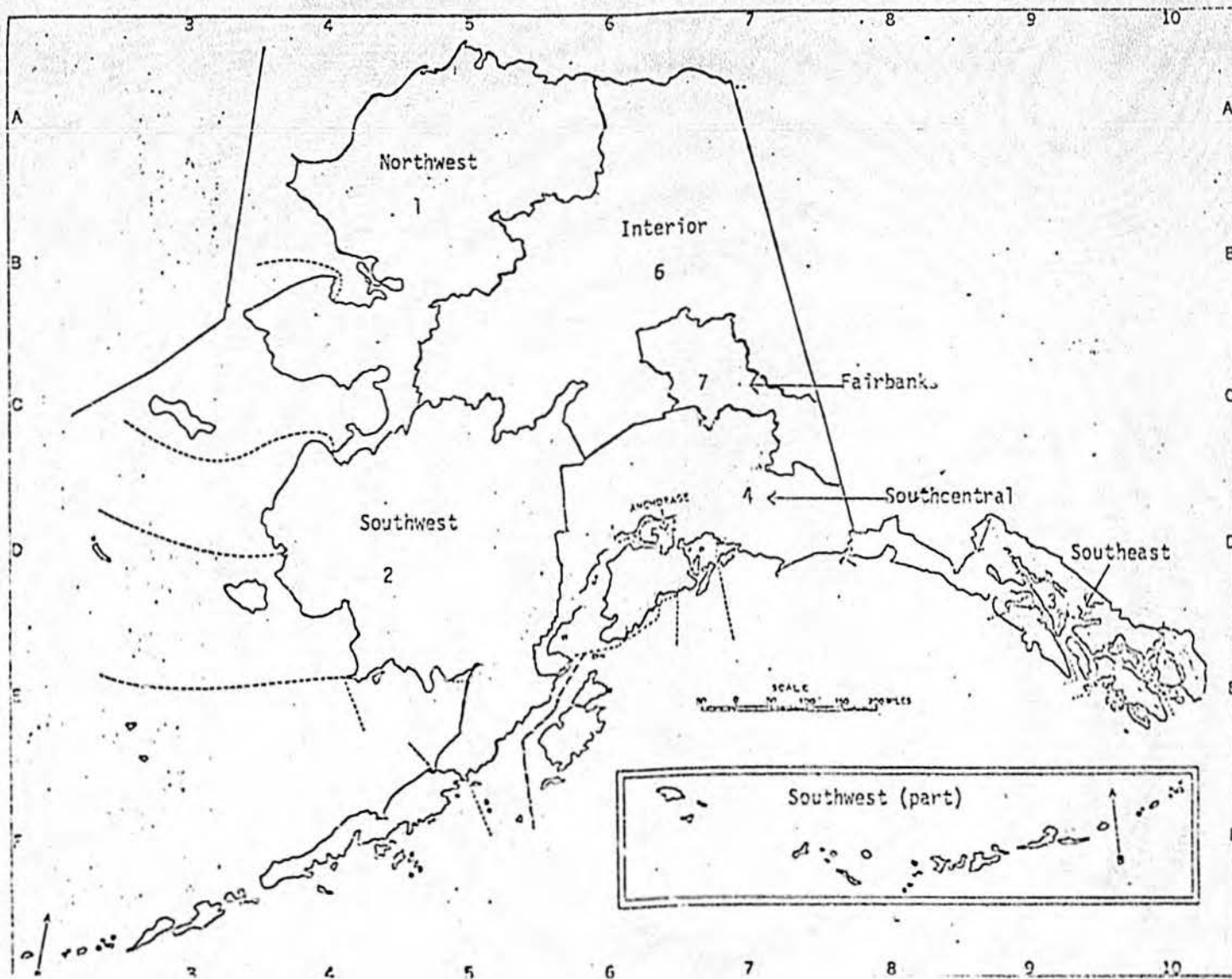


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Figure III.1.

Alaska Regional Definitions for Impact Analysis



The concentration of population growth is also pronounced but not as much as is employment. Over 70 percent of the population increase in 1990 has occurred in the Anchorage region, followed by the Southcentral area and the Southeast. Smaller population increases occur elsewhere with the general growth of the economy and state expenditures. Even during the peak construction years, the population impact is largest in Anchorage.

Personal income grows in all regions as a result of the refinery construction and operation. Increments over the base level are most pronounced during construction phase in the early 1980s when no region feels less than a \$10 million impact. These fall off in later years to less than \$5 million in the cases of the Southwest and Interior regions of the state. The cycle of increases and decline is most pronounced in the Southcentral region where personal income at the peak has increased by \$188 million. Two years later, that has declined to \$33 million. Further drops follow. Better insulated from this cyclical phenomenon is Anchorage, which experiences a \$290 million increase in the peak year which falls only to \$130 million two years later. Not only is the percentage decline less, but the upward part of the cycle comes upon a much larger base of activity.

Regional economic indicators for the fish hatcheries case are presented in Tables III.10, III.11, and III.12. The regional employment impact is much more evenly divided among the regions of the state.

Table III.10

Regional Employment Impacts of Fish Hatcheries

(Measured as Differences From the Base Case)

(Thousands)

	EM99R1	EM99R2	EM99R3	EM99R4	EM99R5	EM99R6	EM99R7
1977	-0.	0.	0.	0.	0.	0.	0.
1978	0.	0.	0.	0.	0.	0.	0.
1979	0.002	0.095	0.107	0.115	0.15	0.039	0.042
1980	0.014	0.181	0.221	0.231	0.383	0.091	0.181
1981	0.034	0.205	0.28	0.279	0.637	0.145	0.326
1982	0.052	0.419	0.488	0.415	0.997	0.207	0.306
1983	0.08	0.412	0.459	0.402	1.033	0.158	0.217
1984	0.077	0.467	0.392	0.429	0.916	0.079	0.144
1985	0.081	0.648	0.466	0.482	1.074	0.081	0.146
1986	0.112	0.697	0.528	0.526	1.388	0.092	0.188
1987	0.137	0.746	0.572	0.563	1.666	0.101	0.217
1988	0.161	0.797	0.608	0.594	1.958	0.109	0.242
1989	0.186	0.851	0.641	0.623	2.295	0.118	0.265
1990	0.212	0.911	0.671	0.652	2.679	0.126	0.287

---

EM99R1 - Northwest  
EM99R2 - Southwest  
EM99R3 - Southeast  
EM99R4 - Southcentral  
EM99R5 - Anchorage  
EM99R6 - Interior  
EM99R7 - Fairbanks

Table III.11

Regional Population Impacts of Fish Hatcheries

(Measured as Differences From the Base Case)

(Thousands)

	POPR1	POPR2	POPR3	POPR4	POPR5	POPR6	POPR7
1977	0.	0.	0.	0.	0.	0.	0.
1978	0.	0.	0.	0.	0.	0.	0.
1979	-0.003	0.146	0.109	0.158	0.208	0.046	0.061
1980	0.021	0.307	0.264	0.347	0.568	0.117	0.288
1981	0.067	0.36	0.367	0.438	1.054	0.199	0.559
1982	0.095	0.8	0.666	0.698	1.647	0.295	0.528
1983	0.176	0.926	0.753	0.776	1.859	0.267	0.397
1984	0.179	1.156	0.743	0.912	1.788	0.172	0.278
1985	0.181	1.567	0.878	1.007	2.067	0.171	0.271
1986	0.25	1.649	0.998	1.089	2.693	0.194	0.356
1987	0.307	1.732	1.095	1.165	3.291	0.213	0.426
1988	0.361	1.818	1.179	1.229	3.926	0.23	0.488
1989	0.413	1.906	1.253	1.287	4.638	0.247	0.543
1990	0.468	2.003	1.319	1.342	5.426	0.263	0.595

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POPR1 - Northwest  
 POPR2 - Southwest  
 POPR3 - Southeast  
 POPR4 - Southcentral  
 POPR5 - Anchorage  
 POPR6 - Interior  
 POPR7 - Fairbanks

Table III.12

Regional Personal Income Impacts of Fish Hatcheries

(Measured as Differences From the Base Case)

(Million \$)

	PIR1	PIR2	PIR3	PIR4	PIR5	PIR6	PIR7
1977	0.	0.	0.	0.	0.	0.	0.
1978	0.	-0.	0.	0.	0.	-0.	0.
1979	0.342	3.968	4.034	4.376	5.837	3.035	1.948
1980	0.858	7.968	8.292	8.901	13.861	7.529	7.622
1981	1.62	9.385	10.835	11.135	22.801	11.29	13.174
1982	2.82	19.991	20.456	17.634	38.132	13.821	12.814
1983	3.325	19.935	18.722	16.003	38.733	8.034	9.593
1984	3.15	24.085	17.647	17.172	36.306	1.716	7.727
1985	3.785	35.139	24.17	20.869	46.754	2.133	9.286
1986	5.366	38.685	28.503	23.934	62.512	2.864	12.267
1987	6.9	42.46	32.452	26.878	78.383	3.595	14.963
1988	8.565	46.625	36.447	29.932	96.281	4.369	17.661
1989	10.466	51.274	40.655	33.225	117.828	5.194	20.492
1990	12.711	56.499	45.24	36.726	143.723	6.19	23.641

PIR1 - Northwest  
 PIR2 - Southwest  
 PIR3 - Southeast  
 PIR4 - Southcentral  
 PIR5 - Anchorage  
 PIR6 - Interior  
 PIR7 - Fairbanks

Rather than 80 percent of the employment increase as in the refinery case, the Anchorage area now accounts for 48 percent of the increase in 1990. In 1985, its percentage is much less--36 percent. This reflects the assumption that there are no primary employment additions allocated to Anchorage in the fish hatchery assumptions. Employment growth in Anchorage results from increased demands for goods and services and increased state government on a statewide basis.

Outside Anchorage, the majority of the growth occurs in the Southwest, Southeast, and Southcentral regions of the state. Their relative positions are just reversed from the refinery case as now the Southwest growth is second only to Anchorage.

As before, population growth patterns follow those of employment. Anchorage again leads the growth in spite of the absence of direct employment assumed to occur there. The Southwest is second, followed by the Southeast and Southcentral. Smaller increases occur in the Fairbanks, Northwest, and Interior regions.

Personal income increases occur in each region, although here some amount of cyclical activity is observed to occur, particularly in the Interior and Fairbanks regions. The reason for this is that fish hatchery construction and operation takes place in these regions, but the fish are caught and processed in the coastal areas of the state. After construction of these interior hatcheries, construction income declines

and is not immediately replaced by fishery and manufacturing income increases. In this sense, the hatcheries in those regions result in patterns of income change similar to the refinery. Fairbanks eventually recovers its income level because of its position as a service and commercial center for the Interior. The Interior region, however, does not within the period examined return to a position where the impact on income exceeds the base case by as much as it did in 1982.

E. State Fiscal Impacts

Under both projects state expenditures must increase to accommodate the increases in population. Since changes in the level of state expenditures are related to changes in the level of population rather than the level itself, the pattern of Table III.13 is the result. Expenditure increases occur rapidly in the refinery case since population growth occurs rapidly in the 1980s. Later it slows considerably and expenditure growth slows in a reflection of this. In the case of the fish hatcheries, the growth follows a steady pattern, since the growth in population is occurring steadily over the period. As a result, even though population is higher at the end of the period in the refinery case, the expenditure impact is larger in the fish hatchery case. In later years, they would tend to converge.

