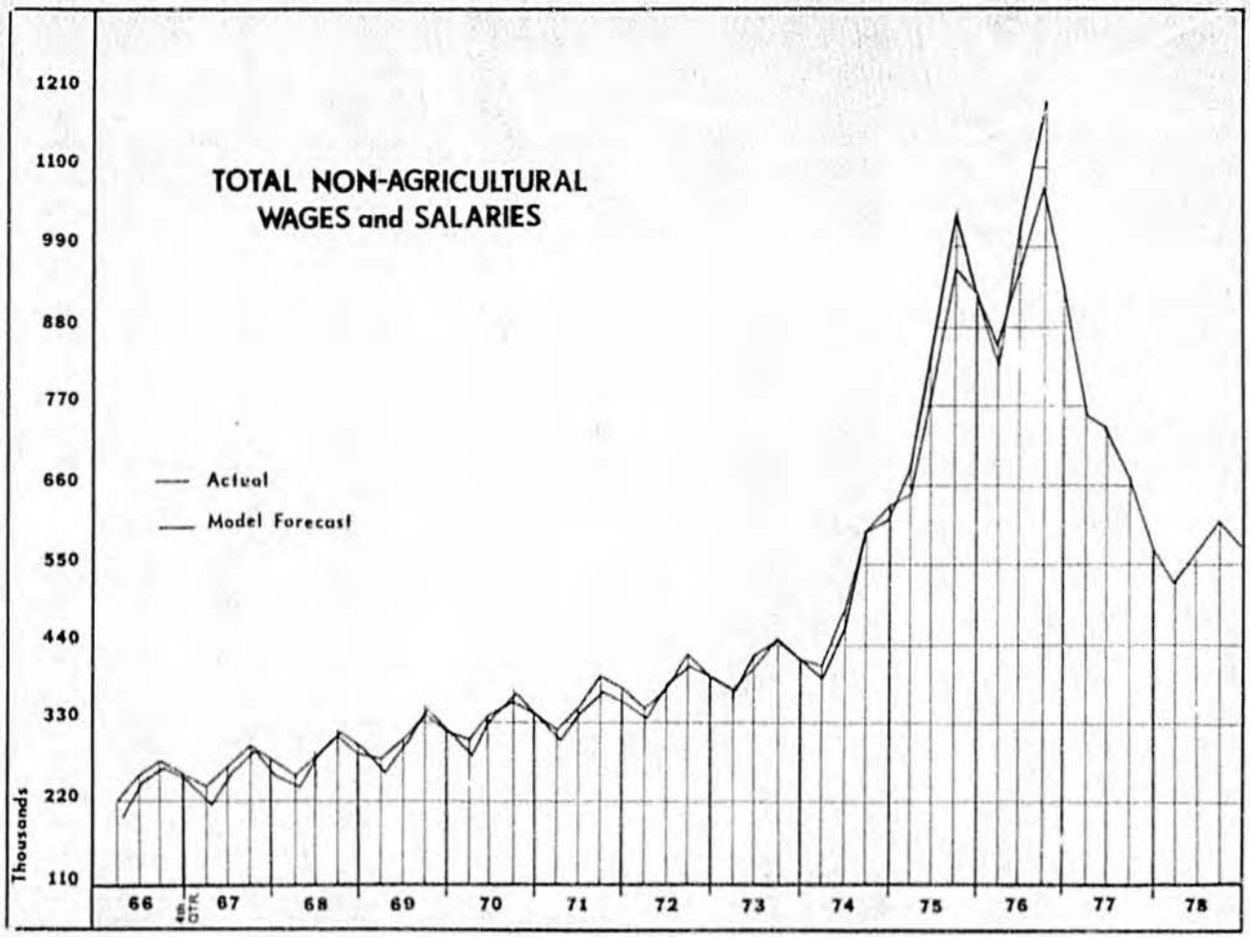
RECEND TREND

From 1966 to 1973 Non-agricultural Wages and Salaries in Alaska increased on a reasonably straight line, growing 113 percent over this period of time for an annual growth rate of 11.4 percent. With pipeline construction beginning in 1974, an increase in the number of total workers in the state, most of whom were working overtime, during the winter, and for premium pay, caused total Non-agricultural Wages and Salaries to increase over 200 percent in three years. The average weekly wage for all Non-agricultural Wage and Salary workers in the state went from $233.10/week in 1973 to $449.59/week in 1976, a 93 percent increase.

FORECAST

In 1975, roughly 40 percent of total Non-agricultural Wages and Salaries earned in the state were made by pipeline workers who constituted only about 10 percent of the work force during that period. Winter construction, overtime, and premium pay rates, then, must have played a significant part in the dramatic increases in total Non-agricultural Wages and Salaries. With completion of the pipeline we can expect pipeline related declines in wages and salaries and a certain multiplier effect in support industries. The forecast for 1977 shows a 32 percent decline in Total Non-agricultural

NOTE: Please see accompanying statistics on page 41



Wages and Salaries over 1976 and a 21 percent decline in 1978 over 1977.

THE LABOR MODEL

DISCUSSION

The labor model was designed primarily for the purpose of generating quarterly employment projections through calendar 1978. During model development, a continuous effort was made to keep this model simple and straightforward, and to include only those relationships likely to be essential over the next two years. There was no attempt to disect and map out all of the intricate and complex flows of monies and goods for each sub-industry within Alaska, and no attempt was made to link each business enterprise within Alaska to prices and demand elsewhere. Instead, an effort was made to distill out only those generalities needed to adequately explain the changes experienced by major Alaska industries between 1966 quarter 1 and 1976 quarter 4 and those most likely to continue to 1978 quarter 4.

During the development of the labor model, a great deal of effort was expended to understand the economy of Alaska from a number of different view points. Many weeks were spent analyzing and attempting to model the Alaska economy as a dynamic system of dollar flows. Although money flow analysis was found to offer many interesting and valuable insights into the Alaska economy, existing dollar flow data is spotty, and the need arose to obtain other sorts of money flow measurements which have never been kept for Alaska (such as Gross State Product, Disposable Personal Income, leakages in

money flow, etc.). In order to develop a complete money model of the state, it was found that it would be necessary not only to fill holes in existing data series but also to fabricate a number of entirely new series of historical data from the ground up.

