

ALASKA LEGISLATURE SPECIAL COMMITTEE / SUBJECT FILES 8672

109 SCOMM 9: HOUSE SPEC. COMM. ON PERMANENT FUND 1977-78

Table A.5  
 Direct General Expenditure of  
 State & Local Governments  
 Alaska and The U. S. Average  
 (\$ Per Capita)

<u>Year</u>		<u>Total</u>	<u>Education</u>	<u>Highways</u>	<u>Public Welfare</u>	<u>Health and Hospitals</u>	<u>All Other</u>
1963	Alaska	670	210	210	23	32	195
	U.S.	344	127	59	29	25	103
	Ratio	(1.95)	(1.65)	(3.56)	(.79)	(1.28)	(1.89)
1964	Alaska	-	-	-	-	-	-
	U.S.	-	-	-	-	-	-
	Ratio	-	-	-	-	-	-
1965	Alaska	928	247	326	26	29	298
	U.S.	386	149	63	32	27	113
	Ratio	(2.40)	(1.65)	(5.17)	(.81)	(1.07)	(2.63)
1966	Alaska	923	276	273	27	28	319
	U.S.	423	170	65	35	30	123
	Ratio	(2.18)	(1.62)	(4.20)	(.77)	(.93)	(2.59)
1967	Alaska	1191	309	440	35	32	374
	U.S.	472	192	70	42	34	135
	Ratio	(2.52)	(1.60)	(6.28)	(.83)	(.94)	(2.77)
1968	Alaska	1203	319	345	35	36	467
	U.S.	512	206	72	49	38	147
	Ratio	(2.34)	(1.54)	(4.79)	(.71)	(.94)	(3.17)
1969	Alaska	1216	390	247	40	42	497
	U.S.	578	234	76	60	42	166
	Ratio	(2.10)	(1.66)	(3.25)	(.66)	(1.0)	(2.99)
1970	Alaska	1350	439	254	51	40	566
	U.S.	646	259	81	72	48	186
	Ratio	(2.08)	(1.69)	(3.13)	(.70)	(.83)	(3.04)
1971	Alaska	1828	643	326	93	63	702
	U.S.	731	288	88	88	54	212
	Ratio	(2.50)	(2.23)	(3.70)	(1.05)	(1.16)	(3.31)
1972	Alaska	2147	728	389	105	62	863
	U.S.	801	312	91	101	62	236
	Ratio	(2.68)	(2.33)	(4.27)	(1.03)	(1.00)	(3.65)
1973	Alaska	2376	867	384	122	63	940
	U.S.	863	332	89	112	66	264
	Ratio	(2.75)	(2.61)	(4.31)	(1.09)	(.95)	(3.55)
1974	Alaska	2501	827	345	120	74	1135
	U.S.	940	359	94	117	75	294
	Ratio	(2.66)	(2.30)	(3.67)	(1.03)	(.99)	(3.86)

Source: U.S. Dept of Commerce, Bureau of Census, Statistical Abstract, various issues.

TABLE A.6  
 DIRECT GENERAL EXPENDITURE OF  
 STATE & LOCAL GOVERNMENTS  
 ALASKA AND THE U. S. AVERAGE  
 (\$ PER \$1000 OF PERSONAL INCOME)

Year		All General Expendi.	Total Education	Local Education Only	Highways	Public Welfare	Health & Hosp.
1963	Alaska	236	74	54	74	8	11
	U.S.	141	52	41	24	12	10
	Ratio	(1.67)	(1.42)	(1.32)	(3.08)	(.67)	(1.10)
1964	Alaska	-	-	-	-	-	-
	U.S.	-	-	-	-	-	-
	Ratio	-	-	-	-	-	-
1965	Alaska	301	80	57	106	8	9
	U.S.	152	59	45	24	12	10
	Ratio	(1.98)	(1.35)	(1.26)	(4.41)	(.66)	(.90)
1966	Alaska	294	88	54	87	8	9
	U.S.	155	62	47	23	12	11
	Ratio	(1.89)	(1.41)	(1.14)	(3.78)	(.66)	(.81)
1967	Alaska	-	-	-	-	-	-
	U.S.	-	-	-	-	-	-
	Ratio	-	-	-	-	-	-
1968	Alaska	327	86	61	94	9	9
	U.S.	163	65	46	23	15	12
	Ratio	(2.00)	(1.32)	(1.32)	(4.08)	(.60)	(.75)
1969	Alaska	302	97	63	61	10	10
	U.S.	171	69	49	23	18	12
	Ratio	(1.76)	(1.40)	(1.34)	(2.65)	(.55)	(.83)
1970	Alaska	324	105	79	61	12	10
	U.S.	176	71	50	22	20	13
	Ratio	(1.84)	(1.47)	(1.58)	(2.77)	(.60)	(.76)
1971	Alaska	-	-	-	-	-	-
	U.S.	-	-	-	-	-	-
	Ratio	-	-	-	-	-	-
1972	Alaska	417	142	-	75	20	12
	U.S.	178	69	-	20	23	14
	Ratio	(2.34)	(2.06)	-	(3.75)	(.87)	(.86)
1973	Alaska	400	150	-	60	20	10
	U.S.	170	70	-	20	20	10
	Ratio	(2.35)	(2.14)	-	(3.00)	(1.00)	(1.00)
1974	Alaska	363	120	-	50	18	11
	U.S.	172	66	-	17	21	14
	Ratio	(2.11)	(1.82)	-	(2.94)	(.86)	(.79)

Source: U.S. Dept of Dept of Commerce, Bureau of Census, Statistical Abstract, various issues.

it had increased to 2.11. Interestingly, in 1968 it was already 2., which reflects not only the fact that the U.S. average expenditure level as a percentage of personal income was increasing rapidly over the period but also that the very rapid growth in Alaska in state government expenditures as a function of income has been partially offset by an apparent slow growth in expenditures at the local level. Expenditures in all indicated categories, with the exception of highways, appear to be more income elastic over the period 1963 to 1974 than the U.S. average.

For highways, one can identify a decline over time nationally in expenditures as a percentage of income, while for Alaska no trend is identifiable in the significant year-to-year fluctuations. For total education, there seems to have been a significant increase in the Alaska margin in the early 1970s with Alaska now spending twice the national average on education when adjusted for personal income. In contrast, public welfare and health and hospital expenditures are considerably less than the national average, although public welfare expenditures have increased substantially since the early 1970s.

To summarize these patterns of growth, a few general conclusions can be stated. First, the majority of the rapid growth in government in this century appears to have been generated by increases in two areas of federal expenditures--military and transfer programs. Over the last 40 years, state and local government has increased more rapidly than personal income. This has resulted in a larger share for state and

local government but when corrected for productivity growth, governments' share appear fairly constant.

State expenditures in Alaska have grown rapidly since statehood by all measures. At the same time, expenditures have been rapidly increasing in other states so the Alaska differential, though rising, has not increased as much as might have been expected. There has been no average period of growth since statehood but rather several distinct periods of very different growth rates basically determined by revenues available and population and income increases. In spite of this growth, Alaska spends no more per capita in some functional categories of expenditures than the national average.

## APPENDIX B

### MODIFICATIONS TO MAP ECONOMETRIC MODEL FOR ANALYSIS OF PERMANENT FUND

#### R.I. Accommodations to Simulate to 1999

Two modifications were necessary to allow the model to simulate to the year 1999. The first involved extending the exogenous data series from their previously final year of 1990 for an additional nine years. Most data series were trended from 1990 to 1999, but those which involved the petroleum sector were consistent with the assumptions used to develop the variable values for earlier years. These are discussed in more detail in Appendix C.

The second change involved simplification of the model in several respects to allow the computer to rapidly identify a solution to the model at minimum cost. These simplifications significantly reduced the necessary computer time for each simulation at virtually no cost in terms of validity of the model results for the purposes of permanent fund analysis.