The impact on state revenues is shown in Table III.14. Total impact is more pronounced in the case of the refinery project, particularly during the construction phase. The peak impact occurs in 1984 at \$46 million. This is the combined effect of the primary generation of personal and corporate income taxes and the business tax, as well as the secondary generation of revenues resulting from aggregate economic growth.

The increase in the fish hatchery example is much less cyclical as revenues grow slowly but steadily throughout the period. By 1990 the

Table III.13

Impact on State Expenditures of Hypothetical Projects

(Measured as Differences From the Base Case)

(Million \$)

	PRT.RG2_ ER	PRT.RG4_ ER
1977	0.	0.
1978	0.	0.
1979	0.	0.
1980	1.317	5.521
1981	30.017	13.441
1982	90.24	20.187
1983	121.975	35.439
1984	142.913	38.635
1985	137.458	43.602
1986	76.673	59.609
1987	55.332	73.62
1988	48.444	87.255
1989	48.622	101.469
1990	52.559	117.156

---

PTR.RG2 - Petrochemicals  
 PTR.RG4 - Fisheries Enhancement

Table III.14

Impact on State Revenues

	PRT.RG2 ER	PRT.RG4 ER
1977	0.	0.
1978	0.	0.
1979	0.	0.844
1980	4.141	3.35
1981	18.892	5.953
1982	37.547	9,229
1983	45.509	12.335
1984	45.82	12.297
1985	30.556	14.676
1986	27.838	18.884
1987	25.49	21.47
1988	27.63	23.598
1989	30.739	25.518
1990	33.856	27.341

---

PRT.RG2 - Petrochemicals  
PRT.RG4 - Fisheries Enhancement

impact levels are nearly equivalent, although the total impact over the whole period has been much larger for the refinery case.

Table III.15 confirms that the composition of the state revenue impact has differed considerably in the two examples. Personal income tax increases represent more than two-thirds of the total revenue increase for the fish hatchery case while less than 25 percent in the petrochemical example. Two factors account for this difference. First, a large component of the increase in the refinery case takes the form of corporate income taxes. Second, there has been a substantial increase in incomes to fishermen in the hatchery case, and these increases are taxed at higher marginal tax rates. This explains the large difference in personal income tax returns in the two cases in spite of a small difference in employment impact between them. Referring back to Table III.2, one gets an impression of the relative size of the impact on state revenues of the additions. Since in 1990 in the base case, revenues are projected at \$3.586 billion; the impact in that year of either would be less than one percent of total revenues. On the other hand, revenues are falling in the base case and this addition would help to slow the rate of decline. It would not reverse the direction, however.

The net fiscal impact on state government is represented by the difference between the change in revenues and the change in expenditures in either case presented in Table III.16.

Table III.15

Impact on State Personal Income Taxes of Hypothetical Projects

	PRT.RG2_ ER	PRT.RG4_ ER
1977	0.	0.
1978	0.	0.
1979.	0.114	0.48
1980	2.951	1.678
1981	11.154	2.814
1982	18.135	4.457
1983	20.356	5.771
1984	20.478	5.972
1985	13.152	7.841
1986	5.661	10.477
1987	5.37	12.476
1988	5.638	14.667
1989	6.51	17.162
1990	7.658	19.933

---

PRT.RG2 - Petrochemical

PRT.RG4 - Fisheries Enhancement

Table III.16

Net Fiscal Impact on State Finance  
of Hypothetical Projects  
(Million \$)

	Petrochemicals	Fisheries Enhancement
1977	0.	0.
1978	0.	0.
1979	0.	.844
1980	2.783	-2.171
1981	-11.125	-7.488
1982	-52.693	-10.958
1983	-76.466	-23.104
1984	-97.093	-26.338
1985	-106.902	-28.926
1986	-48.835	-40.725
1987	-29.842	-52.15
1988	-20.814	-63.657
1989	-17.883	-75.951
1990	-18.703	-89.815

In either case, the net fiscal impact is negative in all but the initial year. Given the structure of state revenues, this is the expected result. The petrochemical facility does poorly in the early years as expenditures must rapidly rise to accommodate the population increase. Later, however, its net impact improves as the income from the facility begins providing larger amounts of tax revenues. In the case of the fish hatchery, the impact on the current account of the state is negative and cumulative. Here, there is no capital intensive facility in place in later years to mitigate the size of the deficit in earlier years.

F. Local Fiscal Impact

Expenditures at the local level respond primarily to changes in population and personal income, as well as to changes in the amount of revenues transferred from the state. Table III.17 reflects this pattern. Local expenditures rise rapidly and then fall in the refinery example and grow slowly but steadily in the fish hatchery case.

Local revenues in both examples increase strongly, primarily through the local property tax (Table III.18). There is a cycle in local revenues generated by the refinery and a smooth increase in the case of the fish hatcheries.

Direct taxes on the refinery property contribute to the level of the local revenue impact in that case, exceeding revenues in the fish hatchery example. It is interesting that the direct property tax accounts for about half of the increment to local revenues in the refinery case. Also interesting is the rapid increase in local revenues in later years in the fish hatchery case, as personal incomes rise.

Table III.17

Impact on Local Expenditures of Hypothetical Projects

	PRT.RG2_ ER	PRT.RG4_ ER
1977	0.	0.
1978	0.	0.
1979	0.144	0.606
1980	3.701	3.129
1981	18.809	6.203
1982	39.944	9.631
1983	51.008	14.323
1984	56.474	15.725
1985	49.082	18.944
1986	45.512	26.45
1987	23.681	32.615
1988	20.606	38.611
1989	20.829	44.868
1990	22.82	51.82

---

PRT.RG2 - Petrochemicals  
PRT.RG4 - Fisheries Enhancement

Table III.18

Impact on Local Revenues of Hypothetical Projects

	PRT.RG2	PRT.RG'	PRT.RG4
	ER		ER
1977	0.	0.	0.
1978	0.	0.	0.
1979	0.167	0.	0.702
1980	4.133	6.133	2.877
1981	18.025	21.525	5.607
1982	36.204	42.204	9.185
1983	47.197	57.197	13.223
1984	53.275	70.275	15.178
1985	47.39	77.39	19.095
1986	48.761	78.761	26.784
1987	28.78	58.78	33.744
1988	26.683	56.683	40.896
1989	27.592	57.592	48.672
1990	30.272	60.272	57.566

---

PRT.RG2 - Petrochemicals (without property tax)  
 PRT.RG' - Petrochemicals (with local property tax)  
 PRT.RG4 - Fisheries enhancement

G. Per Capita Impacts

Real per capita variable changes occur in the directions expected by the analysis of the foregoing changes. Per capita disposable personal income rises rapidly in the refinery example with the increase in high paying construction jobs (Table III.19). Later the trend is reversed, primarily by a slowdown in the rate of increase in government employment. Disposable personal income gains in the fish hatchery case are not as pronounced but are not eliminated by 1990.

The patterns of state expenditures per capita in constant terms reveals an interesting fact about attempting to use a target expenditure growth formula based upon historical growth rates (in this case, the previous two years). From time to time, there will be fluctuations in those growth rates which will cause the target to miss on either the high or low side. In theory, all values in Table III.20 should be zero but, particularly in the case of cyclical variation in growth experienced in the refinery case, the target is only approached rather than hit squarely.

In both cases, revenues per capita in real terms declined. This was more pronounced in early years for the refinery, but in later years for the fish hatchery.

Table III. 19

Impact on Disposable Personal IncomePer Capita of Hypothetical Projects

(Measured as Differences From the Base Case)

(Constant \$)

	PRT.RG2_ ER	PRT.RG4_ ER
1977	0.	0.
1978	0.	0.
1979	1.392	5.852
1980	26.671	9.599
1981	60.584	10.542
1982	61.451	19.498
1983	56.954	14.968
1984	34.917	14.484
1985	-12.143	19.365
1986	-18.78	18.194
1987	-20.532	16.514
1988	-19.646	14.373
1989	-17.894	12.102
1990	-15.783	10.137

---

PRT.RG2 - Petrochemical  
PRT.RG4 - Fisheries Enhancement

Table III.20

Impact on State Expenditures  
Per Capita of Hypothetical Projects

	PRT.RG2_ ER	PRT.RG4_ ER
1977	0.	0.
1978	0.	0.
1979	-0.685	-2.867
1980	-12.976	-2.192
1981	-19.646	-0.37
1982	1.912	-3.212
1983	9.918	4.472
1984	19.4	3.591
1985	31.366	-0.272
1986	3.281	1.459
1987	-5.855	1.836
1988	-9.032	1.566
1989	-9.712	0.954
1990	-9.527	0.112

---

PRT.RG2 - Petrochemical  
PRT.RG4 - Fisheries Enhancement

#### H. Conclusion

The petrochemical and fisheries enhancement projects cannot be directly compared to one another because of the large differences in size of the proposals and also because no explicit assumptions were made regarding the method or size of permanent fund financial participation in either project. It is more valid therefore to concentrate on the comparison of each to a base case simulation. The petrochemical facility represents a very capital intensive project while the fisheries enhancement program is labor intensive.

Construction of the petrochemical plant leads to a "mini-boom" which results in an apparent long run increase in the level of aggregate economic activity. The capital intensive nature of the refining process notwithstanding, the employment impact is substantial because the construction phase is relatively labor intensive. Both the "boom" and the long run economic growth are regionally concentrated in the Anchorage and Southcentral areas.

Fisheries enhancement results in growth of the economy which is not accentuated but it is steady and leads to substantial long run increases. Because of the regional dispersion of the hatcheries the impact is not concentrated in any region. Interestingly, however, nearly 50 percent of the growth occurs in Anchorage where there is no primary employment increase.

The refinery provides state tax revenues through the taxation of both business and personal income while the impact of the fisheries enhancement program is primarily in the form of personal tax increases. Revenues generated are significant but less than 1 percent of total state revenues by 1990 in either case. State expenditure growth exceeds revenue growth in each case by a considerable margin because of the target level set for state expenditures on a per capita basis.

In both cases local revenues increase substantially. The refinery pays a substantial property tax but a significant portion of the local revenue increase comes from secondary increases in property values. The increases in the fish hatcheries case come primarily from secondary increases in property values.

## PART IV

### ALASKA CAPITAL MARKETS AND STATE FUNDS

#### A. Introduction

The institutional arrangements for investing the permanent fund are as important as the amount and timing of the investment. The effect of the many possible institutional arrangements are not as easy to assess as the timing or amount, since they do not easily lend themselves to modeling. One way to project the impact of the institutional arrangements is to examine similar historical events and derive applicable generalities. During the period following the Prudhoe Bay Lease Sale, the state of Alaska had excess funds which it invested in three ways-- investment in Federal and Corporate Securities by the Bank of America, investment directly in loan programs by the state, and placement of funds in time certificates of deposit in banks in Alaska. Although the goals of these programs were different than those of the permanent fund, examining these programs may provide insights into the effects of these institutional arrangements. This chapter will review one of those programs, the placement of approximately \$100 million of the North Slope Lease Bonus in Alaska banks between 1969 and 1971; it is hoped that the insights gained from this exercise will be helpful in determining the best arrangements for investing the permanent fund.