An attempt was also made to analyze and model the economy of Alaska from an Input–Output perspective. The Input–Output approach describes an economically interdependent system of consumers and producers. Each producer in such a system satisfies the demands of other consumers and other producers in the system. As with money flow analysis, Input–Output analysis offers both valuable insights and serious limitations as a modeling technique for Alaska. Problems with availability of meaningful data were encountered and again it was necessary to make an overwhelming number of major and minor assumptions and adjustments. There were also very large leakages of supply, demand, and wages into and out of Alaska. Because supply and demand measurements must ultimately be translated into employment to be meaningful, the decision was made to utilize a more suitable technique.

At the beginning of this project, a good deal of time was directed towards organizing and studying employment data for industries operating within the State. Through use of an intricate computer system, industry employment was graphed then studied over the historical period until normal and abnormal fluctuations in the data were reasonably understood.

Through the use of these visuals, certain patterns in employment movements among various industries emerged. Theories to explain these movements were developed then tested against the actual data. Needless to say, many of the theories were bad, and had to be thrown out. New theories were developed and tested again until they adequately explained industry relationships.

Seven industry equations were arrived at, one for each major industry in Alaska, explaining the fluctuation in employment in that industry as a function of variations in employment in other industries operating within the state. The effect of the states civilian population on employment in various industries was also considered when it was believed to have a significant influence. The seven major industries are Retail Trade; Wholesale Trade; Transportation; Construction; Finance, Insurance, and Real Estate; and Communications. A good amount of time was also spent developing equations explaining the fluctuations in Total Non-agricultural Wage and Salary employment, Total Non-agricultural Wages and Salaries, Total Civilian Population, and the total number of unemployed.

ASSUMPTIONS

The equations when tested against historical data appear to fit reasonably well. However, when forecasting into the future, assumptions have to be made about short term growth trends in basic industries operating within the state. The accuracy at which employment in those industries are forecasted, in large, determine the accuracy of forecasts in Non-basic industries.*

After considerable study, the following industries showed signs of growing outside demand conditions within the state and were considered as basic or exogenous industries: Pipeline construction; Manufacturing; Mining; Public Utilities; Federal Government; and State and Local Government. As driving forces in the economy, these industries were assumed to increase with respect to time and seasons much as they have in the past. Because of recent outer-continental shelf exploration, mining was given special consideration.

More importantly, assumptions had to be made concerning future exogenous activities within the state such as alternative gas pipelines, the capital move, etc. Fortunately, the forecast period extends out for only two years (1977–1978) and assumptions concerning the magnitude of such projects were reduced to assumptions concerning the timing of such projects. Only those factors likely to play a significant role during the forecast period were considered in the model. The following is a list of assumptions during the forecast period.

1. No gas pipeline until after 1978.
2. No capital move until after 1978.
3. No significant OCS development until after 1978.
4. No significant native corporation development until after 1978.

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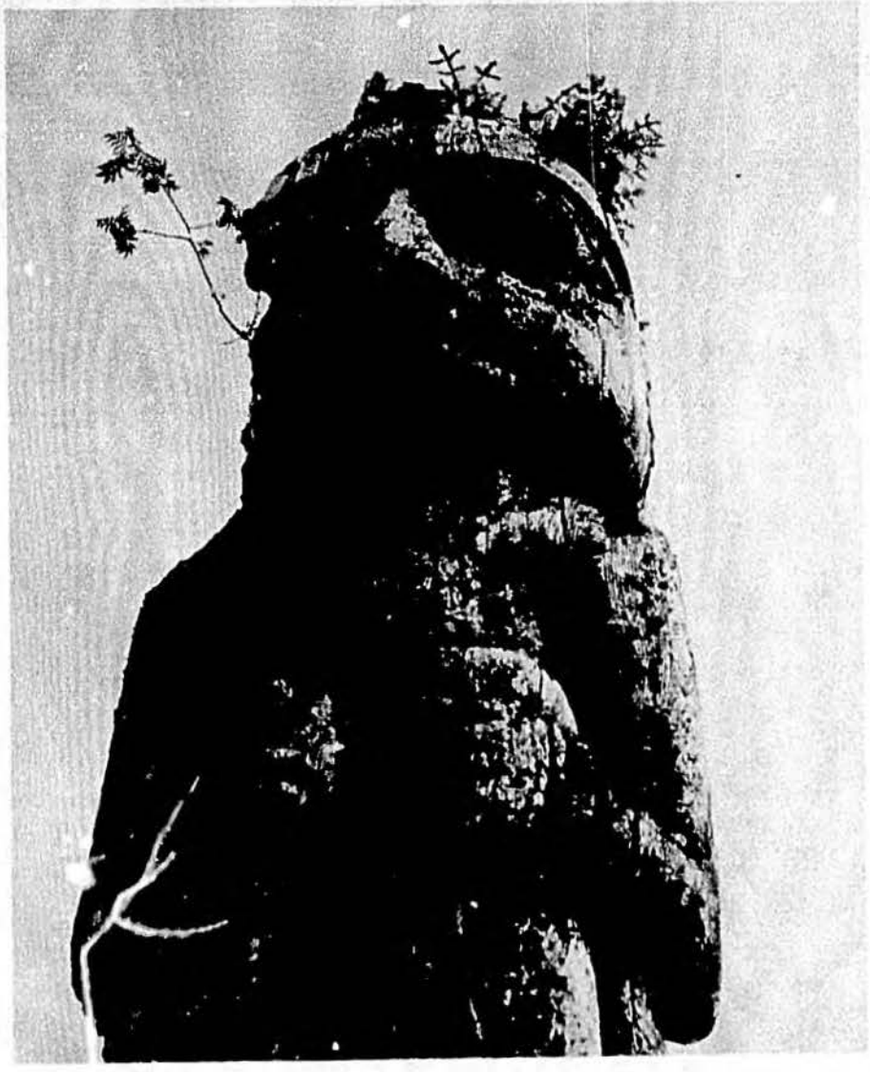
* Basic industries are generally those which produce for export or whose dollar flow originate exogenous to the state's demands. Non-basic industries are those that respond and produce for local demand and consumption.