The simplifications involved the substitution of a lagged independent variable for its simultaneous value in five equations. The equations were then reestimated using the lagged relationship. This reduced the model simultaneity and allowed rapid solution. The equations involved determine the number of Alaska taxpayers, Alaska tax deductions, and Alaska personal exemptions, as well as Federal personal income tax receipts and the gross product deflator in the construction sector.

Extension of the simulation period for the model beyond 1990 introduces a potential problem in terms of the symmetry of response of variables to changes in independent variables affecting them. In some simulations, there are substantial reductions in state spending necessitated by the depletion of state fund balances. It is assumed that responses of variables such as state government employment in such periods of reduced economic activity are symmetrical with those in periods of economic growth. One might expect some "ratchet effect" preventing a downside response identical to the upside; but for the purposes of this exercise, the symmetry assumption will not limit the value of the simulations as long as it is recognized.

#### B.II. Treatment of Permanent Fund

Each year there is a basic permanent fund contribution (RPFS1) based upon petroleum revenues available for contributions (RP7S) and the contributions percentage (PFPER).

$$RPFS1 == PFPER * RP7S$$

Interest (IPF1) is earned each year on the balance in the permanent fund carried forward from the previous year (PFBAL(-1)). The interest can remain in the permanent fund (IPFPF) or be transferred out (IPF). A portion of this latter amount may become Alaska Inc. payments (ALINC). Any transfers not channeled into Alaska Inc. go into the general fund (RIPF).

$$IPF1 == IF PFBAL(-1) GT 0 THEN PFBAL(-1) * RORPF ELSE IPF$$

$$IPF == PART * IPF1$$

IPFPF == (1-PART)\*IPF1

RIPF == IF YR GT 1980 THEN (1-ALINCPR)\* IPF1 ELSE 0

ALINC = IF YR GT 1980 THEN ALINCPR\*IPF ELSE 0

After the level of state expenditures has been determined, a decision is made whether to make an additional contribution to the permanent fund (PFSUP) or to make a permanent fund withdrawal (WPFSUP) in order to keep the balance in the general fund (GFBAL) at a desired level.

PFSUP1 == IF CRACT\*RGF99S1 GT E99S-ECPS AND YR GT 1977 THEN  
A\*PORTION\*(RGF99S1-(E99S-ECPS))+B\*(RGF99S1-(E99S-ECPS)-  
GFCUSH) ELSE 0

PFSUP == IF PFSUP1 LT 0 THEN 0 ELSE PFSUP1

PFDRAIN == IF DRAIN\*(E99S-ECPS-RGF99S1) GT PFSUPBL(-1) THEN  
PFSUPBL(-1) ELSE DRAIN\*(E99S-ECPS-RGF99S1)

WPFSUP1 == IF PFSUPBL(-1) GT 0 AND GFBAL(-1) LT 0.25\*(E99S(-1)-  
ECPS(-1)) THEN PFDRAIN ELSE 0

WPFSUP == IF WPFSUP1 LT 0 THEN 0 ELSE WPFSUP1

Permanent fund supplements can take several forms which are not limited by those depicted in the equation which determines PFSUP1. There the supplement can take the form of either a portion of the difference between general fund revenues and general fund expenditures (RGF99S1-ECPS) which is the surplus on current account or the difference between the surplus on current account and an incremental cushion amount to be retained in the general fund (GFCUSH).

A permanent fund withdrawal (WPFSUP) into the general fund would occur if there were a deficit on current account and if there were not

sufficient funds in the general fund to cover the deficit and at the same time retain sufficient general fund balances for normal operations.

Permanent fund withdrawals for operating expenditures can only occur from supplemental balances previously deposited, but not from basic contributions. Thus there are three permanent fund balances at any time. There is first the balance in the fund from the basic percentage payment (PF1BAL). The second component consists of the amount of accumulated interest and any net supplemental payments to the fund (PFSUPBL). The sum of these two is the total in the permanent fund at any time (PFBAL). The change in the balance from year to year is also calculated (PFBALCH).

$$\text{PF1BAL} = \text{IF YR EQ 1977 THEN } 2.4 \text{ ELSE PF1BAL}(-1) + \text{RPFS1}$$

$$\text{PFSUPBL} = \text{PFSUPBL}(-1) + \text{PFSUP} - \text{WPFSUP} + \text{IPFPF}$$

$$\text{PFBAL} = \text{IF YR EQ 1977 THEN } 2.4 \text{ ELSE PFBAL}(-1) + \text{RPFS} - \text{WPFSUP}$$

$$\text{PFBALCH} == \text{PFBAL} - \text{PFBAL}(-1)$$

This method of handling the permanent fund has two interpretations. The first would be that supplemental permanent fund contributions would not be subject to the same limitations on withdrawal as the basic percentage contribution. Alternatively, this treatment is equivalent to putting funds in excess of current needs in an account where, because the funds will not be immediately called upon, they can earn a somewhat higher return than those remaining in the general fund.

General fund revenues are calculated a second time, after accounting for any supplementary additions to the permanent fund or withdrawals from the permanent fund to equate revenues and expenditures (RGF99S). Finally, the general fund balance is calculated (GFBAL) as well as the year-to-year change in the general fund balance (GFBALCH).

$$RGF99S = R99S - RPFS - RSFS + WPFSUP - RRDF - ALINC$$

$$GFBAL = GFBAL(-1) + RGF99S - E99S + ECPS$$

$$GFBALCH == GFBAL - GFBAL(-1)$$

The total permanent fund contribution is calculated (RPFS) as is the present value of future petroleum related revenues (PVRP9S) which may serve as an indicator of the future revenue expectations of the state. Future revenues are deflated by one plus the social discount rate (SDR).

$$RPFS == RPFS1 + PFSUP + IPFPF$$

$$PVRP9S == (RP8S(1) + RPBS(1)) / SDR + (RP8S(2) + RPBS(2)) / SDR^{**2} + (RP8S(3) + RPBS(3)) / SDR^{**3} + (RP8S(4) + RPBS(4)) / SDR^{**4} + (RP8S(5) + RPBS(5)) / SDR^{**5} + (RP8S(6) + RPBS(6)) / SDR^{**6} + (RP8S(7) + RPBS(7)) / SDR^{**7} + (RP8S(8) + RPBS(8)) / SDR^{**8} + (RP8S(9) + RPBS(9)) / SDR^{**9} + (RP8S(10) + RPBS(10)) / SDR^{**10}$$

Alaska Inc. payments (ALINC) become an added component of personal income that is not taxed at the federal or state levels. Disposable personal income per capita is a factor determining net migration to the state, but Alaska Inc. payments are not included in a component of disposable personal income for this purpose, just as native claims payments are excluded because new migrants could not be recipients of monetary benefits under either of these income transfer plans.

B.III. Treatment of State Expenditures

State expenditures are modeled in three different ways corresponding to three basic notions about the process by which budgetary decisions are reached.

B.III.a. Growth of Expenditures as a Function of Available Revenues and Historical Determinants

In this formulation, growth of state operating expenditures by functional category is a function of both a demand variable--personal income per capita--and a series of supply variables which include not only the present level of state government revenues, but also the level of balances available for spending in the general fund. A typical equation would be as follows:

$$\begin{aligned} \text{LOG}(\text{EEDS1}/\text{POP}(-1)) = & \text{EX1A} + \text{EX1B} * \text{LOG}(\text{RGF99S1} - \text{RFDSN} - \text{EXDSS} + \text{PTTRANS} * \\ & \text{RTPL}) * \text{PBDUM} + \text{EX1C} * \text{LOG}(\text{RGF99S1} - \text{RFDSN} - \text{EXDSS}) + \\ & (\text{EX1B} + \text{EX1C}) * \text{MYOPIA} * \text{LOG}(\text{GFBAL1}(-1) + \text{EXSUM}) + \\ & \text{EX1D} * \text{LOG}(\text{PI}/\text{POP}) \end{aligned}$$

In this equation, education expenditures per capita are a function of state revenues net of federal transfers and debt service, personal income per capita, and the general fund balance. The relationship between revenues and expenditures changes after the Prudhoe Bay lease sale.