The review of this strategy will identify the intentions and goals of the policy makers, the strategies pursued, and the impact of those

strategies. This program can only be examined in relation to the events of that period, including the other investment programs operated from surpluses of the state general fund. The strategies followed and the resulting impact will be examined for the period 1969 through 1973, the period from the first placement until just prior to the construction of the trans-Alaska pipeline. There are three important problems which limit the analysis of the effects of these strategies. First, this period was one of change for Alaska associated with the discovery of oil at Prudhoe Bay, the anticipation of its development, and the construction of a pipeline to carry it south. This makes it difficult to isolate the portion of the growth in the state's economy which resulted from the placement of \$100 million in the state's banking system. Secondly, the early 1970's was a period of extreme fluctuation in the national money markets; this affects our ability to consider past relationships normal and analyze impacts as changes from them. Thirdly, only tentative conclusions can be drawn, because data concerning the banking system during this period is limited.

To the extent they can be defined, the analysis of the impacts of this policy will be done in terms of its equity, efficiency, and growth effects. The program can be considered efficient if, given the goals established by the policy makers, the placement of these funds was the best way to achieve them. The income redistribution resulting from this policy describes the equity effect. Windfall profits for banks

and changes in the cost of borrowing money are possible income redistribution effects which will be analyzed. Questions about the effect of this policy on growth revolve around the question of whether this money got from the banks into the state economy.

### B. The Setting: The Alaskan Financial Sector

The discovery of oil at Prudhoe Bay and the expectation of its production and the construction of a pipeline to carry the oil south were responsible for the healthy growth of the Alaska economy during the period after 1970. Table IV.1 shows the growth of population and employment during the period 1968-1973. In most developing economies, particularly those experiencing rapid growth, the demand for capital quickly outpaces the supply produced by the local economy. Alaska, during this period, was no exception; the growth during the late sixties accentuated a capital shortage which had always been a factor in the Alaskan financial sector. In theory, regional capital shortages should not exist, since capital is a mobile resource which should flow to the area where it earns its greatest return. Interest rates in a region where capital is in short supply would rise and attract capital until the shortage was eliminated. Real world imperfections prevent this from happening. Institutional restrictions, such as usury laws, prevent interest rates from rising to their proper levels. Alaska, prior to 1969, had a usury law which set a ceiling for interest rates of 8 percent. Risk also restricts the free flow of capital. Risk increases with distance from the source of capital, since less is known of places farther away. For both of these reasons, Alaska was not attracting the needed capital during this period. Editorials in the business press point to the difficulty of borrowing which reflected a capital shortage.<sup>1</sup>

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<sup>1</sup>Editorial Opinion, Alaska Construction and Oil, September 1969, p. 6, and August 1969, p. 6.

Table IV.1

## Growth of Population and Employment 1968-1973

	<u>Employment</u> <sup>1</sup>	<u>Percent Growth</u>	<u>Population</u> <sup>2</sup>	<u>Percent Growth</u>
1968	112,423		284,880	
1969	118,917	5.78	294,560	3.40
1970	123,892	4.18	302,361	2.65
1971	127,660	3.04	312,930	3.50
1972	130,693	2.38	324,800	3.79
1973	137,305	5.06	330,600	1.02

<sup>1</sup>Statistical Quarterly, Alaska Department of Labor, various issues.

<sup>2</sup>Current Population Estimates, Alaska Department of Labor, 1968-1973.

The usury laws which prevented local rates from rising to the required level were blamed for the capital shortage problem; Alaskan investment traditionally needed to pay 1-2 percent above Seattle rates to make investments worthwhile.<sup>2</sup> A period of tight money in the national money markets and interest rates which were inflexible upward prevented the needed flow of capital.

There is little documentation of this capital shortage, although the importance of the secondary mortgage markets and outside participation in large projects is recognized throughout the banking industry.

<sup>2</sup>"Home Building the Tight Money Loosens," Alaska Construction and Oil, July 1969, p. 32.

One report which attempted to document this situation was The Residential Mortgage Market in Alaska, a report done by the Federal Housing Administration in 1963.<sup>3</sup> This report documented the importance of outside capital to the Alaskan mortgage market in the early sixties. Because of the importance of outside funds for investment, changes in outside money markets had tremendous impacts on capital availability in Alaska. The tight money period which existed in outside money markets in 1969-1970 would logically have been extended into a tight money market in Alaska.

The banking industry in the period preceding the Prudhoe Bay lease sale has been described by Gene Erion.<sup>4</sup> By examining the insured commercial banks in Alaska during the period 1960-1966, Erion concluded,

"The comparing of insured commercial banks in Alaska with insured commercial banks in the rest of Region 13 and in the United States as a whole, for the years 1960-1966, leads to the following conclusions:

- (1) Rates of earnings on loans and discounts were higher, and rates of interest paid on time deposits were lower, in Alaska. The higher rates on loans and discounts could not be attributed to higher prices (costs) in Alaska; nor, entirely, to greater riskiness of loans.
- (2) Profit rates on sales--current operating revenues--were lower in Alaska. Profit rates on capital invested were higher, but only because of the lower equity of owners in Alaska banks.

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<sup>3</sup> Federal Housing Administration, The Residential Mortgage Market in Alaska, 1963.

<sup>4</sup> Gene Erion, "Insured Commercial Banks in Alaska, 1960-1966," in Studies on Alaska Regional Inflation, Federal Field Committee for Development Planning in Alaska, 1969.

(3) As measured by net income per employee, assets per employee, and assets per bank office, Alaska banks were relatively inefficient.

(4) Assets per bank, however, were greater in Alaska. Alaska banks chose to serve Alaska's relatively sparse population by branching; thereby the proliferation of even smaller, weaker, and more inefficient unit banks was avoided.

(5) Assets per bank office and per bank employee, as well as the ratios of demand and time deposits to personal income, indicate that the scale of operation of Alaska banks was relatively smaller, with the distinct possibility that economies of large-scale operation were thereby precluded, and that some of the relative inefficiency of Alaska banks resulted therefrom.

(6) The ratios of demand and time deposits to personal income indicate that Alaska banks got a disproportionately small share of the domestic market for bank services, indicating that more aggressive competition, including price (rate) competition, might have led to a larger share of the market, and perhaps a larger market."<sup>5</sup>

Prior to the lease sale in 1969, the banking system consisted of eleven commercial banks with assets of \$462,084,733 and two mutual savings banks with assets of \$39,524,623.<sup>6</sup> There were also three savings and loan associations with assets totaling \$66,000,000.<sup>7</sup> The banking sector during this period was highly concentrated with two banks having over 50 percent of the total assets of the commercial and mutual savings banks.<sup>8</sup>

<sup>5</sup> Erion, "Insured Commercial Banks," pp. 69-71.

<sup>6</sup> Alaska Bank Statement of Condition, June 30, 1969.

<sup>7</sup> The Alaska Economy, State of Alaska Department of Commerce and Economic Development, 1977, Table 18, p. 31.

<sup>8</sup> Alaska Bank Statement of Condition, June 30, 1969.

### C. Policy Goals

In September 1969, the State's Investment Committee which consisted of the Commissioners of Revenue, Commerce, and Administration determined the state should place \$100 million in deposits in Alaskan banks. One general goal for this program can be defined from public statements made at the time; the goal of the program was to stimulate the state's economy by increasing the capital available within the economy. Through the placement of these funds, the state could attempt to ease the capital shortage which was much discussed at the time. Criticism of the decision centered on the fact that these funds in Alaskan banks would earn less than other North Slope lease funds invested by the Bank of America. The Investment Committee explained its rationale for this move was to provide money to the banks which they could use to stimulate general economic activity through loans.<sup>9</sup> The goal of using the money to stimulate the economy of the state by providing much needed capital was emphasized by public statements of officials. Governor Keith Miller stated at the time that the deposit of funds in state banks would meet the long-standing need for capital within the state.<sup>10</sup> Commissioner of Revenue, George Morrison, stated that placing the money in local banks would provide what bankers said was much needed capital to expand credit within the state.<sup>11</sup> These

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<sup>9</sup>Anchorage Times, October 29, 1969.

<sup>10</sup>"Governor Tells Plans for Lease Revenues," Alaska Industry, October 1969, p. 98.

<sup>11</sup>Anchorage Times, December 3, 1969.

statements were also supported by members of the Egan administration. Director of Banking, J. K. Robertson, stated that the funds were deposited to be employed in the state's economy.<sup>12</sup>

The actions of the legislature and administrations during this time period define implicit goals for the entire North Slope Lease Fund which seem to agree with the stated goals for this particular program. The implicit goal was to improve the present Alaskan situation or quality of life through expenditures. Actions during the period illustrate this goal; the state budget increased 32 percent in Fiscal Year 1970 and 77 percent in Fiscal Year 1971 to provide for the increased programs and services made available to Alaskans.<sup>13</sup> Laurence Eppenbach, Deputy Commissioner, Treasury Division, in the Egan Administration, pointed out that one of the major benefits of the oil lease bonus was the increase in state spending which provided sound underpinnings for state economic growth.<sup>14</sup> Changes made by the legislature to the possible uses of the state's surplus revenue in 1970 also supported this general goal of spending to increase the current welfare of the state. The legislature expanded investment alternatives from only government securities and time certificates to allow the state to invest in mortgages and loans.

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<sup>12</sup>"Commercial Bank Deposits to Triple in Coming Decade," Alaska Construction and Oil, January 1971, pp. 37-38.

<sup>13</sup>"What Happened to the \$900 Million," Memo to Governor Hammond from L. C. Eppenbach, December 27, 1974, p. 1.

<sup>14</sup>"Alaska's Treasury: A One Customer Bank with 325,000 Shareholders," Alaska Construction and Oil, May 1973, p. 29.

Chapter 206 SLA 1970 which defined these changes also specified an investment preference for loans and mortgages.<sup>15</sup> The concept of a permanent fund using parts of the lease funds, although suggested during this time period, was never adopted. One reason savings was not a primary consideration was the expectation of the rapid completion of the pipeline, and the beginning of the flow of oil royalties to the state.<sup>16</sup> The goal of stimulating the Alaskan economy through the placement of deposits in Alaskan banks fits within this general context of using the North Slope lease funds to improve the current Alaskan situation.

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<sup>15</sup>"Legislature Roundup," Alaska Construction and Oil Report, August 1970, p. 33.

<sup>16</sup>"What Happened to the \$900 Million," Memo to Governor Hammond from L. C. Eppenbach, December 27, 1974, p. 1.

D. Placement of the Funds

The decision to place approximately \$100 million in time deposits in Alaskan banks was originally made shortly before the North Slope lease sale in September 1969. This decision was made by the state's Investment Committee which consisted of the Commissioners of Revenue, Commerce, and Administration.<sup>17</sup> The money was originally scheduled for three placements in September and October 1969 and January 1970.<sup>18</sup> The first placement of \$50 million in short-term certificates of deposit took place shortly after the lease sale in September. The other placements did not take place as scheduled but were postponed. The last placement occurred in June 1971. A total of \$102 million was placed in Alaskan banks in certificates of deposit with terms ranging from one to fourteen years. Funds were deposited after negotiations, which determined that a competitive rate of 6.25 percent would be paid. Funds were disbursed in relation to the distribution of total deposits in the banking system.<sup>19</sup>

There were two major criticisms of this fiscal strategy. First, the strategy was criticized because the state was not earning the maximum amount possible on these funds. The certificates of deposit were issued at 6.25 percent interest, while state funds invested by the Bank

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<sup>17</sup> Anchorage Times, October 29, 1969.

<sup>18</sup> Anchorage Times, December 3, 1969.