5. No significant construction projects in 1977 and 1978.
6. That pipeline construction employment will continue to decline according to Alyeska estimates.
7. No stabilization policy in 1977 or 1978.

One other assumption used in the modeling effort was that civilian population exhibits seasonality in migration similar to that of total non-agricultural wage and salary employment.



APPENDIX:

ACCOMPANYING STATISTICS FOR GRAPHICS

NON-AGRICULTURAL WAGE & SALARY EMPLOYMENT

Industry

Year	Quarter 1		Quarter 2		Quarter 3		Quarter 4		Annual Average	
	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted
1966	64,668	63,587	72,976	70,788	82,426	81,917	72,440	71,690	73,128	71,996
1967	67,675	66,500	77,442	75,506	85,878	84,913	76,002	76,506	76,749	75,856
1968	70,320	70,716	79,006	79,917	90,295	91,182	79,590	81,173	79,803	80,747
1969	75,235	76,220	87,487	87,440	96,349	97,262	87,190	86,946	86,565	86,967
1970	83,958	83,322	93,350	93,104	101,818	102,981	90,741	91,696	92,467	92,776
1971	86,625	86,371	96,630	96,031	108,152	107,833	98,930	99,592	97,584	97,457
1972	92,455	92,944	103,574	103,822	115,152	113,953	105,790	107,505	104,243	104,556
1973	99,313	103,342	109,416	111,038	120,410	120,105	110,107	111,563	109,812	111,512
1974	105,951	106,170	126,136	123,254	142,889	139,355	137,739	136,169	128,179	126,287
1975	136,421	141,727	161,814	165,430	180,686	183,519	167,952	165,175	161,718	163,963
1976	155,699	153,956	176,009	176,745	189,552	190,315	165,449	163,909	171,677	171,231
1977		148,958		156,263		152,224		140,724		149,542
1978		134,693		144,521		153,883		145,481		144,645

CONSTRUCTION EMPLOYMENT
Industry

Year	Quarter 1		Quarter 2		Quarter 3		Quarter 4		Annual Average	
	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted
1966	3,046	2,831	5,752	5,666	8,605	8,113	6,055	5,831	5,865	5,610
1967	3,596	3,042	6,175	5,867	8,361	8,439	5,835	6,040	5,992	5,847
1968	3,474	3,375	6,017	6,158	8,743	8,745	5,753	6,477	5,997	6,189
1969	3,655	3,699	6,590	6,538	8,917	9,268	7,446	6,902	6,652	6,602
1970	4,890	4,100	7,014	7,031	9,072	9,663	6,596	7,303	6,893	7,024
1971	4,329	4,432	7,003	7,243	10,293	9,868	7,996	7,644	7,405	7,297
1972	4,944	4,984	7,453	7,702	10,863	10,415	8,108	8,076	7,842	7,794
1973	5,044	5,540	7,740	8,431	10,389	10,923	7,983	8,512	7,789	8,352
1974	5,737	6,111	12,021	10,930	18,028	17,366	17,333	16,963	13,280	12,843
1975	15,356	19,449	25,620	27,083	33,977	36,108	28,520	27,900	25,868	27,658
1976	23,156	23,962	32,760	31,960	38,453	36,654	26,502	26,476	30,218	29,763
1977		18,100		19,445		15,432		11,282		16,065
1978		7,901		10,653		13,307		10,928		10,697

WHOLESALE TRADE EMPLOYMENT
Industry

Year	Quarter 1		Quarter 2		Quarter 3		Quarter 4		Annual Average	
	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted
1966	2,048	2,083	2,157	2,117	2,225	2,293	2,135	2,203	2,141	2,174
1967	2,162	2,191	2,421	2,333	2,520	2,382	2,438	2,454	2,385	2,340
1968	2,358	2,398	2,356	2,581	2,642	2,817	2,559	2,671	2,479	2,617
1969	2,511	2,585	2,870	2,867	3,174	3,091	3,137	2,986	2,923	2,882
1970	3,017	3,188	3,337	3,428	3,450	3,400	3,171	3,173	3,244	3,297
1971	3,051	3,064	3,203	3,132	3,454	3,308	3,183	3,196	3,223	3,175
1972	3,112	2,978	3,510	3,236	3,467	3,350	3,307	3,364	3,349	3,232
1973	3,141	3,314	3,419	3,443	3,609	3,480	3,451	3,447	3,405	3,421
1974	3,398	3,375	3,931	3,877	4,458	4,302	4,407	4,594	4,049	4,037
1975	5,055	5,011	5,852	5,794	6,460	6,493	6,266	5,986	5,908	5,821
1976	6,067	5,789	6,248	6,439	6,239	6,774	5,584	5,978	6,035	6,245
1977		5,260		5,440		4,922		4,798		5,105
1978		4,639		4,794		4,985		4,947		4,841

RETAIL TRADE EMPLOYMENT
Industry

Year	Quarter 1		Quarter 2		Quarter 3		Quarter 4		Annual Average	
	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted
1966	7,929	8,414	8,645	8,655	9,154	9,584	8,936	9,563	8,666	9,054
1967	8,271	8,858	9,334	9,413	10,040	9,477	9,830	10,241	9,369	9,497
1968	8,949	9,352	9,853	9,834	10,776	11,165	10,585	10,661	10,041	10,253
1969	9,995	9,869	10,937	11,239	11,587	11,668	11,577	11,494	11,024	11,068
1970	11,007	11,296	12,141	12,328	12,690	12,872	12,612	12,140	12,113	12,159
1971	11,875	11,278	12,832	12,107	13,642	13,270	13,345	13,342	12,924	12,499
1972	12,527	11,755	13,601	13,151	14,509	13,971	14,396	14,431	13,758	13,327
1973	13,602	14,119	14,742	14,788	15,811	15,258	15,569	15,662	14,931	14,957
1974	14,5[illegible]	14,540	16,787	16,462	18,229	17,485	18,772	18,486	17,087	16,743
1975	17,849	17,958	19,838	20,642	21,570	22,402	21,879	21,621	20,284	20,656
1976	19,961	19,734	22,224	22,264	22,923	23,782		22,430		22,053
1977		19,711		20,422		19,694		19,573		19,850
1978		18,587		19,545		20,163		20,352		19,662