In the capital expenditure sector, the real per capita growth rate (GRCEXP) is set exogenously for each of four categories of capital expenditures--general fund highway expenditures (GFCPH1), bond-funded highway expenditures (ECPSHY1), general fund non-highway expenditures (GFCPNH1), and bond-funded non-highway expenditures (ECPSNH1).

GFCPH1 = IF YR LT 1979 THEN GFCAPHX ELSE GFCAPHY(-1)\*(POP(-1)/  
POP(-2)-1+RPI(-1)/RPI(-2)+GRCEXP)-CSAV2\*SAVS

ECPSHY1 = IF YR LT 1979 THEN ECPSHYX ELSE ECPSHY(-1)\*(POP(-1)/  
POP(-2)-1+RPI(-1)/RPI(-2)+GRCEXP)-CSAV3\*SAVS

GFCPNH1 = IF YR LT 1979 THEN GFCPNHX ELSE GFCPNHY(-1)\*(POP(-1)/  
POP(-2)-1+RPI(-1)/RPI(-2)+GRCEXP)-CSAV4\*SAVS

ECPSNH1 = IF YR LT 1979 THEN ECPSNHX ELSE ECPSNHY(-1)\*(POP(-1)/  
POP(-2)-1+RPI(-1)/RPI(-2)+GRCEXP)-CSAV5\*SAVS

In this formulation of the expenditure equations, as in those following, allowance is made for the possibility that desired expenditures exceed available state resources so that cutbacks from desired spending levels must be employed (SAVS1). In all formulations of the expenditure equations, the cutback in spending is a function of a shortfall in revenues on current account in the previous fiscal year (E99S(-1)-ECPS(-1)-RGF99S1) if the shortfall cannot be accommodated by a general fund balance.

SAVS1 = IF GFBAL(-1) LT GFBAL(-2) OR GFBAL(-1) LT 0.25\*(E99S(-1)-  
ECPS(-1)) THEN SAVX-TAXCHPC\*TT\*QREVQ+ADJ\*(E99S(-1)-ECPS(-1)-  
RGF99S1(-1))\*(1+(E99S(-1)-ECPS(-1)-RGF99S1(-1))/  
RGF99S1(-1))\*1.1 ELSE SAVX-TAXCHPC\*TT\*QREVQ

Any cutback which must be incurred is spread among all functional operating expenditure categories and capital expenditure categories through the parameters CSAV1-5. (This equation also provides the capability of analyzing the impact of a change in the personal income tax rate which is not compensated for by a reduction in state expenditures.)

## B.III.b. Growth of Expenditures Determined by Demand

In this approach, the growth rate of total state operating expenditures is linked to indicators of demand and represents setting state expenditure growth at some target level.

$$\text{EXOPS} = \text{IF YR LT 1979 THEN EXOP SX ELSE EXOPS}(-1) * (\text{POP}(-1) / \text{POP}(-2) + \text{RPI}(-1) / \text{RPI}(-2) - 1 + \text{GREXS} + \text{C} * (\text{PIRPC}(-1) / \text{PIRPC}(-2) - 1)) - \text{CSAV1} * \text{SAVS}$$

In this equation, if CREXS is set to zero and C to one, growth in operating expenditures will be unitary elastic with respect to real per capita personal income. Total operating expenditures is then allocated among functions on the basis of the historic ratio.

Capital expenditures are determined in the same fashion.

## B.III.c. Growth of Expenditures Jointly Determined by Targeted Expenditure Levels and Revenue Availability

In this framework, expenditure behavior is determined by an exogenously set target rate as before and also by the availability or expectation of revenues from petroleum. For example, any increases in real state operating expenditures per capita would be based on a function of future expected petroleum revenues if D were to take a value different from zero.

$$\text{EXOPS} = \text{IF YR LT 1979 THEN EXOP SX ELSE EXOPS}(-1) * (\text{POP}(-1) / \text{POP}(-2) + \text{RPI}(-1) / \text{RPI}(-2) - 1 + \text{GREXS} + \text{C} * (\text{PIRPC}(-1) / \text{PIRPC}(-2) - 1)) - \text{CSAV1} * \text{SAVS} + \text{CSAV1} * (\text{D} * \text{PVRP9S}(-1) + \text{E} * \text{PFBAL}(-1))$$

A similar functional form would govern the growth of capital expenditures.

B.IV. Renewable Resources Development Fund

The renewable resources development fund (RRDF) receives 5 percent of those petroleum revenues annually which are eligible for the permanent fund (RP7S). Within the year, those funds allocated to the renewable resources development fund, but not expended, are transferred into the renewable resources permanent fund (RRPF). This fund is allowed to grow to a level of \$250 million before contributions to the renewable resource development fund are terminated.

$$RRDF = \text{IF } RPPF(-1) \text{ LT } 250 \text{ AND YR GT } 1978 \text{ THEN } RP7S * 0.05 \text{ ELSE } 0$$

$$RRPF = RPPF(-1) + 0.5 * RRDF$$

It is arbitrarily assumed that 50 percent of the renewable resource development fund is expended annually and 50 percent placed in the renewable resources permanent fund. The natural resources permanent fund generates interest earnings of 7 percent annually (RRRPF) which, together with the 50 percent of the development fund, constitutes total expenditures (EXRRDF).

The level of expenditures of the development fund and permanent fund earnings (EXRRDF9) are assumed to generate employment in the agriculture, forestry, and fishery sector of the economy (EMA9T) at the rate of one permanent employee per \$100,000 of capital investment. This increases Alaskan personal income through an increase in wages and salaries paid in that sector (WSA9).

$$RRRPF = RRP(-1)*0.07$$

$$EXRRDF = 0.5*RRDF+RRRPF$$

$$EXRRDF9 = EXRRDF9(-1)+EXRRDF$$

$$EMA9T = \text{IF YR LT 1976 THEN EMA9 ELSE EMA9}+0.01*EXRRDF9$$

$$WSA9 == EMA9T*WRA9/1000$$

### B.V. Guide to Variables Used in Analysis

#### B.V.a. Policy Parameters

<u>Name</u>	<u>Default Value</u> <sup>1</sup>	<u>Definition</u>
A	1	(if = 1) allows a bonus payment into the permanent fund which is a portion of the current year budget surplus (used with PORTION).
ADJ	.95	The percentage by which excess spending on current state account in previous years is compensated for in state spending in the current year.
ALINCPR	0	Percentage of the component of permanent fund interest not reinvested in fund which is distributed as Alaska Inc. payments.
B	0	(if = 1) allows a bonus payment into the permanent fund which is the total of the current year budget surplus net of a cushion (GFCUSH) which remains in the general fund.
C	1	Income elasticity of public goods.
CRACT	.8	Ratio of expenditures to current account revenues which must be reached before permanent fund supplements are considered.
CSAV1-5	.8 - .14 - .03 .06 - .08	Percentages which distribute any required cutback in state spending among the current and capital accounts.

<sup>1</sup>As used in the model version called PERFUND.