<sup>19</sup> Anchorage Times, December 3, 1969.

of America were earning approximately 8 percent. State officials responded that the money loaned into the economy, generating economic activity would produce revenues in income taxes equal to another 1 percent in interest.<sup>20</sup> This strategy also supported the goal of using the funds for the immediate benefit of Alaskans and not as a savings account.

The second criticism of the program was responsible for the delay in the second and third disbursements of the money. Criticism of the way the banks were using these funds caused the state to investigate the use of the funds before issuing the next scheduled disbursements. The criticism suggested that banks might only have been investing these state deposits in Federal securities which did the state's economy little good; reasons for this included collateral requirements for state deposits.<sup>21</sup> These criticisms caused the state to investigate how the first \$50 million was being used. These investigations showed the majority of banks were able to use the funds and the second disbursement was made.<sup>22</sup> The banks also criticized the length of term of the deposits, stating that this prevented the use of the funds for loans. As a result of this criticism, the state extended the terms of the first set of deposits just prior to the final disbursement in June 1971. Table IV.2 shows the terms and amounts of certificates of deposit from the North Slope lease bonus for Fiscal Years 1969-1972.

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<sup>20</sup> Anchorage Times, October 29, 1969.

<sup>21</sup> Anchorage Times, September 25, 1969.

<sup>22</sup> Anchorage Times, December 3, 1969.

Table IV.2

## North Slope Lease Funds in Alaska Banks

Date Issued	Amount as of June 30 in Thousands of Dollars			
	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>
(1 year term)				
12-69	\$22,350			
2-70	380			
3-70	1,665			
6-70	605			
12-70		\$ 2,250		
3-71		1,665		
6-71		655 (1/2 year)		
12-71			\$ 2,905	
3-72			1,665	
12-72				\$ 2,905
3-72				1,665
(5 year term)				
9-69	50,000	26,430 <sup>1</sup>	26,430	26,430
12-70		43,460	44,010	44,010
6-71		550 (4 years)		
(10 year term)				
6-71		5,358	5,358	5,358
(11 year term)				
6-71		5,458	5,458	5,458
(12 year term)				
6-71		5,458	5,458	5,458
(13 year term)				
6-71		5,358	5,358	5,358
(14 year term)				
6-71		<u>5,358</u>	<u>5,358</u>	<u>5,358</u>
TOTAL	\$75,000	\$102,000	\$102,000	\$102,000

<sup>1</sup>State Investment Portfolio in 1971 had approximately \$20,000,000 in three year certificates this year only. Based on other Portfolios, this amount was added to the five year certificates.

SOURCE: State Investment Portfolios, Department of Revenue, 1970-1973.

E. Other Programs

The impact of the passage of Chapter 206 SLA 1970 was to broaden the investment possibilities of the state. Chapter 206 allowed the state to invest surplus funds in:

- (1) direct obligations of the United States;
- (2) obligations of agencies and instrumentalities of the United States;
- (3) notes issued by Farmer's Home Administration;
- (4) bank certificates of deposit which are secured as to the payment of principal and interest in accordance with Alaska law;
- (5) corporate obligations of prime or equivalent quality, as rated by a nationally recognized rating organization;
- (6) other securities, including corporate securities;
- (7) Federal Housing Administration mortgages;
- (8) Federal Veterans Administration mortgages;
- (9) loans made under the provisions of AS 03.10;
- (10) conventional residential mortgages if the originating financial institution retains at least 25 percent of the mortgage;
- (11) other secured loans, if the originating financial institution retains at least 33 1/3 percent of the mortgage.

The investment programs which resulted from this act fit into two major groups, the investments handled by the Bank of America and those handled by the Treasury. The major differences involved the terms and liquidity of these investments. The Bank of America emphasized highly liquid, short-term investments, and the Treasury emphasized long-term investments related to growth in the state. These Treasury loan programs

were run with surplus general funds and are not the same as the investments made from specific funds such as Teacher's Retirement fund.

Table IV.3 shows the change in these investments during the period of interest. The loan programs were included in the investment program run by Treasury.

The Bank Loan Incentive Program was begun in 1970 to buy loans from financial institutions in Alaska. All loans had to be secured and have Alaska residents as mortgagors.<sup>23</sup> This program was suspended in 1972. One reason for the suspension was the necessity to remain liquid. Since funds were being drawn down quite rapidly, it was felt the direct loan programs provided ample loans.<sup>24</sup> As Table IV.3 shows, the direct loan programs expanded throughout this period.

The Bank of America investments were made with the idea that the principal would be spent, so liquidity was important. Because of this, highest yielding investments were ignored; investments were made mostly in short-term, highly liquid assets, such as U.S. Government Securities.<sup>25</sup>

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<sup>23</sup>State Investment Portfolio, State of Alaska Department of Administration, June 30, 1971, p. 4.

<sup>24</sup>"Revenue News," Alaska Department of Revenue, February 16, 1971, and conversation with Richard Alexander, Alaska Department of Revenue, November 28, 1977.

<sup>25</sup>"Revenue News," Alaska Department of Revenue, May 24, 1972.

Table IV.3

## State General Fund Loan Programs

	Amount as of June 30			
	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>
Bank of America	\$852,569,655	\$772,928,476	\$665,002,400	\$504,566,000
Veterans Loans		1,587,000	9,703,800	16,315,200
Bank Loan Incentive Program		3,977,600	3,464,500	2,765,300
Agricultural Loans		---	709,900	843,000
Municipal Loans		6,833,300	6,213,900	14,367,500
Small Business Loans				1,546,800
Alaska Housing Finance Corporation				7,318,200

Source: State Investment Portfolio, Department of Revenue, 1970-1973.

F. The Impact of the Bank Placement Program

The impact of the program will be analyzed in relation to the goal of providing capital and stimulation to the state's economy. The program's impact will be examined in terms of its effects on growth, equity, and efficiency. Two sources of data will be used to examine these effects. First, a time series of Alaskan banking statistics produced by the Department of Commerce and Economic Development will be used. The data series provides information on deposits, assets, and loans for all Alaskan banks. The second source of information are the Federal Deposit Insurance Corporation Call Reports and Income Statements of Insured Commercial Banks. These provide detailed data on a portion of the banking system, insured commercial banks. Commercial banks are unique among financial institutions, because their liabilities include demand deposits, and their lending and investing activities are diversified along their whole range of possibilities. Because of this, commercial banks are assumed to typify the economy's financial sector. This is particularly true in Alaska where Commercial banks are more involved in the mortgage market than is typical outside. Commercial banks are the major type of financial institution in Alaska which held 92 percent of the assets in 1969, and they were major participants in the placement program holding approximately 90 percent of the certificates by 1972.<sup>26</sup> The F.D.I.C. information can only be used to provide insight into the effects of this program, since it provided only partial coverage of the Alaskan banking system.

<sup>26</sup>Alaska Department of Revenue, "Alaska Banks Statement of Condition," June 1969, and Alaska Department of Administration, State of Alaska: State Investment Portfolio, 1972.

## F.1. Growth Impact

Table IV.4 describes the change in some measures of economic activity during the period 1968-1973. Although this table shows a general upward trend in all of the variables, it is hard to see a consistent relation between banking activity and any variable. Even if a relationship could be seen, it would be impossible to judge the direction of causation. The banking system, through its loan activity, may encourage growth; but at the same time, growth of the economy would have positive effects on the banking system through increasing its deposits.

An indication of the growth impact of this program can be determined by examining the loans made by the banking system. The ultimate impact on the economy depends on the effectiveness of the use of the loan funds, but the impact of the banking system on the economy can be judged by the proportion of its deposits it gets back into the economy in the form of loans. Constraints placed on the bank's ability to loan money, such as reserve requirements set by the Federal Reserve Bank and the distribution of deposits between demand and time deposits, will prevent banks from loaning all of its deposits. Investment of deposits in other types of assets will also reduce the amount of loans made.

Examination of the ratios of loans to deposits and changes in loans to changes in deposits shows that initially fewer loans were made out of these deposits than usual. The relationship between loans and deposits is shown in Tables IV.5 and IV.6. Table IV.5 shows the change which

Table IV.4  
Economic Growth

	<u>Total<sup>1</sup></u> <u>Employment</u>	<u>%</u> <u>Change</u>	<u>Construction<sup>1</sup></u> <u>Employment</u>	<u>%</u> <u>Change</u>	<u>Value<sup>2</sup> of</u> <u>Construction</u> (millions of \$)	<u>%</u> <u>Change</u>
1968	112,423		5,998			
1969	118,917	5.78	6,653	10.92	193	
1970	123,892	4.18	6,894	3.62	238	23.32
1971	127,660	3.04	7,445	7.99	259	8.82
1972	130,693	2.38	7,893	6.02	373	44.02
1973	137,305	5.06	7,837	-.71	421	12.87
	<u>Housing<sup>2</sup></u> <u>Units</u> (thousands of units)	<u>%</u> <u>Change</u>	<u>Total<sup>3</sup></u> <u>Deposits</u> (millions of \$)	<u>%</u> <u>Change</u>	<u>Total<sup>3</sup></u> <u>Loans</u> (millions of \$)	<u>%</u> <u>Change</u>
1968	1.2		481.8		302.2	
1969	1.5	25.0	585.6	22.78	345.0	14.16
1970	1.7	13.33	699.6	26.54	409.3	18.64
1971	1.8	5.88	808.6	19.54	497.0	21.43
1972	2.4	33.3	934.1	17.57	608.5	22.43
1973	1.7	-29.0	999.9	5.69	765.3	25.77

<sup>1</sup>Alaska Department of Labor, Statistical Quarterly, various issues.

<sup>2</sup>U.S. Department of Commerce, Statistical Quarterly, 1974.

<sup>3</sup>Alaska Department of Commerce and Economic Development, Mid-Year Performance Report, 1977, Tables 17 and 18.

Table IV.5

## Ratio of "New" Loans to New Deposits

(Millions of Dollars)

	(1) Change in <u>Loans &amp; Discounts</u>	(2) Change in <u>Total Deposits</u>	(3) Change in <u>Time Deposits</u>	Ratio <u>(1)/(2)</u>	Ratio <u>(1)/(3)</u>
1967	15.9	40.9	44.3	.39	.36
1968	18.2	6.4	6.9	2.84	2.64
1969	40.8	101.8	61.4	.40	.66
1970	45.3	106.0	84.0	.43	.54
1971	64.7	85.0	61.7	.76	1.05
1972	75.5	96.5	68.1	.78	1.11
1973	64.8	59.8	29.1	1.08	2.23
1974	107.0	213.9	65.9	.50	1.62
1975	161.1	278.9	124.3	.58	1.30
1976	148.0	155.0	123.1	.95	1.20
Average				.87	1.27

SOURCE: Table 17, The Alaska Economy: Mid Year Performance Report 1977, Alaska Department of Commerce and Economic Development, 1977.