TRANSPORTATION EMPLOYMENT
Industry

Year	Quarter 1		Quarter 2		Quarter 3		Quarter 4		Annual Average	
	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted
1966	4,153	3,978	4,788	4,451	5,452	5,240	4,435	4,438	4,707	4,527
1967	4,315	4,324	5,291	4,937	5,772	5,510	4,916	4,971	5,074	4,936
1968	4,480	4,788	5,340	5,366	6,196	6,299	5,219	5,481	5.309	5,484
1969	4,914	5,244	6,638	6,337	7,274	7,124	6,429	6,046	6,314	6,188
1970	6,088	6,216	6,655	6,945	7,132	7,263	5,876	6,076	6,438	6,625
1971	5,618	5,733	6,151	6,248	6,766	7,020	5,932	6,075	6,117	6,269
1972	5,463	5,561	6,350	6,308	7,217	6,972	6,432	6,200	6,366	6,260
1973	5,595	6,045	6,852	6,718	7,649	7,402	6,963	6,938	6,765	6,776
1974	6,748	6,889	8,359	8,510	9,758	9,778	9,252	9,870	8,529	8,762
1975	10,083	9,812	11,929	11,381	13,033	12,895	12,513	11,633	11,890	11,430
1976	10,679	10,682	10,931	11,639	11,759	12,709	10,867	10,690	11,059	11,430
1977		9,493		10,102		9,946		9,177		9,680
1978		8,841		9,454		10,143		9,477		9,479

SERVICES EMPLOYMENT
Industry

Year	Quarter 1		Quarter 2		Quarter 3		Quarter 4		Annual Average	
	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted
1966	7,425	7,835	7,976	7,837	8,224	8,263	7,935	7,871	7,890	7,952
1967	7,880	8,336	8,792	8,685	9,243	8,552	8,854	8,694	8,692	8,567
1968	8,[illegible]5	9,028	9,217	9,388	9,855	10,019	9,386	9,410	9,288	9,461
1969	9,612	9,872	10,693	10,756	11,002	10,867	10,632	10,464	10,485	10,490
1970	10,967	11,332	11,677	12,014	11,713	12,226	11,386	11,439	11,436	11,753
1971	11,603	11,837	12,546	12,394	13,220	13,045	13,010	12,970	12,595	12,562
1972	12,971	12,924	14,181	13,870	14,851	14,196	14,337	14,481	14,085	13,868
1973	14,333	15,284	15,300	15,534	15,939	15,549	15,344	15,511	15,229	15,470
1974	15,806	15,794	18,661	17,871	20,451	19,483	21,481	20,570	19,100	18,430
1975	22,481	22,989	25,383	26,566	26,552	29,143	26,074	26,769	25,123	26,367
1976	27,532	25,828	29,664	29,282	30,853	30,552	26,774	26,700	28,706	28,090
1977		24,435		24,471		21,662		20,775		22,836
1978		20,946		21,582		21,743		21,610		21,470

FINANCE, INSURANCE AND REAL ESTATE EMPLOYMENT
Industry

Year	Quarter 1		Quarter 2		Quarter 3		Quarter 4		Annual Average	
	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted
1966	2,181	1,947	2,314	2,118	2,344	2,151	2,299	2,128	2,285	2,086
1967	2,203	2,074	2,307	2,212	2,381	2,425	2,364	2,309	2,314	2,255
1968	2,336	2,346	2,449	2,527	2,545	2,649	2,603	2,600	2,483	2,531
1969	2,491	2,592	2,655	2,817	2,685	2,961	2,773	2,893	2,651	2,816
1970	2,752	2,890	3,062	3,135	3,470	3,287	3,109	3,229	3,098	3,135
1971	3,068	3,178	3,186	3,374	3,359	3,562	3,365	3,570	3,245	3,421
1972	3,331	3,525	3,653	3,711	3,818	3,907	4,046	3,854	3,712	3,749
1973	4,005	3,944	4,141	4,201	4,422	4,356	4,402	4,169	4,243	4,168
1974	4,474	4,126	4,804	4,492	5,101	4,933	5,198	5,160	4,894	4,678
1975	5,271	5,484	5,831	6,191	6,621	6,862	6,496	7,013	6,055	6,388
1976	6,490	6,610	6,970	6,804	7,758	7,391	7,552	7,282	7,193	7,022
1977		6,578		6,432		6,364		5,802		6,294
1978		5,707		5,892		6,043		5,967		5,902

MANUFACTURING
Industry

Year	Quarter 1 Actual/Predicted	Quarter 2 Actual/Predicted	Quarter 3 Actual/Predicted	Quarter 4 Actual/Predicted	Annual Average Actual/Predicted
1966	4,527	6,654	9,843	5,504	6,632
1967	4,652	6,978	9,161	5,694	6,621
1968	4,664	6,897	10,618	5,509	6,922
1969	4,515	7,556	10,210	5,811	7,023
1970	5,477	8,390	11,295	6,191	7,838
1971	5,194	7,826	11,252	6,848	7,780
1972	4,992	8,280	11,454	7,357	8,021
1973	6,952	9,583	12,403	8,460	9,350
1974	7,016	10,031	12,604	8,792	9,611
1975	6,628	9,740	13,191	9,050	9,652
1976	7,402	10,500	14,022	10,187	10,528
1977	7,938	10,703	13,695	9,413	10,438
1978	8,322	11,087	14,078	9,797	10,821