<u>Name</u>	<u>Default Value</u> <sup>1</sup>	<u>Definition</u>
D	0	Coefficient on future revenues in expenditure equations.
DRAIN	1	Percentage by which excess expenditures on current account are compensated out of permanent fund.
E	0	Coefficient on permanent fund balance in expenditure equations.
GRCEXP	0	Desired growth rate of real per capita state capital expenditures.
GREXS	0	Desired growth rate of real per capita state current expenditures.
L1	0	Switch channeling exogenous level of Alaska Inc. payments (ALINX) into personal tax cut.
L2	0	Switch channeling exogenous level of Alaska Inc. payments (ALINX) into state expenditure increase.
PORTION	.75	The percentage of current year budget surplus transferred to the permanent fund (A must be set = 1)
ROR	.06	Overall rate of return on general fund.
RORPF	.07	Overall rate of return on the permanent fund.
SDR	1.1	Rate at which society prefers the capacity to spend on public goods in this year over the capacity in the next year.

<sup>1</sup>As used in the model version called PERFUND.

## B.V.b. Policy Variables

<u>Name</u>	<u>Definition</u>
GFCUSH	General fund reserve level increment (B must be set = 1).
PART	Proportion of total permanent fund interest withdrawn from permanent fund.
PFPER	Percent of eligible revenues channeled into the permanent fund.

## B.V.c. Endogenous Variables (million \$ unless noted)

<u>Name</u>	<u>Definition</u>
ALINC	Total Alaska Inc. payments.
ALINCSH	Value of individual Alaska Inc. share (nominal dollars).
CRUNCH	Savings as a percentage of expenditures (%).
E99LRPC	Total real per capita local expenditures (dollars).
E99RPC	Total real per capita state plus local expenditures (dollars).
E99S	Total state capital and operating expenditures.
E99SRPC	Total real per capita state expenditures (dollars).
ELIGIBL	Individuals eligible for Alaska Inc. payments (thousands).
ELIGn	Individuals eligible for n Alaska Inc. payments (thousands).
EMA9T	Agriculture, forestry, and fishery employment, including employment generated by expenditures of renewable resources development fund.
EXOPS	State government total operating expenditures.
EXPFPER	Permanent fund contribution rate, including supplemental contributions (%).

<u>Name</u>	<u>Definition</u>
EXRRDF	Expenditures out of the renewable resources development fund.
GFBAL	General fund balance.
IPF	Permanent fund interest earnings not retained in permanent fund.
IPF1	Total permanent fund interest earnings.
IPFPF	Permanent fund interest earnings retained in permanent fund.
NONRP9S	General fund expenditures minus petroleum revenues.
PERNPR	Non-petroleum revenues as a percentage of total revenues (%).
PFBAL	Permanent fund balance.
PFLBAL	Balance in permanent fund from basic percentage dedications.
PFBALPC (PFBALRPC)	Permanent fund balance per capita (nominal and real dollars).
PFCON	Permanent fund interest as a percentage of current state expenditures (%).
PFSUPBL	Balance in permanent fund from retained interest and contributions in excess of basic dedication.
PFSUP	Contribution to permanent fund from general fund which is in excess of basic percentage contribution.
PREVRAT	Total petroleum revenues divided by total expenditures (%).
PVRP9S	Present worth to state of 10 year future stream of petroleum revenues.
R99LRPC	Total real per capita local revenues (dollars).
R99RPC	Real per capita state plus local revenues (dollars).

<u>Name</u>	<u>Definition</u>
R99S	Total state revenues from all sources except Native claims payments.
R99SRPC	Total real per capita state revenues (dollars).
REVRAT	Total revenues divided by total expenditures (%).
RGF99S	General fund revenues used to pay current expenses of government operations.
RGF99S1	General fund revenues net of percentage determined permanent fund contribution, Native claims payments, and Alaska Inc. payments.
RINS	Interest earnings on general fund.
RIPF	Permanent fund interest paid into general fund.
RIPFPC (RIPFRPC)	Permanent fund interest per capita (nominal and real dollars).
RPFS	Total permanent fund gross contributions.
RPFS1	Percentage determined permanent fund contributions.
RRDF	Renewable resource development fund payments.
RRPF	Renewable resources permanent fund.
RRRPF	Earnings from the renewable resources permanent fund.
RTSLRPC	Real per capita state and local transfers (dollars).
SAVS	Reduction in state spending from target level.
SHARES	Total Alaska Inc. shares paid (thousand).
WPFSUP	Withdrawals from the permanent fund for state capital and operating expenditures.
YDNNPC2	Non-Native disposable income per capita net of Alaska Inc. payments.

B.V.d. Independent Variables

Name

Definition

RP7S

Revenues eligible for permanent fund dedication  
(million \$).

APPENDIX C

PETROLEUM REVENUE ASSUMPTIONS

C.I. Prudhoe Bay Oil

Production - Based upon Legislative Affairs model of Prudhoe Bay field development using the agreed upon Management Schedule. Field capacity is 8 billion barrels and pipeline capacity 1.7 million barrels/day at peak.

Wellhead Value - From the present to 1985, figures are from Case II, Legislative Affairs Agency, memorandum of July 14, 1977. This is determined by taking an initial 1978 Los Angeles refinery price of \$13.75/barrel and netting back to Prudhoe. The refinery price escalates at 5 percent annually. The Alyeska pipeline tariff is constant over the period at \$4.90. Lower-48 transportation charges in 1978 are \$1.50. This rises to \$2.50 in two years and this remains constant.

After 1985, the refinery price continues to increase at a 5 percent rate annually, while all delivery costs remain constant. Thus, the wellhead price increases at a rate which declines over time from 8 percent to 5 percent annually.

Royalties - Calculated as 12.5 percent of the wellhead value of production. This is reduced for 1978 to maintain consistency with the projections of Legislative Affairs Agency which appear in their memorandum of September 15, 1977. There, the impact on production of the explosion at pump station #8 is calculated.

Production Tax - Calculated at 12 percent of the non-royalty portion of the oil (.875). Adjusted downward in 1978 for the impact of the explosion at pump station #8.

Corporate

Income Tax - To 1985 from Legislative Affairs memorandum of July 14, 1977. Subsequent values are author's estimate. Basis for this decline is a Legislative Affairs memorandum dated June 1, 1976, which indicated total corporate taxes paid on Cook Inlet production between 1956 and 1974 were \$2.057 million. Peak production from Cook Inlet was 70 to 80 million barrels annually.

TABLE C.1

Prudhoe Bay Oil Revenues

<u>Year</u>	<u>Production Million Barrels</u>	<u>Wellhead Value \$/Barrel</u>	<u>Royalties Million \$</u>	<u>Production Severance Tax Million \$</u>	<u>Corporate Income Taxes Million \$</u>
1974	-	-	0	-	-
1975	-	-	0	-	-
1976	-	-	0	-	-
1977	-	-	0	-	-
1978	343.2	7.35	202.37	170.87	46.0
1979	483.6	7.54	455.79	382.86	51.0
1980	547.6	7.76	531.17	446.18	54.0
1981	547.6	8.52	583.19	489.88	55.0
1982	584	9.31	679.63	570.89	56.0
1983	584	10.45	762.85	640.79	58.0
1984	620.6	11.03	855.65	718.75	59.0
1985	620.6	11.95	927.02	778.7	60.0
1986	589	12.92	951.24	799.04	61.0
1987	491.6	13.93	856.0	719.04	39.0
1988	391.8	15.00	734.63	617.09	25.0
1989	307	16.12	618.61	519.63	16.0
1990	240.6	17.30	520.3	437.05	10.0
1991	188.4	18.53	436.38	366.56	6.0
1992	147.6	19.83	365.86	307.32	4.0
1993	115.8	21.19	306.73	257.65	3.0
1994	90.6	22.62	256.17	215.18	2.0
1995	71.0	24.12	214.07	179.82	1.0
1996	55.6	25.70	178.62	150.04	0
1997	43.6	27.35	149.06	125.21	0
1998	34.2	29.09	124.36	104.46	0
1999	26.8	30.91	103.55	86.98	0
2000	21	32.83	86.18	72.39	0

C.II. Prudhoe Bay Gas

Production - Department of Revenue estimate through 1985, then author's estimate with 15 percent decline commencing in 1996.