Table IV.6  
 Loan to Deposit Ratio  
 (Millions of Dollars)

	(1) Total <u>Loans and Discounts</u>	(2) Total <u>Deposits</u>	(3) Total <u>Time Deposits</u>	Ratio <u>(1)/(2)</u>	Ratio <u>(1)/(3)</u>
1967	232.0	423.4	224.3	.55	1.03
1968	250.2	429.8	231.2	.58	1.08
1969	291.0	531.6	292.6	.55	.99
1970	336.3	637.6	376.6	.53	.89
1971	401.0	727.6	438.3	.55	.91
1972	476.5	824.1	506.4	.58	.94
1973	541.3	883.9	535.5	.61	1.01
1974	648.3	1,097.8	601.4	.59	1.08
1975	809.4	1,376.7	725.7	.59	1.12
1976	957.4	1,531.7	848.8	.63	1.13
Average				.58	1.02

SOURCE: Table 17, The Alaska Economy: Mid Year Performance Report 1977,  
 Alaska Department of Commerce and Economic Development, 1977.

occurred in the ratio of changes in loans to changes in deposits.<sup>27</sup> The change in loans and discounts is a proxy for new loans made which also may be affected as loans are paid off or sold in the secondary market. Table IV.6 shows the changes during the period in the ratio of Total Loans and Discounts to Deposits. During the period in which the state deposited the \$100 million, 1969-1971, these ratios all fell below the average for the ten-year period. This indicates that during this period, although loans were increasing, they were not increasing as fast as deposits. In 1969 and 1970, less than half the new deposits reached the economy through the creation of "new" loans, while an average \$.87 was loaned out of every dollar deposited. Although the initial impact was minimal, Table IV.6 indicates that more of the state's deposits may have eventually reached the economy. Beginning in 1972, the ratio of Loans and Discounts to Total Deposits began to increase toward the average. This indicates that loans were increasing at a rate greater than deposits, which may have resulted from the shifting of some state deposits to loans from other assets.

More insight into what happened might be obtained by examining how the banks invested their funds during this period. Table IV.7 shows the distribution of the assets held by insured commercial banks during this period.

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<sup>27</sup> Tables IV.5 and IV.6 do not include information on savings and loans, but this is not important since savings and loans did not participate in the deposit placement program. See bank listings in State Investment Portfolio, Department of Administration.

Table IV.7

## Distribution of Assets of Commercial Banks 1969-1973

	<u>Cash and Balances</u>	<u>U.S. Government Obligations</u>	<u>Other Securities</u>	<u>Loans and Discounts</u>	<u>Other Assets</u>
1968	11.6%	15.2%	18.8%	50.3%	4.1%
1969	13.4%	18.3%	15.6%	48.9%	3.8%
1970	13.5%	17.3%	18.0%	47.2%	4.0%
1971	14.0%	16.1%	17.6%	48.4%	4.0%
1972	12.0%	13.1%	19.2%	51.3%	4.3%
1973	11.9%	11.7%	16.1%	55.6%	4.7%

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Source: Federal Deposit Insurance Corporation, FDIC Call Reports, 1968-73.

During the initial years of the placement, there was a shift in the asset distribution of insured commercial banks. Banks shifted their assets from loans and discounts into U.S. government obligations. This shift partially explains the reduction in loan to deposit ratios shown previously. These data allow us to infer that a greater than usual proportion of deposits made during the time period in which the initial placement of North Slope funds took place was invested in U.S. government obligations. This action, because it reduced the funds which went into loans, reduced the initial impact of the banks on the economy. The data in Table IV.7 indicates that this shift was a short-run shift in portfolio balances. Beginning in 1971, banks began to shift their assets back toward the pre-1969 distribution.

There are three factors which may explain the actions of the banks; the size of the original deposits, the term of the deposits, and the fact that they were state deposits. First, the state's deposits were so large in relation to deposits of the banking system that it caused major changes in the banking system. The state's deposit of \$75 million of the North Slope funds in state banks in 1969 was over a 30 percent increase in time deposits in the banking system as of December 1969. The North Slope deposits were over 27 percent of the total time deposits in the banking system in 1970. This massive change in the structure of the banking system may have taken time to adjust to. Because this large increase in deposits was not generated by economic activity, it may also have taken some time to generate loan opportunities. The return on U.S. securities provided a floor for interest rates, the banking system could have held these state funds in U.S. obligations while waiting for the economy to absorb them through loans. Tables IV.5 and IV.6 show that a more normal relation between loans and deposits exists beginning in 1971 after bankers were allowed time to adjust to the tremendous changes which had taken place.

The second factor which could explain the poor showing of the banking industry in providing loans from the North Slope deposits is the term of the original deposits. The main criticism of the original placement by the banking industry was that they were short term. The original placement in 1969 and 1970 was in one and five-year certificates

of deposit, which the bankers claimed was too short a time period to invest.<sup>28</sup> Because of these complaints, the state lengthened the term on these deposits in 1971. This is the period when the ratio of loans and discounts to deposits began to rise. The shortness of term argument revolves around the concept of "hot money."<sup>29</sup> The state's money was considered "hot money" because there was no guaranteed replacement for it at the end of its term. Banks can use private deposits, which are short-term, to make long-term investments because they know deposits will continue to grow and they can account for the turnover. The banks had no reason to believe state deposits would be replaced at the end of their term, so they were reluctant to issue loans based on them. This argument may provide an explanation for the lack of investment in long-term loans, but it doesn't explain why short-term loans were not made. Lack of short-term loans may have resulted because of the massive increase in funds which may have taken some time for the demand for this type of loan to reach these levels. No risk U.S. Treasury bills may have been a profitable alternative to holding risky short-term loans.

The most important reason for the limited use of the state deposits to make loans could simply be that they were state deposits. Until 1971 when the state allowed conventional loans to be used as collateral for state deposits, the state required that its deposits be collateralized

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<sup>28</sup> Alaska Department of Revenue, "Revenue News," May 3, 1971.

<sup>29</sup> Interview with Bob Sullivan, November 29, 1977.

100 percent with obligations of the U.S. Government.<sup>30</sup> This meant that, legally, loans could only be made from state deposits to the extent that banks were already holding U.S. Government obligations which were not collateral for other deposits. This could explain not only the limited loans made from these deposits, but also the movement of bank assets into U.S. securities. The liberalization of the collateral requirement coincides with the increase of the ratios of loans to deposits.

During the period of the initial placement of the North Slope lease funds in Alaskan banks, we can observe a reduction in the rate at which deposits were converted into loans and a movement of bank assets into federal securities. These actions limited the impact of the state's deposit on the economy in the short run. As can be seen from Tables IV.5 and IV.6, the long-run trend, after the factors mentioned above were taken care of, was to more normal creation of loans from deposits. This may mean that the initial limited economic impact of the deposit resulted not from unconstrained policies of the banks, but from the institutional constraints which directed the bank's policies.

#### F.2. The Equity Impact

Three types of equity effects which all involve the redistribution of income can be discussed. First, the data on insured commercial banks

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<sup>30</sup> J. K. Robertson, "Commercial Bank Deposits to Triple in Coming Decade." Alaska Construction and Oil Report, January 1971, pp. 37-38.

can be examined to determine the effect on the profits of the banking industry of this placement of state deposits. Secondly, the impact of these deposits on the cost of borrowing can be examined to see if the cost of borrowing was significantly reduced by the placement of state funds. Thirdly, the opportunity cost of this policy of making deposits can be examined. Tables IV.8, IV.9, and IV.10 provide the information required to deduce tentative answers to these questions about the equity impacts of the policy.

Table IV.8

## Interest and Fees Earned on Loans as a Percentage of Loans

	<u>Alaska Insured Commercial Banks</u>	<u>U.S. Insured Commercial Banks</u>
1969	8.18%	7.17%
1970	8.95%	7.65%
1971	8.89%	6.98%
1972	8.45%	6.54%
1973	8.43%	7.62%
Average	8.6%	7.2%
1960-66 Average <sup>1</sup>	8.6%	6.0%

<sup>1</sup>G. Erion. "Insured Commercial Banks in Alaska, 1960-66" in Studies on Alaska Regional Inflation, Federal Field Committee, 1969.

Source: Federal Deposit Insurance Corporation, FDIC Call Report and Income Statements.

Table IV.9

Interest Paid on Time Deposits as a Percentage  
of Total Time Deposits

	<u>Alaska</u>	<u>U.S.</u>
1969	3.77	3.19
1970	4.54	4.95
1971	4.98	4.43
1972	4.85	4.38
1973	5.39	4.29
Average	4.71	4.25
1960-66 Average <sup>1</sup>	2.71	3.19

<sup>1</sup>G. Erion. "Insured Commercial Banks in Alaska, 1960-66" in Studies on Alaska Regional Inflation, Federal Field Committee, 1969.

Source: Federal Deposit Insurance Corporation, FDIC Call Report and Income Statements.

Table IV.10

Net Income Before Taxes as a Percentage  
of Current Operating Revenues

	<u>Alaska</u>	<u>U.S.</u>
1969	17.01	21.85
1970	15.75	20.53
1971	15.87	18.46
1972	13.23	18.02
1973	13.90	16.42
Average	15.15	19.06
1960-66 Average <sup>1</sup>	16.3	24.4

<sup>1</sup>G. Erion. "Insured Commercial Banks in Alaska, 1960-66" in Studies on Alaska Regional Inflation, Federal Field Committee, 1969.

Source: Federal Deposit Insurance Corporation, FDIC Call Report and Income Statements.

These tables provide proxies for the real variables, profits and interest rates. Because these are only proxies, they can only be used to infer general trends. For instance, the proxies for interest rates in Table IV.8 actually show earnings on the total loan portfolio which varies with the age and type of loans held.

These tables show that neither borrowers nor lenders made any real gains during this period. Banks' earnings on loans, although they initially went up during 1970 and 1971, showed no overall increase from the period 1960-66. This two-year increase may have resulted from the temporary increase in the usury law which went into effect in 1970.<sup>31</sup> These figures do show a benefit to borrowers in that the average rate paid on loans did not increase as was the general trend in the United States. The insured commercial banks in Alaska also experienced a fall in "profits" as shown in Table IV.9. This fall in the profit rate reflected a general trend throughout the United States. Alaskan banks did not absorb quite the fall in profit rates experienced by U.S. banks in general; the profit rate of Alaska banks was 79 percent of the U.S. profit rate during the period 1969-73, compared to only 67 percent during the period 1960-66.

With the limited information available, it is impossible to determine whether or not the banks earned a profit on the state's deposits

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<sup>31</sup> "Legislative Roundup," Alaska Construction and Oil Report, August 1970, p. 3.

which was greater than, equal to, or less than their average rate of earnings. Greater earnings on the state's deposits could have been one reason profits of Alaskan banks did not fall as much as bank profits in the U.S. The reduction in profit rates may have been due in part to the increase in the interest paid by banks during the period for time deposits. The average interest paid during 1969-1973 was greater than that paid in the United States, which reversed the earlier relationship. Examination of data on insured commercial banks shows neither increases in profits or reductions in loan costs which can be attributed to the placement of North Slope lease funds in Alaska banks.

The opportunity cost of this program is the state's lost income which resulted from investing in this program. The opportunity cost would be equal to the income the state could have earned by investing the money minus the 6.25 percent they earned by placing the money in Alaska banks. The most obvious alternative for the state would have been to invest these funds like the rest of the North Slope surplus funds. From the time of the North Slope lease sale to December 1973, the state earned a compound annual rate of return on the investment account of 7.5 percent.<sup>32</sup> The 6.25 percent earned on the certificates of deposits in Alaska banks by the state was 1.25 percent less than the state could have earned if it would have invested in a manner similar

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<sup>32</sup>Alaska Department of Revenue, "Revenue News Annual Supplement," 1974, p. 19.

to the remainder of the investment account. Consideration of the income generated both to the bank and through the investment of loaned funds would increase the return from this placement allowing it to compare more favorably with the return on the remainder of the Investment Account.