MINING

Industry

Year	Quarter 1 Actual/Predicted	Quarter 2 Actual/Predicted	Quarter 3 Actual/Predicted	Quarter 4 Actual/Predicted	Annual Average Actual/Predicted
1966	1,016	1,342	1,634	1,499	1,373
1967	1,574	1,847	2,375	2,070	1,967
1968	2,178	2,253	2,523	2,853	2,452
1969	2,890	3,741	4,089	3,256	3,494
1970	3,196	3,225	2,996	2,559	2,994
1971	2,378	2,495	2,643	2,205	2,430
1972	2,265	2,127	2,281	1,781	2,114
1973	1,683	1,984	2,200	2,003	1,968
1974	2,415	3,064	3,318	3,107	2,976
1975	3,759	4,343	3,695	3,363	3,790
1976	3,656	3,744	4,300	4,192	3,973
1977	4,335	4,380	4,425	4,470	4,403
1978	4,515	4,560	4,605	4,650	4,583

FEDERAL GOVERNMENT CIVILIAN EMPLOYMENT
Industry

Year	Quarter 1 Actual/Predicted	Quarter 2 Actual/Predicted	Quarter 3 Actual/Predicted	Quarter 4 Actual/Predicted	Annual Average Actual/Predicted
1966	16,863	17,518	17,981	17,663	17,506
1967	17,276	17,686	17,856	16,866	17,421
1968	16,341	16,912	17,564	16,622	16,860
1969	15,950	16,549	17,193	16,115	16,452
1970	16,589	16,999	17,777	17,079	17,111
1971	16,491	17,169	17,973	17,446	17,270
1972	16,876	17,240	17,491	17,332	17,235
1973	16,787	17,209	17,429	17,073	17,125
1974	17,305	18,136	18,678	17,940	18,015
1975	17,737	18,313	18,908	18,195	18,288
1976	17,718	17,929	18,371	17,735	17,938
1977	17,484	18,005	18,515	17,863	17,967
1978	17,581	18,102	18,612	17,960	18,064

STATE & LOCAL GOVERNMENT
Industry

Year	Quarter 1 Actual/Predicted	Quarter 2 Actual/Predicted	Quarter 3 Actual/Predicted	Quarter 4 Actual/Predicted	Annual Average Actual/Predicted
1966	12,775	13,051	14,144	13,339	13,327
1967	13,289	14,123	15,442	14,557	14,353
1968	14,366	15,565	16,010	15,857	15,450
1969	16,095	16,560	17,526	17,327	16,877
1970	17,419	17,992	19,172	19,111	18,424
1971	19,419	20,285	21,370	21,655	20,682
1972	22,122	22,963	23,594	24,377	23,264
1973	24,190	24,056	24,759	24,311	24,329
1974	24,325	25,735	26,533	26,502	25,774
1975	27,710	29,599	28,619	29,523	28,863
1976	28,588	29,924	29,792	28,331	29,159
1977	30,276	31,144	31,791	31,603	31,204
1978	31,984	32,853	33,499	33,311	32,912

COMMUNICATIONS EMPLOYMENT
Industry

Year	Quarter 1		Quarter 2		Quarter 3		Quarter 4		Annual Average	
	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted
1966	1,979	1,623	1,944	1,704	1,874	1,842	1,822	1,715	1,905	1,721
1967	1,758	1,655	1,713	1,760	1,893	1,881	1,737	1,773	1,725	1,767
1968	1,714	1,703	1,772	1,816	1,786	1,968	1,779	1,832	1,763	1,830
1969	1,782	1,769	1,721	1,916	1,653	2,057	1,778	1,909	1,734	1,913
1970	1,700	1,860	1,837	1,995	1,891	2,144	1,989	1,975	1,854	1,994
1971	2,642	2,429	2,811	2,567	2,860	2,750	2,799	2,620	2,778	2,592
1972	2,707	2,522	2,663	2,686	2,702	2,852	2,700	2,745	2,693	2,701
1973	2,581	2,678	2,570	2,803	2,740	2,959	2,635	2,812	2,632	2,813
1974	2,615	2,723	2,731	2,488	2,900	2,801	2,995	2,733	2,810	2,686
1975	3,153	2,845	3,384	3,366	3,501	3,811	3,607	3,360	3,411	3,346
1976	3,392	3,105	3,722	3,639	3,612	3,988	3,442	3,331	3,542	3,516
1977		2,997		3,156		3,067		2,825		3,011
1978		2,704		2,903		3,104		2,923		2,909

PUBLIC UTILITIES
Industry

Year	Quarter 1 Actual/Predicted	Quarter 2 Actual/Predicted	Quarter 3 Actual/Predicted	Quarter 4 Actual/Predicted	Annual Average Actual/Predicted
1966	632	659	688	686	666
1967	630	617	767	716	683
1968	693	733	781	749	739
1969	726	763	785	779	763
1970	758	788	856	865	817
1971	846	883	968	952	912
1972	864	920	991	952	932
1973	909	984	1,119	1,012	1,006
1974	925	1,048	1,095	1,090	1,040
1975	1,077	1,119	1,145	1,142	1,121
1976	1,093	1,192	1,208	1,183	1,169
1977	1,147	1,197	1,260	1,235	1,210
1978	1,199	1,249	1,313	1,288	1,262

CIVILIAN POPULATION *
Industry

Year	Quarter 1		Quarter 2		Quarter 3		Quarter 4		Annual Average	
	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted
1966	220,231	219,186	231,474	228,691	244,262	243,914	230,749	229,956	231,679	230,437
1967	224,300	223,034	237,517	234,950	248,933	247,910	235,569	236,348	236,580	235,561
1968	227,880	228,613	239,634	240,815	254,910	256,294	240,424	242,558	240,712	242,070
1969	234,531	235,916	251,110	250,852	263,102	264,452	250,708	250,262	249,863	250,371
1970	246,335	245,371	259,044	258,436	270,503	272,148	255,[illegible]	256,619	257,849	258,143
1971	249,944	249,442	263,483	262,364	279,074	278,698	26[illegible]	267,220	264,774	264,431
1972	257,833	258,239	272,879	272,849	288,547	286,982	275,878	277,891	273,784	273,990
1973	267,113	272,219	280,785	282,599	295,662	295,337	281,720	283,380	281,320	283,384
1974	276,096	276,035	303,410	299,189	326,081	321,929	319,112	316,916	306,175	303,517
1975	317,328	324,499	351,690	357,292	377,228	383,036	359,996	357,006	351,561	355,458
1976	343,415	341,376	370,899	373,096	394,984	392,605		355,245		365,581
1977		334,466		344,554		339,397		323,171		335,397
1978		314,841		328,328		341,691		329,721		328,645