Wellhead Value - Constant value of 25¢/mcf assumed by author.

Royalties - Calculated at 12.5 percent of wellhead value.

Production Tax - Calculated at 6¢/mcf.

TABLE C.2

Prudhoe Bay Gas Revenues

<u>Year</u>	<u>Production Billion Cubic Feet</u>	<u>Wellhead Value Million \$</u>	<u>Royalties Million \$</u>	<u>Production Severance Tax Million \$</u>
1974	-	-	0	-
1975	-	-	0	-
1976	-	-	0	-
1977	2.8	.7	.09	.15
1978	3.9	1.0	.13	.21
1979	5.1	1.2	.15	.25
1980	5.9	1.3	.16	.27
1981	28.0	7.0	.88	1.47
1982	43.0	10.8	1.35	2.27
1983	777.4	194.4	24.3	40.82
1984	828.6	207.2	25.9	43.51
1985	868.7	217.2	27.2	45.61
1986	870	217.5	27.2	45.61
1987	870	217.5	27.2	45.61
1988	870	217.5	27.2	45.61
1989	870	217.5	27.2	45.61
1990	870	217.5	27.2	45.61
1991	870	217.5	27.2	45.61
1992	870	217.5	27.2	45.61
1993	870	217.5	27.2	45.61
1994	870	217.5	27.2	45.61
1995	870	217.5	27.2	45.61
1996	740	185	23.1	38.85
1997	629	157	19.6	32.97
1998	534	133	16.6	27.93
1999	454	113	14.1	23.73
2000	386	96	12.0	20.16

C.III. Cook Inlet Revenues

Oil Royalties - Through 1985 from Legislative Affairs Agency memorandum of July 14, 1977. Subsequent figures assume an annual 6 percent decline rate in value of oil.

Oil Production Tax - Through 1985 from Legislative Affairs Agency memorandum of July 14, 1977. Subsequent figures author's estimate based upon decline in productivity of average well below taxable rate in 1989.

Gas Royalties - Based upon production estimate to 1985 from Department of Revenue, Revenue Journal, Vol 1, No. 2, October 1976. Thereafter, declining beginning in 1989 by 10 percent annually with cumulative production between 1977 and 2000 of 5,761 billion cubic feet. 1977 royalties is author's estimate and subsequent years bear same ratio to production.

Gas Production Tax - Author's estimate for 1977 and, subsequently, the same ratio to production.

TABLE C.3

Cook Inlet Revenues

<u>Year</u>	<u>Oil Royalties Million \$</u>	<u>Oil Production Taxes Million \$</u>	<u>Gas Royalties Million \$</u>	<u>Gas Production Taxes Million \$</u>
1974	-	-	-	-
1975	-	-	2.1	-
1976	39.3	-	3.8	1.7
1977	36	-	4	2
1978	33.1	16.3	4.4	2.3
1979	31.3	14.4	5.4	2.8
1980	29.5	12.7	6.9	3.6
1981	27.9	10.9	8.3	4.4
1982	26.4	9.1	9.0	4.6
1983	24.6	7.3	9.1	4.7
1984	22.9	5.5	9.3	4.8
1985	21.2	3.7	9.4	4.9
1986	19.9	3	9.4	4.9
1987	18.7	2	9.4	4.9
1988	17.6	1	9.4	4.9
1989	16.5	0	8.5	4.4
1990	15.5	0	7.7	3.9
1991	14.6	0	6.9	3.5
1992	13.7	0	6.2	3.2
1993	12.9	0	5.6	2.9
1994	12.0	0	5.0	2.6
1995	11.4	0	4.5	2.3
1996	10.7	0	4.1	2.1
1997	10.0	0	3.7	1.9
1998	9.4	0	3.3	1.7
1999	8.9	0	3.0	1.5
2000	8.3	0	2.6	1.4

C.IV. Miscellaneous Variables

- Pipeline Property Taxes - Through 1985 from Department of Revenue, Alaska's Oil and Gas Tax Structure, February 1977, page IV, 23, assuming construction of Alcan gas pipeline. Subsequently, taxes decline by 5 percent annually. This is based upon a maximum tax for Alyeska of \$168 million and for Alcan of \$185 million derived from Department of Revenue figures. The method of determination of pipeline value for tax purposes has not yet been agreed upon. During construction, value is based upon cost of capital in place (construction financing not included). Three methods with significantly different revenue implications are being considered for the valuation of pipelines during the operations phase--original cost, income, and market value.
- State Bonuses - A Beaufort Sea lease sale in the fall of 1979 generates \$100 million in state revenues in fiscal year 1980.
- Reserves Tax - This is assumed to be repaid out of production tax receipts from Prudhoe Bay at a 50 percent rate until the entire \$499 million is repaid.
- Alaska Native Claims Settlement Act Payment - Calculated as 2 percent of Prudhoe Bay oil royalties until \$500 million is paid.
- Employment - This scenario assumes substantial construction and operating employment associated with the Alcan gas pipeline. In addition, exploratory petroleum activity occurs in the Gulf of Alaska, Lower Cook Inlet, and Beaufort Sea areas. There are no commercial discoveries.

Table C.4

Miscellaneous Variables

<u>Year</u>	<u>Pipeline Property Taxes Million \$</u>	<u>State Bonuses Million \$</u>	<u>Reserves Tax Million \$</u>	<u>ANCSA Payments Million \$</u>
1974	0	0	-	-
1975	6.6	0	-	-
1976	83.4	0	223.1	-
1977	122	0	276	-
1978	168.3	0	(85.44)	(50.4)
1979	170.6	0	(191.43)	(72.8)
1980	193.2	100	(222.23)	(84.8)
1981	226.7	0	0	(93.6)
1982	251.8	0	0	(107.2)
1983	257.0	0	0	(84.3)
1984	261.4	0	0	0
1985	295.5	0	0	0
1986	277.9	0	0	0
1987	260.3	0	0	0
1988	242.7	0	0	0
1989	225.1	0	0	0
1990	207.5	0	0	0
1991	189.9	0	0	0
1992	172.3	0	0	0
1993	154.7	0	0	0
1994	137.1	0	0	0
1995	119.5	0	0	0
1996	101.9	0	0	0
1997	84.3	0	0	0
1998	66.7	0	0	0
1999	49.1	0	0	0
2000	31.5	0	0	0

## APPENDIX D

### METHODOLOGY EMPLOYED IN ALASKA INC. ANALYSIS

#### D.I. Eligibility

Calculation of eligibility for the Alaska Inc. program is based upon House Bill 525 (HB 525) of the first session of the tenth legislature. According to that bill, an "eligible" resident is anyone who has lived in Alaska for at least a "five-year period" commencing January 1, 1974. A person need not reside in the state continuously over a five-year period but must accrue five years of residence to be eligible. An individual must be at least 18 years of age to be eligible.

There is no data available on length of residency in Alaska by which one may directly calculate the number of individuals eligible for an Alaska Inc. program as outlined in HB 525. The 1970 Census provides the only recent reliable information regarding prior place of residence of individuals resident in Alaska in 1970.

Table D.1. shows the age-sex distribution of persons in Alaska in 1970 who were also resident in Alaska in 1965. For the total population five years of age and over (268,289), 54 percent have been estimated to have been resident in the state in 1965. Of the total civilian population in 1970 (268,957), 54.5 percent were estimated as residents in 1965. Of the 146,594 estimated to be resident in both 1965 and 1970, 94,188 were aged 18 or more in 1970. This results in a ratio to civilian population of 35.0 percent.