### F.3. The Efficiency Impact

The efficiency of the program can be examined by determining whether this approach was the best way to reach the goals set. The goal which seemed to be set for this program was to generally stimulate the economy by expanding capital available to the economy. The analysis of the program's growth impact showed that this was probably not the best way to get capital into the economy. Direct loan programs are a better approach for meeting this goal. Banks, because of reserve or collateral requirements, cannot invest the entire amount of funds in the economy. Banks also are profit oriented, so they will adjust their portfolios to maximize profits; these portfolio adjustments may not provide the loans desired by the policy makers. For example, placing a fixed amount in the banking system to stimulate investment in housing will not be as effective as directly providing funds for mortgages, such as through Alaska Housing Finance Corporation (AHFC), since the mortgage market may not be the most profitable way for the banks to invest the entire amount of the deposit.

Interpreting the goal of stimulating the economy more broadly, the placement of the funds in the banking system may have been the best approach to achieving this goal. The financial sector is important for economic development; a well-functioning capital market provides for the efficient flow of capital to various sectors in the economy. Because of this, one aspect of the goal of stimulating the economy may

have been to expand and improve the local banking sector. To the extent that this was a goal, placing the funds in the Alaska banks may have been a good approach to economic stimulation. As Erion pointed out, the scale of banking in Alaska was smaller than nationally, allowing the possibility of large-scale economies to be captured through expansion.<sup>33</sup> The deposit of state North Slope lease funds allowed the expansion of the banking system. To the extent these large-scale economies were achieved, the approach was efficient in meeting these broader goals.

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<sup>33</sup> Gene Erion. "Insured Commercial Banks in Alaska, 1960-1966," p. 71.

G. Conclusions

The lessons learned from this program which are directly applicable to the permanent fund are limited because of the differences in the goals of the programs. The state deposit program was not intended as a savings program. It was not even intended to maximize income as were the investments made by the Bank of America with North Slope lease funds, but it was intended to achieve the specific policy goal of stimulating the state economy. Two lessons which are valuable concern the use of the banking system to achieve specific goals and the importance of a coordinated state program.

First, the banking system offers an important quality which should be considered when designing programs which use it; it is a profit maximizing system. Because of this, it offers efficiency, but at the same time, it may not direct investments to those areas considered important by program managers. Bankers will invest funds where they will earn the greatest return, not necessarily in the socially important areas. The tradeoffs between gain in efficiency of investments and the loss of control should be weighed when designing programs which use the banking system.

Secondly, the experience of the state deposit program showed that coordination of all aspects of state government affecting a program is important. To a certain extent, the failure of this program to provide

loan funds to the economy was a result of a lack of coordination. The high collateral requirements, usury limits, and short-term nature of the deposits all needed more examination. Another aspect which should have been examined more fully was the amount placed in banks. Some attempt should be made to provide an estimate of capital needs before a similar program is attempted. This will be particularly important as other state programs increase the state's participation in supplying the needed capital to the state economy.

Appendices

## APPENDIX A

### GROWTH IN STATE AND LOCAL GOVERNMENT EXPENDITURES IN ALASKA

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#### A.I. Theory of Public Expenditure Growth

Early discussions of the determination of the level of public expenditures concentrated on a proposition known as "Wagner's Law." This proposition boldly stated that the scale of state activity would increase. There is little doubt that this has been true, but the more interesting questions are whether the share of government activity as a portion of total economic activity has been increasing, and what specific factors account for growth in the government sector. The first section of this appendix looks at that second question, while the first is taken up in the following section. The Alaskan experience is looked at in the final part of this appendix.

Richard Musgrave has categorized the determinants of public expenditures and developed some hypotheses on the effect of these variables over time.<sup>1</sup> He identifies one group as non-economic factors and the other as economic. The non-economic are technological, demographic, and social. The economic are incomes, productivity, and prices.

Technological change alters the composition of potential public and private goods from which people will choose the goods they most desire.

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<sup>1</sup>Much of this discussion is taken from Richard Musgrave, Fiscal Systems (New Haven and London: Yale University Press, 1969).

The impact of technological change upon this mix can be dramatic. The outstanding example of this in the twentieth century has been the automobile. This private good has generated a demand for public goods in the form of highways which have, in turn, generated a different mix of both public and private goods that has essentially transformed the environment. Technological change can begin in the public sector and create complimentary or "spin-off" demands in the private sector. The federal space program is an example of this phenomenon. From these two examples, it is clear that it is impossible to generalize regarding the impact of technological change on the growth of demand for public goods.

Demographic considerations involve not only the level of population but also its composition and geographic distribution. Some goods are purely "public" such that the quantity required and, thus, the cost is independent of the number of consumers. Each state has only one governor. But for most public expenditures, the total cost of the service is not independent of the number of consumers. In large states, governors have large staffs.

Both economies and diseconomies of scale may be the result of increases in population density. Obviously, a young population requires a larger number of schools and a mature population more facilities for the aged. For this reason, expenditures can increase more or less rapidly than population.

Social factors play an important role in the determination of the environment in which budgetary decisions are made. Cultural values and social philosophy affect the extent to which demand is directed toward public goods, as well as the public role in redistribution of income and wealth. Changes in political direction may change the perceived best mix between public and private goods as different components of the electorate with different preferences become more or less powerful. War and social disturbance may have a significant permanent impact on the trend in public expenditure growth. This may be the result of either a reassessment of social values or a shift in taxpayers' feelings about the maximum tolerable level of taxation. The latter idea is based on the notion that the level of expenditures is generally constrained by the availability of revenues rather than the opposite hypothesis that the desired expenditure level determines revenues.

Turning to economic considerations, the level of personal income is the most important economic consideration in the determination of public expenditure levels. A meaningful discussion of this relationship must separately treat four categories of public expenditures: capital formation, consumption, redistribution, and merit wants.

Generally as an economy matures, the ratio of total capital formation to gross national product tends to rise. Thus, if the ratio of public to private capital formation remains constant as an economy develops, public expenditures on capital formation would increase more

rapidly than total income. This latter ratio is subject to variation however, and two distinct periods in the development of an economy have been identified when the public to private ratio of capital formation may tend toward more public capital formation. The first would be in the early stages of economic development when the creation of social overhead capital, or infrastructure, is a necessary prerequisite for private economic development. In a later stage of development, the consumption of private goods which require complementary public goods may become more important. Highways are the most often indicated example. Urban concentration and the complexities of industrialization may also require large public capital formation programs.

The problem with this explanation is that it may be historically accurate, but it does not explain present conditions very adequately. Highways are as much basic infrastructure as they are complementary public goods to automobiles. Is growth of highway expenditures the result of the former or latter requirement? This indicates that economic theory with respect to public capital formation does not offer any well-defined hypotheses regarding the role of personal income as a determinant of its growth.

With respect to public consumption goods, the question of its growth in relation to personal income is usually put in terms of the income elasticity of demand for these goods. If the elasticity exceeds unity, public consumption grows as a percentage of personal income. Musgrave

suggests that as a consequence of Engel's law, the share of the budget going towards public expenditures might increase with increasing income. Engel's law states that the share of consumer outlays going into private expenditures on the basic needs for food, shelter, and clothing declines as income rises. On the other hand, he points out that there are certain public functions which must be regarded as basic necessities also, such as public protection, which would also behave according to Engel's law.

As in the area of public capital formation, the ideas about public consumption goods are not theory but speculation, since they discuss potential public consumption as incomes rise but are unable to provide real insight into the public private ratio.

Government expenditures which attempt to affect the distribution of income may be a declining percentage of income or might even be declining absolutely as income rises according to speculations by Musgrave. The choice is dependent upon the objective of the distributional adjustment, and implicit in his notion is a minimum level of income for all.

It seems that a stronger argument can be made for the notion of rising percentage of income going into public expenditures for income redistribution as incomes rise because of a switch from private to public welfare programs. Rising incomes and economic complexity increase the ability of people to insure themselves against economic risk while, at the same time, probably raising the level of economic risk itself. Where

formerly the extended family and the farm provided this insurance, social security largely performs that function in our society.

Merit wants are those government expenditures which do not fall into the traditional economic framework of being either private goods, such that the level of consumption by one individual does not affect the ability of others to consume that same good, or private goods. Rather, they are government expenditures based upon the notion that it is socially proper to consume some things and not others. The decision-making group is assumed to be capable of judgment superior to the individual and the result is subsidized milk for school children and prohibitive taxes on liquor.

Musgrave relates merit wants closely to expenditures for income redistribution and hypothesizes that, as a result, they may be a declining percentage of expenditures as incomes rise. But even if the definition of merit wants is limited to necessities, changing perceptions of necessities could make this component of consumption increase as personal income expands.

In sum, the economic theory which attempts to determine whether public expenditures are a superior good, taking a rising percentage of the total budget as incomes rise, is founded upon little more than speculation. Upon reflection, this is not an unexpected result because of the large variety of goods and services typically provided by a government. Among them would be superior, inferior, and Giffen goods (consumption

declines absolutely when income rises) and the public expenditures would be some weighted average of all these different types of goods, of which some are necessities and some luxuries. In a sense, it is perhaps encouraging to come to this indeterminate conclusion, rather than the opposite, that there is an inexorable relationship between rising incomes and public expenditures which predestines that an ever increasing percentage of economic output be channeled through the public sector.

Turning next to the question of productivity, there is an argument that productivity gains in the production of those goods supplied by the public sector lag behind productivity gains in the private sector. This thesis was put forward by Baumol<sup>2</sup> where he points to the obvious potential differences in productivity increases in labor used in a typical manufacturing process, and used in the production of a symphony.

Whether this lagging productivity increase concept is valid for the public sector in general depends upon the particular mix of public sector goods relative to those in the private sector. Examples of functions in which labor productivity increases are minimal in the public sector, such as education, occur in the private sector also in service industries, such as restaurants. And many public expenditures are in areas where labor productivity increases are potentially as rapid as in the private sector. Highway maintenance is one example and construction activity, in general, another.

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<sup>2</sup>William Baumol, "Macroeconomics of Unbalanced Growth: The Anatomy of Urban Crises," American Economic Review, Vol. LVII, No. 3 (June 1967), pp. 415-426.

The existence of such a differential in productivity increases is thus an empirical question, just as is the size of the income elasticity of public expenditures. The difficulty which arises in attempting to make an empirical measurement of productivity is that the product of many public sector activities is difficult to measure independently of the inputs in terms of man hours. Some attempts have, however, been made. The gross product deflator of the Department of Commerce, a ratio used to obtain comparability among prices of outputs in different time periods, has historically grown more rapidly for state and local government expenditures than for the average of all products of the economy. This tends to support the hypothesis that productivity is rising more slowly in government than in the economy generally.

If this is the case, there would be a tendency over time, other things being equal, for the cost of public expenditures to rise relative to private expenditures and the share of personal income directed into public expenditures to rise. This would be the case as long as labor markets are relatively unconstrained so that wage increases due to productivity gains would be reflected in wage increases in those industries where productivity gains are not possible.

This introduces a final element, price elasticity of demand, into the consideration of elements determining the growth rate of public expenditures relative to private in an expanding economy. To the extent that productivity increases in the public sector fall behind those in the private economy, the relative price of public goods will tend to

rise. Other things being equal, the higher price for the product will cause a decline in demand. This factor would tend to offset increasing public sector expenditures resulting from both income and productivity effects. Little speculation has been done on the price elasticity of public goods because of both the difficulty in identification of the price for a particular product, and of identifying the product itself. From the point of view of the consumer, the individual taxpayer, the existence of a behavioral relationship between the cost of a public service in terms of taxes and the amount consumed is difficult to trace.