*Imposed Seasonality

UNEMPLOYMENT
Industry

Year	Quarter 1		Quarter 2		Quarter 3		Quarter 4		Annual Average	
	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted
1966	11,316	11,173	9,534	10,413	6,108	6,665	7,973	7,973	8,733	9,056
1967	10,671	11,469	9,233	10,246	6,481	7,088	8,253	7,904	8,660	9,177
1968	11,360	11,692	10,285	10,493	6,843	6,943	8,843	8,364	9,333	9,373
1969	11,848	11,959	9,371	10,264	7,317	7,279	9,484	8,899	9,505	9,600
1970	11,050	12,225	10,150	11,140	7,800	8,256	9,900	10,202	9,725	10,456
1971	14,900	13,964	13,800	12,759	9,500	9,208	10,200	10,377	12,100	11,577
1972	15,400	14,733	14,050	13,322	11,200	10,401	11,700	11,128	13,088	12,396
1973	15,400	15,010	14,100	14,750	12,000	12,107	14,300	13,275	13,950	13,786
1974	18,700	17,276	15,900	14,814	12,200	11,645	12,850	12,601	14,913	14,084
1975	17,150	16,037	14,750	13,829	12,800	12,473	14,600	16,118	14,825	14,614
1976	23,094	22,627	21,417	20,455	18,175	18,059	21,508	22,505	21,049	20,912
1977		27,542		26,306		24,366		24,799		25,753
1978		27,679		25,499		21,845		22,213		24,309

TOTAL NON-AGRICULTURAL WAGES & SALARIES
(In Thousands of Dollars)

Year	Quarter 1		Quarter 2		Quarter 3		Quarter 4		Total Yearly Wages	
	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted	Actual	Predicted
1966	$124,789	$107,994	$152,653	$156,106	$185,262	$184,984	$159,829	$158,244	$622,533	$607,328
1967	140,126	122,412	172,412	170,425	200,806	206,941	178,386	173,091	691,730	672,869
1968	157,779	145,166	185,664	190,493	221,404	228,504	193,490	202,688	758,337	766,851
1969	175,630	167,674	216,285	217,261	254,799	264,079	235,151	231,839	881,865	880,853
1970	213,686	195,674	249,523	250,754	280,739	291,280	252,791	259,144	996,739	996,852
1971	229,238	217,975	263,006	265,315	312,573	305,907	286,381	283,476	1,091,198	1,072,673
1972	260,318	255,595	292,761	297,195	344,924	343,003	315,063	313,665	1,213,066	1,209,458
1973	284,963	294,535	326,442	346,391	373,705	377,632	340,396	342,990	1,325,506	1,361,548
1974	327,188	318,760	421,826	402,479	536,554	535,476	570,497	561,711	1,856,065	1,818,426
1975	587,383	642,194	739,302	813,310	928,998	1,016,930	896,295	909,933	3,151,978	3,382,367
1976	781,367	822,710	1,002,500	942,503	1,183,500	1,065,810	****	908,628	****	3,739,651
1977		715,676		703,285		617,783		508,045	****	2,544,889
1978		456,144		499,640		541,445		508,952	****	2,006,181

ALASKA Economic Trends

PETROCHEMICAL DEVELOPMENT IN ALASKA

SEPTEMBER 1977

STATE OF ALASKA • DEPARTMENT OF LABOR
Employment Security Division • Research and Analysis Section

PETROCHEMICAL DEVELOPMENT IN ALASKA

By Calvin Hanson

Alaska's royalty share of the Prudhoe gas reserve is 12.5 percent of 26 trillion cubic feet, or approximately 3.25 trillion cubic feet. Alaskans must now decide how this natural resource will be used. Historically, 95 percent of all petroleum products in the United States have been used as an energy source leaving only 5 percent for petrochemical production. Fairbanks, for example, has already expressed a desire for a natural gas distribution system. However, chemical development of natural gas may be commercially more attractive in Alaska. Some portion greater than the national average of 5 percent could be devoted to petrochemical production within the state.

Petrochemicals have dominated recent discussions of Alaska's industrial future. The term petrochemical is applicable to a broad range of petroleum production derived from either oil or natural gas. There are three broad categories of elements: aromatic chemicals, methane derivatives and aliphatic chemicals. The first group is considered commercially feasible only in very large refineries — 100,000 barrels per day facilities. The second group, methane derivatives, produces amonia, methanol, urea and other chemical fertilizers. The final group, aliphatic chemicals, produces molecular chains of the most basic building block in the petrochemical industry: ethylene. It is in the latter two categories that Alaska's chemical production will most likely occur.

The Collier Chemical Company has already established a petrochemical industry based on methane. Using methane gas received from the Cook Inlet oil field, their facility in Kenai has been producing ammonia and urea for export primarily to the states in the Pacific Northwest. Doubling their capacity in both products this year the company has had a very positive economic impact in the Kenai area. With the new facility in operation over 250 people will be directly employed. This project has stimulated a new cycle of growth in the Peninsula city.

Though not under production at the present time, the aliphatic elements are probably the most valuable. This group also occurs in natural gas in addition to methane. From this group ethylene and propylene can be produced. Both of these derivatives are basic elements in building synthetic products, plastics, synthetic fibers and pharmaceuticals.