Table D.1.

D-2

Age-Sex Distribution of 1970 Alaska Residents  
5 Years and Above and Estimated 5 Year Residents

<u>Sex and Age Group</u>	<u>1970 Population</u>	<u>Estimated 1965 Alaska Resident</u>	<u>Estimated Percentage Alaska Resident</u>
FEMALE			
Total	121,668	70,239	.577
5-9	18,417	10,745	.58
10-14	16,288	10,419	.63
15-19	12,603	8,180	.64
20-24	13,438	4,757	.35
25-29	12,591	4,646	.36
30-34	10,446	4,842	.46
35-39	9,048	4,625	.51
40-44	7,861	5,496	.69
45-49	6,768	4,921	.72
50-54	5,312	4,086	.76
55-59	3,796	3,142	.82
60-64	2,211	1,861	.84
65+	2,889	2,523	.87
MALE			
Total	146,621	76,423	.521
5-9	18,858	10,601	.56
10-14	17,348	10,613	.61
15-19	13,856	8,082	.58
20-24	22,658	4,332	.19
25-29	14,637	4,693	.32
30-34	12,046	5,505	.45
35-39	10,927	5,197	.47
40-44	9,853	6,168	.62
45-49	8,131	5,854	.71
50-54	6,452	5,129	.79
55-59	5,083	4,252	.83
60-64	2,946	2,580	.87
65+	3,826	3,500	.91
TOTAL	268,289	146,594	.546
CIVILIAN	236,864	-	-
MILITARY	31,425	-	-

<sup>1</sup>Calculated as the total of 1) same house in 1965, 2) same county and state in 1976, and 3) moved but residence not reported \*(movers reporting Alaska moves/ total movers reporting location of move). SOURCE: U.S. Census 1970.

Thus, if Alaska Inc. payments were to commence with an April 1, 1970, eligibility, approximately 94,188 individuals would be eligible based upon the fact that they were in the state in both 1965 and 1970 and were 18 years of age or more. The actual number eligible would differ from the figure because some individuals would be eligible in spite of not having been resident in Alaska in both 1965 and 1970, and some would be ineligible in spite of being resident in Alaska in both 1965 and 1970. This is because the residency need not be continuous. It may reasonably be assumed that these two groups cancel one another out.

The calculated ratio of 35 percent of 1970 population having been resident in 1965 should not be directly applied to the population base in any other year to obtain an estimate of eligible individuals because of potentially unrelated variation in both the numerator and denominator of the ratio. As will be discussed in more detail in the following sections, the numerator of the ratio is dependent upon the individual decisions of those people resident in the state in 1965, while the denominator is a function of the overall growth rate in population over the interval 1965 to 1970. As a result, in spite of an assumption of constancy over time in the migratory response of classes of individuals, the ratio may change over time as a result of a difference in the rate of growth of the population.

This type of variation actually occurred between the period covered by the 1970 Census and the following five-year period when population

growth was much more rapid. The result would be to reduce the ratio if it could be calculated for the interval 1970 to 1975.

To correct for this when projecting eligibility, the ratio between individuals who reported an Alaska residence in both 1965 and 1970 and the 1965 population can be taken. The weakness of this approach is that it must then be based upon a denominator which is an estimate. This estimate, the 1965 Alaska civilian population, is 232,192. Using this figure a ratio of 40.6 results.

Given this figure and the assumption that the population distribution with respect to relevant characteristics is constant, as well as that migratory response patterns are constant over time, one can project Alaska Inc. eligibility based upon the population five years before. The equation is simply:

$$\text{ELIGIBLE INDIVIDUALS} = 40.6 * \text{CIVILIAN POPULATION FIVE YEARS PREVIOUS}$$

#### D.II. Total Shares

As envisioned by HR 525, the number of shares of Alaska Inc. would be identical to the number of eligible individuals during the first five years of the program until January 1, 1984. At that time, people who had been residents continuously over the preceding ten years would become eligible for two shares in Alaska Inc. In later years, more people would become eligible for two shares as they maintained Alaska residence over a ten-year period commencing on January 1, 1974.

Every fifth year after January 1, 1984, individuals who had resided in the state for the preceding five years would become eligible for an additional share. In 2000, for example, an individual who had been a continuous resident of Alaska since January 1974 would be eligible to receive five shares of Alaska Inc.

In order to determine the number of individuals at any point in time who would be eligible to receive a number of shares larger than one, it would be desirable to have the same kind of information provided by the 1970 Census with respect to 1965 residency, but for longer intervals of 10, 15, 20, and 25 years. Unfortunately, this information is not available and, thus, the only data which can be used to draw inferences about long-run residency is the 1970 Census data summarized in Table D.1.<sup>1</sup>

To determine what inference is best to make from the available information, a simple mathematical model may be employed. The probability of an individual who lives in Alaska at time  $t$  remaining in Alaska at  $t + 1$  year can be hypothesized to be a function of age, sex, and previous length of residence, in addition to a variety of other socioeconomic factors. Table D.1. clearly shows that residency is related to age and sex. One could then divide that population into age, sex, and length of residence categories for analysis purposes. All individuals of age  $i$ , sex  $j$ ,

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<sup>1</sup>The Alaska sample from the Continuous Work History Sample of the U.S. Department of Commerce was analyzed toward addressing the question, but problems of sample size and data errors cast serious doubt on its reliability and potential value. Eligibility would be much lower if the Work History Sample Tapes data were used.

and length of residence  $k$  would have a probability  $P_{ijk}$  of remaining in Alaska in  $t + 1$ .

Consider an individual in the category  $ijk$ . The probability in 1965 that he will remain in Alaska to 1966 is  $P_{ijk}$ . By extension, the probability in 1965 that he will be in Alaska in 1967 is

$$P_{ijk} * P_{i+1j,k+1} \quad D.1$$

which is the probability that he will remain for the interval 1965 to 1966 multiplied by the probability that he will remain from 1966 to 1967.

By extension, the probability in 1965 that he will still be in Alaska in 1970 is

$$( P_{ijk} * P_{i+1,j,k+1} * P_{i+2,j,k+2} * P_{i+3,j,k+3} * P_{i+4,j,k+4} ) = {}^{65}P_{ijk}^{70}$$

If the number of individuals in 1965 with characteristics  $ijk$  is  $n_{ijk}$ , then the number of individuals remaining in 1970 will be

$$n_{ijk} * {}^{65}P_{ijk}^{70} \quad D.3$$

and the number remaining after  $m$  years would be

$$n_{ijk} * {}^{65}P_{ijk}^m \quad D.4$$

Finally, by summing over all population groups, the total number of individuals remaining after  $m$  years could be determined.

$$\sum_{ijk} n_{ijk} * {}^{65}P_{ijk}^m \quad D.5$$

To use this summation equation requires not only that one know the population distribution (all  $n_{ijk}$ ) in the base year and all succeeding years if continuing estimates are desired, but also that all  $P_{ijk}$  are known and are constant over time and not influenced by other factors which might vary over the period for which the estimates are to be made.

Obviously, none of the data necessary to solve equation D.5 for a single year is available. However, from Table D.1. it is possible to estimate the percentage of 1970 civilian residents who were also residents in 1965. This was calculated to be 61.9.

From this information, the following equation can be constructed

$$\sum_{ijk} n_{ijk} * {}^{65}_{P_{ijk}}{}^{70} = 236,864 * .619 \quad D.6$$

which equates the number of 1965-1970 residents calculated on a 1965 base with the number calculated on the known 1970 base of the 1970 civilian population over five years. Since  $\sum_{ijk} n_{ijk} = 232,192$ , the equation can be solved. If  $a_{ijk}$  is the proportion of the population in category  $ijk$ , then the solution is

$$\sum_{ijk} a_{ijk} * {}^{65}_{P_{ijk}}{}^{70} = .631 \quad D.7$$

Thus, the weighted average of all probabilities in the initial year multiplied by the respective succeeding probabilities for the next four years equals .631.