In sum, there are three economic considerations operating on the growth of public expenditures: income growth, productivity increases, and price effects. In a static political and social atmosphere, there is no a priori reason to expect that the public sector needs to grow relatively faster than output in general. In a world of changing expectations and political alliances, economic considerations may be of secondary importance. To examine the actual trends in this century in government spending in the United States is the topic of the next section.

## A.II. Historical Public Expenditure Patterns in the U.S.

A cursory analysis of total government spending in this century reveals that government expenditures have accounted for an increasing percentage of gross national product (GNP) over time. Government expenditures at all levels increased from 7.1 percent of GNP in 1890 to 33.2 percent in 1963.<sup>3</sup> The largest component of this growth has been the military budget which increased from 1.4 percent to 10.6 percent of GNP. Musgrave attributes a substantial portion of the rise in the civilian budget of from 5.0 percent to 18.3 percent of GNP to the growth in social services. Of these, transfer payments grew from .1 percent to 7.0 percent of total GNP. Capital outlays fluctuated over this period between 20 percent and 30 percent of total public expenditures with no observable pattern.

The income elasticity of public expenditures over this same period averaged greater than one with the period after 1929 having a higher elasticity than the average. For the category of civilian expenditures, the elasticities were lower than for total expenditures. The pre-1929 elasticity was calculated at 1.7 and the post-1929 elasticity at 2.4 for civilian expenditures.

Table A.1 provides an analysis of more recent data for just state and local government expenditure growth as it relates to the growth of

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<sup>3</sup> Musgrave, op. cit., p. 94.

TABLE A.1  
 PATTERNS IN STATE & LOCAL  
 GOVERNMENT EXPENDITURES  
 TOTAL U.S.

Year	State & Local Gov't. Expenditures (Million \$)	Personal Income (Million \$)	Resident Population (Million)	Implicit Price Deflator State & Local Gov't. 1958 = 100	Implicit Price Deflator Gross National Product 1958 = 100	State & Local Gov't. Expenditure as Percentage of Income	State & Local Gov't. Expenditures Per Capita (\$)	State & Local Gov't. Real Expenditures Per Capita (\$)	Personal Income Per Capita (\$)	Real Personal Income Per Capita (\$)	Real Share of State & Local Government
1930	8432	77015	123.077	38.7	49.3	.10	68.50	170	625.74	1260	.13
1935	8550	60405	127.250	37.0	42.6	.14	67.19	180	474.69	1110	.16
1940	9319	78285	132.594	37.3	43.9	.11	70.28	189	590.41	1340	.13
1945	9018	171113	140.468	48.6	59.7	.05	64.19	130	1218.16	2040	.06
1950	22342	227619	152.271	70.8	80.2	.09	146.72	200	1494.82	1860	.10
1955	32663	310889	165.331	87.5	90.9	.10	196.84	220	1873.60	2060	.10
1960	46676	400953	180.671	105.9	103.3	.12	274.73	250	2219.24	2140	.11
1965	73656	535083	194.303	123.2	110.9	.13	379.07	300	2753.85	2480	.12
1970	132212	808290	204.875	164.6	135.2	.16	645.33	390	3945.28	2910	.13
1975	214536	1249673	213.540	218.0	185.9	.17	1004.66	460	5652.17	3140	.14
Annual Growth Rate	7%	6%	1%	4%	3%	-	6%	2%	5%	2%	-

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Sources: U. S. Dept. of Commerce, Office of Business Economics, Survey of Current Business, various issues.  
 U. S. Dept. of Commerce, Bureau of Census, Current Population Reports, various issues.

personal income in the United States. Generally, state and local government expenditures are best analyzed together because of the variation from state to state in the jurisdictional division of functions. Between 1930 and 1975, total state and local government expenditures increased from \$8 billion to \$215 billion, an annual rate of growth of 7 percent. Over the same period, personal income increased at an annual rate of 6 percent. As a result of this differential growth, state and local government expenditures increased as a percentage of personal income from 10 percent to 17 percent between 1930 and 1975.

The actual increase in the ratio occurred in the last 20 years after 1955, at which time the ratio was still at 10 percent. Much of the rapid increase since that time must be attributed to transfer programs from the federal government to state and local governments.

Table A.1 includes the implicit price deflators for state and local government and for GNP for the same period. The price deflator for state and local government increased over the period at an annual 4 percent rate, while the GNP deflator increased 3 percent annually, reflecting more rapid productivity increases in the economy in general than in those goods provided by state and local governments.

If state and local government expenditures and personal income are converted to real figures using these deflators, the pattern of growth is somewhat different. Both real personal income per capita and real state and local government expenditures per capita increase at an annual

rate of 2 percent. This is equivalent to a proportionate increase in the real value of output of state and local government expenditures over the period.<sup>4</sup>

A classic study done in the 1950s analyzed the growth of state and local government expenditures in the United States during the first half of the 20th century and interstate variations in growth rates.<sup>5</sup> Fabricant concluded from his analysis that differences among states in per capita expenditures in various categories of expenditures declined over time but were not eliminated. Every state expanded nearly all of its functions in terms of nominal expenditures but the more backward states, in 1903, increased expenditures more rapidly over the period.

In addition, he found that a majority of the variation among the states in expenditure levels could be explained by three factors: income,

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<sup>4</sup>Dividing government expenditures and personal income by this price deflator involves a simplification in each case, although the resulting biases are compensating. A small component of state and local government expenditures is transfers which are not a component of the price deflator for state and local government since it does not appear in GNP. Since transfers would have a "real index" closer to the total of GNP, the growth of the deflator may have a slight upward bias. The price deflator for GNP, however, contains capital expenditure elements not reflected in expenditures out of personal income. Personal income is more commonly deflated by the consumer price index or the deflator for consumer expenditure goods. This index grew less rapidly than the GNP deflator, so the bias from using the GNP deflator is in the same direction as that resulting from the transfer component of state and local government expenditures.

<sup>5</sup>Solomon Fabricant, The Trend of Government Activity in the United States Since 1900 (New York: National Bureau of Economic Research, 1952).

urbanization, and density. The elasticity of income coefficient for the period was calculated to be .9, holding other factors constant. This implies that state and local government expenditures would increase as income rises, but at a somewhat slower rate. Urbanization was also found to be positively correlated with expenditures, while density was inversely related.

A shortcoming of this type of statistical analysis is that there is often high correlation among the explanatory variables, for example, income and urbanization. As a result, it is difficult to identify the net contributions of the explanatory variables separately from one another with confidence, and important variables not included but correlated with included variables (such as education level which is often correlated with income) can also result in incorrect conclusions. This reduces the applicability of the results to specific situations such as an analysis of Alaskan expenditures.

This cursory review has shown that there has been a significant growth in government expenditures as a percentage of GNP over this century. State and local government taken together, however, have grown much more slowly than the federal government and in real terms, deflated to account for inflation, the percentage of output accounted for by state and local government has remained fairly constant since the 1930s.

### A.III. Alaska Historical Public Expenditure Patterns

The historic pattern of Alaska state government operating expenditures is detailed in Table A.2. Total expenditures have increased from \$37 million in fiscal year 1960 to an estimated \$893 million in 1977. This represents an annual growth rate since statehood of 21 percent. The increase from year to year has been calculated, as well as the percentage increase over the previous year. Examination of this percentage increase from year to year indicates the existence of several distinct periods of expenditure growth which show great variation. In 1964 expenditures were 2 percent higher than the previous year, while in 1971 they were 59 percent higher than in 1970.

Shortly after statehood, expenditure growth was rapid because a need was felt to develop social overhead capital as a prerequisite to private economic development. The source of funds for these expenditures was the federal transitional grants provided to get the new state on its feet. Unfortunately, a large portion of the transitional grants was spent on programs previously funded by the federal government before statehood.

The transitional grants were available for only a few years and alternative revenue sources did not develop to replace the gap left when those grants were spent. As a result, tax increases in the early 1960s were necessary to keep the level of state expenditures growing from year to year.<sup>6</sup>

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<sup>6</sup>George W. Rogers, The Future of Alaska (Wash. D.C.: Resources for the Future, 1962), pp. 180-220.

Table A.2.

## State of Alaska Operating Expenditures by Function 1963-1976

(Million \$)

YEAR	Education		Social Services		Health		Natural Resources		Public Protection	
	\$	%	\$	%	\$	%	\$	%	\$	%
1960	-	-	-	-	-	-	-	-	-	-
1961	-	-	-	-	-	-	-	-	-	-
1962	-	-	-	-	-	-	-	-	-	-
1963	33.0	41.1	7.4	9.2	5.8	7.2	6.5	8.1	1.1	1.4
1964	31.3	38.1	8.0	9.7	6.2	7.6	6.2	7.6	.8	1.0
1965	35.6	40.3	8.6	9.7	6.6	7.5	6.1	6.9	1.4	1.6
1966	39.9	39.7	9.1	9.1	7.0	7.0	7.4	7.4	1.7	1.7
1967	45.6	40.1	9.9	8.7	7.6	6.7	8.5	7.5	1.9	1.7
1968	52.0	40.2	11.4	8.8	8.0	6.2	9.5	7.3	2.3	1.8
1969	63.4	41.7	14.5	9.5	8.0	5.3	10.7	7.0	2.6	1.7
1970	84.9	42.7	19.8	10.0	10.9	5.5	15.5	7.8	3.0	1.5
1971	118.0	37.4	39.6	12.6	13.5	4.3	19.5	6.2	5.0	1.6
1972	155.3	42.4	44.9	12.3	13.3	3.6	24.0	6.5	6.1	1.7
1973	175.7	41.7	53.7	12.7	22.7	5.4	23.3	5.5	7.0	1.7
1974	193.8	40.1	61.5	12.8	27.6	5.7	27.6	5.7	9.4	1.9
1975	228.7	38.3	65.0	10.9	34.6	5.8	36.2	6.1	13.8	2.3
1976	328.7	42.2	89.4	11.5	44.4	5.7	48.6	6.2	18.1	2.3
1977 Estimate	373.5	41.3	97.5	10.9	52.0	5.8	58.0	6.5	20.3	2.3
<u>Annual Growth Rates</u>										
Overall Growth rate	19%		20%		17%		17%		23%	
Since Prudhoe 1969-1976	25%		27%		26%		24%		29%	
Before Prudhoe	12%		12%		6%		9%		15%	

Source: State of Alaska, Budget Document, various issues. Figures adjusted after 1962 for compatibility over time.

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The transitional grants were available for only a few years and alternative revenue sources did not develop to replace the gap left when those grants were spent. As a result, tax increases in the early 1960s were necessary to keep the level of state expenditures growing from year to year.<sup>6</sup>

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<sup>6</sup>George W. Rogers, The Future of Alaska (Wash. D.C.: Resources for the Future, 1962), pp. 180-220.