Ethylene producing plants must be extremely large in order to be competitive on the world market. It is felt that a new facility must be able to produce nearly 1.2 billion pounds of ethylene per year. An estimated capital outlay of 160 million dollars would be required to build such a plant, perhaps more in Alaska. These capital expenses are not great, however, compared to recent investment plans on the Gulf Coast of Texas and Louisiana. This area produces approximately half of the worlds petrochemical supply. Unfortunately the impending lack of natural gas feedstocks in that area has forced the industry to turn to more costly naphtha, oil cracking plants. Amoco Chemical, Arco Chemical, Union Carbide and Exon are just a few of the firms investing over 400 million dollars each in new ethylene production units. The cost of converting to naphtha cracking facilities in Texas and Louisiana may neutralize any increased transportation costs associated with Alaskan production.

A new industry, or increased activity in an existing industry will result in employment increases and additional income. This will then generate a second round of new employment in other support sectors as the additional income is spent. This generation of additional income as the original dollars change hands from one individual or business to another is called the multiplier effect. A multiplier trys to measure the impact of these exchanges of the initial investment dollars. The multiplier for a given industry will vary from region to region. Generally the less self-efficient an area, the smaller the multiplier. This is because a greater percentage of the original dollar is spent outside the area than within. Alaska currently does not have a diversified economy large enough to support a petrochemical industry solely within the state. Therefore, any future petrochemical industry will have to depend on

outside suppliers for support, and outside markets for a majority of its income. This will result in a smaller multiplier for this industry in Alaska than in other areas of the United States which have more sophisticated economies.

Though the degree of impact as measured by the multiplier will not be as great in other more industrialized areas, the relative magnitude of total dollar sales from such an industry should not be overlooked. The relative impact of a $160 million dollar facility would be much greater in Alaska than the same facility in the highly industrialized "lower 48".

Although petrochemical products are more or less irreplaceable, there are alternative energy sources. The advent of solar power coupled with Alaska's vast coal reserves are viable alternatives. The trend in the OPEC nations and in the North Sea oil fields is toward conservation of depleting petroleum resources for use in petrochemical production. With some certainty it is expected that Alaska will also be moving in this direction with its valuable petroelum resources.

ALASKA'S LABOR MARKET IN JULY

Employment and Unemployment: Alaska's civilian labor force has declined significantly with the completion of the Alaska pipeline. When compared to one year ago, total employment in the state has dropped approximately 13.0 percent.

Though activity within the state has not increased to levels similar to the pipeline era, total employment in July increased over the month by approximately 2.1 percent. Gains were primarily seasonal in nature and were limited to the construction, manufacturing, and transportation industries in the private sector. Public employment also increased primarily in the Federal government. Severe forest fires in interior Alaska required the hiring of many firefighters to control the blazes.

Mining: No significant changes occurred in the mining industry during the month of July. Increased activity in oil and mineral exploration is seen as the major factor behind the growth in employment when compared to a year ago.

Construction: With the exception of the Chena Lakes flood control project near Fairbanks, the majority of the larger construction projects in the state are taking place in the Anchorage area. Though no new major construction projects have started this summer, new homes continue to be built through out the state.

Manufacturing: The wood products industry continued to be hampered by strikes during July. Striking workers did not return to work until the latter half of the month.

In contrast to the wood products industry, employment in the fish processing industry was booming. Strong salmon runs during the month had many salmon canneries operating at peak capacity. In Southeastern Alaska it was feared that the local processors would not be able to handle the greater than anticipated catch. Fortunately, that situation was never realized and local canneries were able to process the entire catch.

Transportation, Communications & Utilities: Other than normal seasonal activity no significant changes occurred during the month of July.

Trade: Since the first of the year wholesale trade employment has remained essentially static. Expectations of a natural gas pipeline from Prudhoe Bay, and increased population may have offset any negative factors brought about by the completion of the Trans-Alaska oil pipeline.

The retail trade sector also has not followed previous trends this summer. This sector normally expands during the summer months and then tapers off in August and September. This is the first time this decade that employment in the retail trade sector has declined in July.

Finance, Insurance & Real Estate: This industry did not change noticeably from June to July. Due to the stable nature of the banking sector, which makes up a large percentage of this industry, drastic changes in employment normally do not occur.

Services & Miscellaneous: Changes in employment levels from June to July were quite mixed. Hotels and other lodging facilities remained relatively unchanged when compared to the previous month. This is normally a time when the hotel industry is expanding to accommodate the summer tourist season. A slight drop off in the number of tourists coming to the state, perhaps related to the shutdown of the Alaskan Marine Highway System due to a labor

INDICATORS OF ALASKA ECONOMIC ACTIVITY*

INDICATOR	Most Recent Month	Previous Month	Year Ago
	7/77	6/77	7/76
Selected Economic Activity Measures			
Total Labor Force a/	144,848	145,571	157,929
Total Unemployment Rate a/	13.3	12.2	8.0
Insured Unemployment (weekly average) a/ b/	16,969	15,972	10,748
New Employers (unadjusted) c/	186	189	239
Nonagricultural Wage Payments (millions $, unadjusted)	275	255	357
Wage Payments in Mining, Manufacturing & Construction	107	102	180
Employment (1967=100) a/			
Nonagricultural Wage & Salary	191.5	195.4	223.7
Mining	253.7	265.0	198.4
Construction	240.9	237.7	493.9
Manufacturing	160.6	177.6	142.4
Transportation-Communications & Utilities	197.8	196.5	202.7
Trade	215.5	219.0	234.9
Finance-Insurance & Real Estate	318.9	321.0	318.9
Services	267.8	280.4	322.7
Government	142.6	143.0	149.0
Alaska State Employment Service Activities			
Nonagricultural Placements (unadjusted)	3,070	2,142	3,525
Nonagricultural Placements (daily average) a/	146	97	160
Banking Activities (millions $, unadjusted) e/			
Loans & Investments	1,049	1,044	936
Demand Deposits	561	566	544
Time Deposits	502	472	439
	5/77	4/77	5/76
Personal Income (millions $ Annual Rate) d/	4,461	4,464.8	4,464.8
Crude Petroleum Production (000 bbls., unadj.) f/	5,402	5,138	4,897

* All data seasonally adjusted unless otherwise noted. Current month preliminary.

a/ Seasonally adjusted by the 1966 U.S. Bureau of Labor Statistics seasonal adjustment method.

b/ Unemployment in Alaska insured by State law.

c/ Employers newly subject to the Alaska Employment Security Act.

d/ Source: Business Week Magazine, seasonally adjusted by the Alaska Employment Security Division.

e/ Source: Federal Reserve Bank of San Francisco. Members banks only.

f/ Source: Alaska Department of Natural Resources, Division of Mines and Minerals.