Now at the initial point in time, there will be represented in the population all subsets  $ijk$  and all probabilities  $P_{ijk}$  which will result in some overall average probability for the first interval from 1965 to 1966. The overall probability for the second interval 1966 to 1967 will not equal the first because not all probabilities  $P_{ijk}$  will be represented, and the percentage distribution of the population will weight the new set of probabilities somewhat differently.

One can calculate an average annual probability for the five-year interval, however, which is  $.631^{1/5} = .912$ .

This annual average probability can be applied over any interval. It will not be totally accurate because the population against which it is applied is aging and as is shown in Table D.1, the percentage of five-year residents is positively correlated with age beyond the 20-24 year category. Thus, one might reasonably expect average  $P$  to increase as age and length of residence increased. Absent actual information on the values of  $P_{ijk}$  and their interrelationships one with another, the average value must suffice.

For various intervals, the probability at time  $t$  used to calculate residents remaining would be

<u>interval in years</u>	<u>probability of residents remaining from the initial group</u>
5 y	.631
10 y	.398
15 y	.251
20 y	.158
25 y	.100

These probabilities are for the total population, rather than that of the population which would be eligible for Alaska Inc. given the age restriction.

Since the age groups under thirteen years of age appear to have a higher than average probability of remaining in Alaska based on Table D.1, some bias will be introduced by using the average probability for the total population on a subgroup which eliminates a particular age group. The probabilities are slightly reduced by this, but the bias of the population aging tends to offset this. This situation cannot be avoided because since there is no age distribution data for 1965, it is impossible to calculate the following probability for people under 13 years of age.

$$\sum_{ijk} {}^{65}P_{ijk}^{70} \quad \text{for } i < 13$$

Using this information, the number of individuals eligible for more than one share of Alaska Inc. is calculated based on the following set of equations

NUMBER OF INDIVIDUALS ELIGIBLE FOR 2 (3,4,5) SHARES =

IF YEAR GT 1984 (1989,1994,1999) THEN

$$\left[ \frac{\text{POPULATION OVER 12 YEARS OF AGE IN YEAR } (-10 \text{ } (-15, -20, -25) )}{\text{TOTAL POPULATION IN YEAR } (-10 \text{ } (-15, -20, -25) )} \right] *$$

TOTAL POPULATION IN YEAR (-10 (-15,-20,-25) ) \* .398 (.251,.158,.100).

#### D.III. Migratory Response Pattern

Under the assumption of moderate petroleum development in the state, 25 percent contribution rate to the fund, reinvestment of none of the interest generated and 50 percent of interest paid out as Alaska Inc. dividends, the average annual payment value of Alaska Inc. would average about \$200 over the twenty-year period from 1981 to 2000.

The actual value, of course, depends upon all these variables. The rate of petroleum development and associated state revenues is largely beyond state control, but the contribution rate to the fund and the reinvestment rate are subject to legislative approval. Finally, under HB 525, 50 percent is the minimum percentage of earnings transferred from the permanent to the general fund which must be distributed as Alaska Inc. Given this level of control over the annual share value of Alaska

Inc. by the legislature, it would potentially be possible to use Alaska Inc. as an active policy tool.

In any event, the level of annual share value is subject to a large degree of variability and much uncertainty from year to year. This is more a function of uncertainty regarding policy than uncertainty regarding the number of eligible Alaskans, even though the latter can be only roughly estimated.

Given these initial parameters, however, one can analyze the potential impact on the Alaskan population of Alaska Inc. share payments. Since the rate of natural increase would be unaffected, the potential areas of response would be immigration and outmigration. In this section, only direct impacts are discussed. A direct impact is a migratory response because of a perceived difference in personal income as a direct result of an Alaska Inc. payment. An indirect response would be a migratory response generated by an increase in employment or personal income as a result of increased spending on goods and services of individuals who have received Alaska Inc. share payments. The two components of migration are separated because the response of the two to a given change in Alaska Inc. may not be the same.

Consider first immigration response. The distribution of immigrants to the state is weighted heavily toward the young. A rational individual would choose to migrate if the present value of benefits from migration discounted to account for risk, outweighed the present value of the

costs of migration. This abstracts from periods of "booms," when normal conditions may not prevail, and severe and extended depressions in the lower 48 states.

For a hypothetical individual who is otherwise indifferent between migrating to Alaska and remaining at a location outside the state, the possibility of becoming eligible for an Alaska Inc. share would theoretically result in an increase in the perceived benefit stream from a move to Alaska. However, the incremental benefits and the relative increase in income associated with it is quite small.

Consider the two situations of an individual and a family, both of which have one income earner of 30 years who can look forward to 35 years of productive labor. In 1975, the median income of all unrelated individuals was \$4,882 and of families, \$13,719. Over the previous 20-year period, the median family income grew 2 percent annually, while that of unrelated individuals increased 3 percent annually. Applying these growth rates to the median incomes yields total lifetime incomes for these typical income earners of \$295,000 and \$686,000, respectively.

Over the same period, Alaska Inc. shares, at \$200 per share, incremented by one share each five years, would result in total payments of \$21,000 to the individual and \$42,000 to a family of two adults. This is 7 percent of total expected future income for the individual and 6 percent for the family.

However, it must be recognized that income received in future years has less value in the present than income received in the present. If a 10 percent discount rate is assumed for future income, then the present value of the incomes and the Alaska Inc. shares are as follows:

Present Value of Future Incomes

	<u>Alaska Inc.</u>	<u>Regular Income</u>	<u>Ratio</u>
Individual	2,462	64,149	3.8%
Family	4,924	162,296	3.0%

In present value terms, the Alaska Inc. payment represents a smaller portion of basic income, because payments are deferred until the fifth year of residence and thus have less value than if received in the present.

The ratio is further reduced by several other factors. First, the Alaskan cost of living is much higher than that experienced by the individual or family with a median income for the U.S. This cost of living adjustment is a necessary component of the calculation used to determine whether a move to Alaska would be a net benefit to the individual. If the cost of living in Alaska exceeds that of the lower 48 by 40 percent, then the median income against which to weigh the Alaska Inc. payment must also be increased by that amount. This reduces the ratios for the individual and family to 2.6 percent and 2.1 percent, respectively.

Second, the ratios must be further reduced to account for the uncertainty involved when a person tries to predict how long he will live in a certain location. The previous analysis indicates that about 63 percent of the people in Alaska in 1965 were still in the state in 1970. Of the group remaining, as well as the group which moved, a large number if interviewed in 1965 would not have been able to accurately predict their residence in 1970.

Thus, when valuing future Alaska Inc. payments, they should be further discounted by the uncertainty of the flow because of the real possibility that the payment stream will be terminated by a move from the state. If the Alaska Inc. payments are discounted 50 percent to account for this uncertainty, the present values are reduced to \$1,231 for the individual and \$2,462 to the family, which correspond to 1.3 percent and 1.1 percent, respectively, of present value of future income. This is equivalent to \$100 out of an annual income of \$10,000.

To further reduce the value of the Alaska Inc. payment to the potential immigrant, the implications of taxation must be added. Alaska Inc. payments are marginal income and would be taxed at the marginal tax rate, which is higher than the average rate at which total income is taxed. Thus, a reduction of the total basic income and Alaska Inc. income to account for the tax liability on personal income would further reduce the percentage of lifetime income represented by Alaska Inc. share payment.