Table A.2. continued

## State of Alaska Operating Expenditures by Function 1963-1976

(Million \$)

YEAR	FUNCTION		Administrative of Justice		Development		Transportation		General Government		Total	Increase Over Previous Year	
	\$	%	\$	%	\$	%	\$	%	\$	%	\$	%	
1960	-	-	-	-	-	-	-	-	-	-	36.6	-	-
1961	-	-	-	-	-	-	-	-	-	-	51.4	14.8	38.5
1962	-	-	-	-	-	-	-	-	-	-	63.2	11.8	23.0
1963	5.3	6.6	.4	.5	13.4	16.7	4.8	6.0	80.3	17.1	27.0	17.1	27.0
1964	6.7	8.2	.7	.9	17.0	20.7	5.2	6.3	82.1	1.8	2.2	1.8	2.2
1965	7.0	7.9	.7	.8	17.9	20.3	5.6	6.3	88.4	6.3	7.6	6.3	7.6
1966	7.5	7.5	.9	.9	19.5	19.4	7.5	7.5	100.5	12.1	13.7	12.1	13.7
1967	9.0	7.9	1.2	1.1	21.3	18.8	8.6	7.6	113.6	13.1	13.0	13.1	13.0
1968	9.7	7.5	1.3	1.0	25.3	19.6	9.9	7.7	129.3	15.7	13.8	15.7	13.8
1969	<u>12.1</u>	<u>8.0</u>	<u>1.1</u>	<u>.7</u>	<u>29.7</u>	<u>19.5</u>	<u>12.6</u>	<u>8.3</u>	<u>152.1</u>	<u>22.8</u>	<u>17.6</u>	<u>22.8</u>	<u>17.6</u>
1970	14.6	7.3	1.7	.9	36.1	18.1	18.1	9.1	199.0	46.9	30.8	46.9	30.8
1971	21.4	6.8	15.0	4.8	44.4	14.1	39.3	12.4	315.8	116.8	58.7	116.8	58.7
1972	26.2	7.1	17.0	4.6	56.5	15.4	23.3	6.4	366.5	50.7	16.1	50.7	16.1
1973	29.1	6.9	20.0	4.7	62.8	14.9	27.7	6.6	421.8	55.3	15.1	55.3	15.1
1974	35.0	7.3	21.7	4.5	70.4	14.6	35.3	7.3	482.3	60.5	14.3	60.5	14.3
1975	47.5	7.9	40.5	6.8	90.8	15.2	40.0	6.7	597.6	115.3	23.9	115.3	23.9
1976	59.5	7.6	37.0	4.8	101.8	13.1	51.4	6.6	778.9	181.3	30.3	181.3	30.3
1977 Estimate	69.3	7.8	43.1	4.8	122.3	13.7	56.7	6.4	892.6	113.7	14.4	113.7	14.4

Annual Growth Rates

Overall Growth Rate	20%	40%	17%	19%	21% (1960 to 1977)
Since Prudhoe 1969-1976	24%	58%	19%	21%	25%
Before Prudhoe	15%	18%	14%	17%	17% (1960 to 1969) 11% (1963 to 1969)

In the latter 1960s, there were significant increases in the level of federal grants-in-aid, particularly in the area of transportation, and this allowed the annual growth rate to increase to over 13 percent until the bonus lease sale at Prudhoe Bay in late 1969.

Since that time, the change from year to year has been erratic, going from a high of 59 percent in 1970 to a low of 14 percent in 1974. If any pattern is discernible in the aggregate figures, it is that expenditure level increases have been higher when revenues, expectation of revenues, or population increase is high. The average annual growth rate in expenditures since the Prudhoe Bay lease sale has been 25 percent, while the average for the period since statehood and before the sale was 17 percent.

Table A.2 also presents a functional breakdown of state expenditures from 1963 onward. The most striking observation from this breakdown is the fact that the percentage of the state budget going to each of the nine functional categories has remained fairly stable over the historic period in spite of the rapid growth rate of total expenditures. The education budget, for example, has fluctuated between 37 percent and 42 percent of the total with no observable trend, either before or after the Prudhoe Bay lease sale.

Since the education budget makes up such a large percentage of the total, one could argue that it, to a large extent, determines the growth

rate for total expenditures but the same pattern applies generally with minor variation. Before 1969, the health and natural resource budgets grew considerably slower than the average; while public protection, administration of justice, development, transportation, and general government increased their shares. Since 1969, the percentage increases have come in the areas of social services, health, and development.

The social services budget jumped relatively in the early 1970s but has declined in recent years. The health budget, in contrast, lost out relatively in the early 1970s but has been increasing its share recently. The development budget has shown the largest increase, mainly because of the advent of municipal revenue sharing in the early 1970s. The transportation portion of the budget was at a maximum in the early and mid-1960s and has been on the decline ever since. This reflects the large reliance of this portion of the budget on federal grants-in-aid. General government increased dramatically in the years immediately following 1969 as a result of the advent of new programs. In later years, as these programs matured, they moved into the other functional categories and general governmental share of the total returned to its previous level.

This functional expenditure analysis indicates that the growth in state government expenditures has occurred in all categories. In addition, the functional growth since 1969 has not been particularly biased with respect to any categories except toward local transfers in the

development budget and away from transportation. Thus, any "backlog of felt needs" at the time of the Prudhoe Bay lease sale seems to have been either a generalized feeling, or else "felt needs" in some functional areas have been balanced by "compensating growth" in other areas.

Table A.3 shows the relationship between total state government operating expenditures and those accounted for out of the general fund. There appears to have been no pattern of change over time in the ratio of general fund to total expenditures. Also included is a calculation of the percentage of total state operating expenditures accounted for by federal grants. The period immediately after statehood was when federal grant budget contributions were the highest percentage. Since that time, there has been a consistent decline in the percentage of expenditures financed by federal transfers. In contrast to 29 percent in the peak year of 1961, in 1976 the percentage was 11 percent.

A more detailed analysis of total state operating expenditures is provided in Table A.4. Since 1961, total operating expenditures increased approximately 20 percent annually. Netting out an annual population increase of nearly 4 percent reduces the rate of increase in expenditures per capita to 15.5 percent.

If the real per capita expenditure figure for Alaska is deflated by the Anchorage Consumer price index, the real expenditure growth rate per capita becomes 11 percent. This is a rate of growth more than

TABLE A.3  
ALASKA STATE GOVERNMENT  
ANALYSIS OF BUDGET  
COMPOSITION

<u>Year</u>	<u>State Operating Expenditures</u>	<u>General Fund as a Percentage of Total</u>	<u>Federal Grants as Percentage of Total</u>
1960	36.6	70	26
1961	51.4	71	29
1962	63.2	71	27
1963	83.3	76	19
1964	116.2	70	20
1965	98.9	75	17
1966	109.9	75	21
1967	123.3	74	21
1968	144.9	73	21
1969	177.5	74	21
1970	226.1	72	21
1971	332.8	78	14
1972	377.3	75	18
1973	435.3	71	16
1974	496.3	73	17
1975	613.3	74	15
1976	778.9	73	11

Source: State of Alaska, Budget Document, various issues.

TABLE A.4

## STATE OF ALASKA

## OPERATING EXPENDITURE ANALYSIS

Year	Total Operating Expenditures 1 (Million \$)	Population 2 (Thousand)	Expendi. per Capita 3 (\$)	Anchorage Consumer Price Index 4 (1967=100)	Real Expendi. per Capita 5 (1967 \$)	Real Personal Income (Million 6 1967 \$)	Real Personal Income Per Capita 7 (\$)	Ex/Income Real Per Capita 8 (%)	Implicit Price Deflator 9	
									State & Local Gov't. (1958=100)	Personal Consumption Expenditures (1958 = 100)
1960	36.6	226.2	162	-	-	-	-	-	105.9	102.9
1961	51.4	236.7	217	92.3	235	705.6	2981	8	109.4	103.9
1962	63.2	242.8	260	92.5	281	734.2	3024	9	113.2	104.9
1963	80.3	249.9	321	93.1	345	762.9	3053	11	116.3	106.1
1964	82.1	253.2	324	93.4	347	853.8	3372	10	119.3	107.4
1965	98.4	265.2	336	94.2	354	917.3	3459	10	123.2	108.9
1966	100.5	271.5	370	97.9	378	954.3	3515	11	129.4	111.5
1967	113.6	277.9	409	100.0	409	1042.2	3750	11	136.4	114.4
1968	129.3	284.9	454	102.6	443	1097.8	3853	11	144.7	118.5
1969	152.1	294.6	516	105.9	487	1195.4	4058	12	153.6	123.8
1970	189	302.4	558	109.6	600	1316.3	4353	14	164.6	135.2
1971	315.8	312.9	1009	112.9	894	1395.2	4459	20	175.8	141.6
1972	366.5	324.8	1128	115.9	973	1500.5	4620	21	183.2	146.1
1973	421.8	330.6	1276	120.0	1063	1670.0	5051	21	196.6	154.1
1974	482.3	351.2	1373	133.9	1025	1793.9	5108	20	218.0	170.8
1975	597.6	404.6	1477	152.3	970	2182.5	5394	18	237.8	184.5
1976	778.9	413.3	1885	164.1	1149	2321.8	5618	20	254.1	193.9
1977 est.	932.6	-	-	-	-	-	-	-	-	-
Rate of Increase 1961-76	19.87	3.79	15.5	3.91	11.16	8.26	4.32	-	5.78	4.25

1. Table A.2

2. MIP model thru 1974 then State of Alaska estimates 1960 from U. S. Census.

3. Column 2/Column 1

4. U. S. Dept. of Labor, Bureau of Labor Statistics.

5. Column 3/Column 4

6. Personal income taken from U. S. Department of Commerce, Bureau of Economic Analysis, deflated by Anchorage consumer price index.

7. MIP model.

8. Column 5/Column 7.

9. U. S. Dept. of Commerce, Bureau of Economic Analysis.

2.5 times faster than the growth in real personal income per capita over the same period which was 4 percent.

As noted previously, the consumer price index probably underestimates the increase in the cost of delivery of public goods and services because productivity gains in those areas do not occur as rapidly as in the private sector. Comparison of the implicit price deflator for state and local government with that for personal consumption expenditures over the same period tends to support that contention. The price deflator for personal consumption expenditures, a close proxy for the consumer price index, increased at an annual rate of 4 percent, while the price deflator for state and local government grew at a 6 percent rate. Deflation of state operating expenditures per capita by the implicit price deflator for state and local government would result in a calculated growth rate in real expenditures per capita closer to 9 percent. This is only slightly more than twice the rate of growth of real income per capita.

As a percentage of income per capita, state expenditures have shown an interesting pattern. In the period before 1970, there was growth from 8 percent to 12 percent of income in the form of state expenditures in a fairly steady fashion. In the two years between 1969 and 1971, the ratio increased 67 percent to 20 percent. Since 1971, the percentage has hovered at 20 percent.

Table A.5 compares Alaska state and local government expenditures with national averages. Examination of the ratio of total per capita expenditures in Alaska and the U. S. shows that Alaskan expenditures have indeed grown relatively more rapidly than the national average; but during the period from 1963 to the present, the increase has not been large. In 1965 the ratio was 2.4 and in 1974 the ratio had increased to 2.66.

The ratio differs significantly among the functional categories. In the largest identified category, education, the ratio has increased significantly consistent with overall growth. This has not been the pattern in the other categories, however. The ratio of highway expenditures in Alaska is about 3.5 times the national average and was that way in 1963 also. In the interim, it was as high as 6 times. Public welfare expenditures had a ratio of between 66 and 81 percent of the national average until 1971 when they jumped to 1.05 percent. Since that time, they have remained close to the national average. Health and hospital expenditures have shown a random variation around and close to the national average. The largest ratio in recent years has been in the unidentified category, where in 1974 it was 3.86. This category has shown almost continuous growth since 1963.

Table A.6 shows that the ratio of combined state and local expenditures to personal income in Alaska relative to the U.S. average increased substantially since 1963. In that year, the ratio was 1.67 and by 1974