ALASKA CIVILIAN LABOR FORCE SUMMARY 1/ 4/
BY PLACE OF RESIDENCE

	p/ 7/77	r/ 6/77	7/76	Changes From: 6/77	7/76	NON-* CPS
CIVILIAN LABOR FORCE	155,400	153,700	171,200	1,700	-15,800	196,476
INVOLVED IN WORK STOPPAGES	1,300	1,300	0	0	1,300	1,303
TOTAL UNEMPLOYMENT	17,200	18,300	11,300	-1,100	5,900	26,237
Percent of Labor Force	11.1	11.9	6.6	-	-	13.4
TOTAL EMPLOYMENT 2/	138,200	135,400	159,900	2,800	-21,700	170,239

NONAGRICULTURAL WAGE AND SALARY EMPLOYMENT 1/
BY PLACE OF WORK

	p/ 7/77	r/ 6/77	7/76	Changes From: 6/77	7/76
Nonagricultural Wage & Salary	161,600	158,600	188,800	3,000	-27,200
Mining	5,500	5,500	4,300	0	1,200
Construction	18,500	17,700	38,700	800	-20,200
Manufacturing	15,900	14,100	14,100	1,800	1,800
Durable Goods	3,600	3,700	3,300	-100	300
Lumber, Wood Products	2,400	2,700	2,400	-300	0
Other Durable Goods	1,200	1,000	900	200	300
Nondurable Goods	12,300	10,400	10,800	1,900	1,500
Food Processing	9,600	7,700	8,200	1,900	1,400
Other Nondurable Goods	2,700	2,700	2,600	0	100
Transp.-Comm. & Utilities	16,100	15,700	16,500	400	-400
Trucking & Warehousing	2,700	2,700	3,300	0	-600
Water Transportation	2,400	2,300	1,500	100	900
Air Transportation	4,500	4,400	5,000	100	-500
Other Transp.-Comm. & Utilities	6,500	6,300	6,700	200	-200
Trade	26,700	26,900	29,100	-200	-2,400
Wholesale Trade	5,500	5,500	6,300	0	-800
Retail Trade	21,200	21,400	22,800	-200	-1,600
General Merchandise & Apparel	3,900	3,800	4,300	100	-400
Food Stores	3,200	3,100	3,100	100	100
Eating & Drinking Places	6,300	6,900	7,100	-600	-800
Other Retail Trade	7,800	7,600	8,300	200	-500
Finance-Insurance & Real Estate	7,600	7,600	7,600	0	0
Services & Miscellaneous	25,400	25,800	30,600	-400	-5,200
Government 3/	45,900	45,300	47,900	600	-2,000
Federal	19,200	18,200	18,300	1,000	900
State	13,600	13,800	15,100	-200	-1,500
Local	13,100	13,300	14,500	-200	-1,400

1/ Prepared in cooperation with the U. S. Bureau of Labor Statistics.

2/ Includes: domestics, nonagricultural self-employed and unpaid family workers, agricultural workers and adjustment for commuting, multiple job-holding and unpaid absences.

3/ Includes teachers in primary and secondary schools, and personnel employed by the University of Alaska.

4/ Adjusted to add to the national totals produced by the Current Population Survey method.

* Not adjusted by the Current Population Survey method.

p/ Denotes preliminary estimates.

r/ Denotes revised estimates.

AVAILABLE JOB OPPORTUNITIES 1/
ALASKA

UNFILLED JOB OPENINGS

Occupation	July 77	June 77
Professional & Managerial	232	224
Clerical	439	435
General Office	193	176
Book Keeping	145	191
Other	101	68
Sales	119	133
Domestic Service	65	45
Public Oriented Service	480	356
Food & Beverage Preparation	339	271
Lodging	37	21
Other	102	64
Farming, Fishing, Forestry	40	29
Processing	66	97
Machine Trades	101	86
Bench Work	45	34
Structural Work	298	268
Motor Freight & Transportation	81	93
Packaging and Materials Handling	47	40
Logging, Mining, Utilities	88	684

JOB OPENINGS UNFILLED AFTER 30 OR MORE DAYS

	July 77	June 77
Professional & Managerial	145	100
Clerical	160	199
General Office	91	78
Book Keeping	43	78
Other	26	43
Sales	55	72
Domestic Service	22	15
Public Oriented Service	192	111
Food & Beverage Preparation	145	78
Lodging	19	12
Other	28	21
Farming, Fishing, Forestry	28	9
Processing	47	75
Machine Trades	61	39
Bench Work	25	28
Structural Work	158	91
Motor Freight & Transportation	46	45
Packaging and Materials Handling	22	26
Logging, Mining, Utilities	73	613

ACTIVE APPLICANTS ON FILE

	July 77	June 77
Professional & Managerial	2,024	2,128
Clerical	2,611	2,740
General Office	883	913
Book Keeping	1,080	1,123
Other	648	704
Sales	583	641
Domestic Service	143	200
Public Oriented Service	2,134	2,311
Food & Beverage Preparation	1,225	1,334
Lodging	248	243
Other	661	734
Farming, Fishing, Forestry	211	285
Processing	203	246
Machine Trades	582	661
Bench Work	99	106
Structural Work	2,151	2,455
Motor Freight & Transportation	812	931
Packaging and Materials Handling	553	617
Logging, Mining, Utilities	265	297

1/ Data taken from the Employment Security Automated Reporting System (ESARS Table #96).