In summary, based upon this analysis of hypothetical potential immigrants, it seems unlikely that the existence of Alaska Inc. payments would, other things being equal, have any significant effect on the rate of immigration into the state. For individuals or families with incomes well below the median, the percentage increment which Alaska Inc. could provide would naturally be larger, but against this must be weighed both a relatively higher cost of living (higher than lower 48) for lower income families because of the relatively higher cost in Alaska of necessities, as well as the larger degree of uncertainty regarding future residence which a lower income individual or family might reasonably be expected to have.

With respect to outmigration, the response to Alaska Inc. shares availability would be somewhat different. To continue the analysis of the two situations considered above, recall that for young persons the additional lifetime income would be marginal because of a large number of factors which discount the apparent Alaska Inc. value. All of those factors--future timing of payments, cost of living differential, uncertainty, and taxation--would be involved here also but to a different degree.

To a new arrival in Alaska, the present value of an initial Alaska Inc. payment of \$200 would be \$131 if his rate of time preference were 10 percent. All subsequent payments also have a reduced present value relative to the present value of a payment perceived by a five-year

resident who is presently receiving Alaska Inc. payments. Therefore, the longer an individual has been in Alaska, the more relatively important as a portion of income Alaska Inc. will become.

The importance of uncertainty regarding receipt of the income stream from Alaska Inc. would be a function of prior residence length in the state. According to the Census, about 37 percent of those in the state in 1965 had departed by 1970, while an estimated 9 percent who were in the state in 1969 had departed in 1970. Since the probability of outmigration probably declines as a function of residency, one could reasonably expect that for new migrants to the state, the probability of ever receiving an Alaska Inc. payment to be less than 60 percent, with probability increasing with residency time. This would operate to reduce the probability of receiving Alaska Inc. shares for life as long as there is some propensity to migrate.

The taxation factor works to the disadvantage of Alaskans, because the progressive personal tax schedules tend to increase the difference between the average and marginal tax rates. This reduces the increment to disposable income of Alaska Inc.

Finally, the higher cost of living in Alaska has the same effect on the potential outmigrant as the potential inmigrant. However, the median income figures for the individual and family somewhat understate the actual income situation in Alaska where, in 1976 for the first time in any state, personal income per capita passed the \$10,000 mark. For the

average Alaskan then, a single share Alaska Inc. payment received today would represent 2 percent of gross income. For the average non-dependent, the percentage would be correspondingly less. Also, between the present and 1985, personal income will likely increase, while the Alaska Inc. share would remain constant.

It seems that for the average Alaskan, in terms of income and age, the possibility of receiving Alaska Inc. shares would have little effect on a decision to outmigrate because of the small increment to income they would provide.

The impact on the decision to migrate would, however, be an increasing function of age, length of residence in the state, and an inverse function of income. For the component of the population in that category, the disincentive to outmigrate because of the receipt of Alaska Inc. payments could be substantial. Referring back to Table D.1, however, it is clear that the propensity to outmigrate declines with age and since there is a correlation between age and length of residence in Alaska, there is an implied reduction in the propensity to outmigrate as a function of length of residence. Finally, a reasonable case could be made, in normal times in Alaska, for the propensity to outmigrate being an increasing function of income, although no studies exist which either support or refute this assertion for Alaska.

These factors imply that it is precisely in that segment of the population where the impact of Alaska Inc. on income would be the greatest

where the propensity to outmigrate is the weakest. Therefore, the actual impact on individual decisions to outmigrate would be small and any aggregate impact would be quite small. For this reason, any direct impact on outmigration is ignored in this study.

To provide a partial example in support of this argument, reference is again made to Table D.1. Looking at the subset of the population 50 years old and above, which in 1970 numbered 32,515, the table indicates that 27,073 had been resident in Alaska in 1965. If the ratio of the population 45 and above was equivalent in 1965 and 1970, there were 40,000 people 45 and over in 1965. About 67 percent of these people remained in the state in 1970; 13,527 either left the state or died in the interim. If the crude death rate for this group was 5 percent, then 31,415 of the original group would remain in 1970 as potential outmigrants. 4,342 actually did outmigrate. If Alaska Inc. share payments affected 10 percent of those decisions, the number of outmigrants in that group would have been reduced by 434 individuals who would, by their presence, increase the present population by .1 percent.

#### D.IV. Consumption Response Patterns

Alaska Inc. payments constitute an increment to the incomes of those individuals receiving them. It is interesting to investigate the effect of these increments to income on the expenditure patterns of Alaska Inc. recipients.

The permanent income hypothesis is often used as a model framework within which to analyze the consumption and saving behavior of individuals and family groups. In its simplest form, consumption is determined by the following relationship:

$$C = C(Y, YE, A, T, S)$$

Where C = Consumption  
Y = Income in present time period  
YE = Expected future income  
A = Assets  
T = Age of individual  
S = Sociological characteristics

Consumption in this model depends only partially upon the level of present income. The individual rather tries to maximize the present value of consumption from income over his entire lifetime, and for this reason expected future income of its levelized component "permanent income" is important.

For example, a young family may experience net dissaving (marginal propensity to consume greater than one) by incurring debt to purchase durable goods when establishing a home. The rationale for this is an expected future income sufficient to recover the debt plus interest. In the same way, consumption out of assets will vary with age. A retired couple may consume almost exclusively out of assets accumulated during working years.

The impact of an increase in income given this model of behavior will be a function of whether the income increase is perceived as a transitory, occurring once only; or permanent, shifting the income stream

in each future period upward by the amount of change in the initial period. A transitory change would need to be "allocated" among all future periods to maximize the utility from the consumption resulting from that income. Since a permanent change is perceived to be an income increase in each future period, a large portion of the increase in the initial period could be used for consumption immediately.

Empirical studies tend to confirm this hypothesis and they examine the response of different types of expenditures to income gains. Consumption can be categorized into durable goods, which are items with a usable lifetime in excess of one year; non-durable goods; and services. Income increases can also be saved in the form of either liquid saving or contractual saving or can lead to dissaving in the form of increased debt. The responses of these different components of household portfolios to income increases may differ considerably.

For example, discretionary spending consisting primarily of durable goods and vacation expenditures as well as liquid saving in the form of bank deposits, stocks, and bonds, etc., account for a large portion of the income increases resulting from the federal tax cut in 1964.<sup>2</sup> The response of both non-durable and service expenditures was much smaller. The increase in contractual saving including life insurance policies, early mortgage payoffs, etc., was highly correlated with a perception

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<sup>2</sup>George Katona and Eva Muller, Consumer Response to Income Increases. (Wash., D.C.: Brookings, 1968).

of the income change as being permanent. Also, the more transitory the income was perceived to be, the larger the proportion which went into liquid saving relative to discretionary spending.

This particular study also found that the impact of the income change was dependent upon underlying long-run expectations of total income for the individual, and also upon the absolute size of the change in income. Thus, a small income increase from one source might be swamped in an individual's perceptions by the normal year-to-year variability in income. This implies a threshold level of income change only beyond which the change has a perceived impact on behavior.

Both the model and empirical studies support the notion that liquid saving is not a residual component after an income change has been allocated to other categories of expenditures and savings. In addition, increases in everyday type expenditures of a non-durable and service nature tend to increase only with a lag.

The relationship of this analysis to the Alaska Inc. payments is dependent upon how the payments are perceived by recipients. Given the assumption that the share payment would be in the range of \$200 annually, it can be assumed the income increase would be perceived as permanent, but small. The perception of size is, of course, dependent upon the form of the payment. A government check would probably be more obviously an increment to income than a reduction in taxes at year end. The uncertainty concerning the receipt of future payments because of migrations,

change in state policy, or reduced fund earnings would strengthen the perception of the payment as being transitory.

From this, it seems likely the impact of income increases resulting from Alaska Inc. payments would in the short run be concentrated on increases in discretionary spending (consumer durables, housing, vacations) and liquid saving and to a lesser extent on contractual saving. Some people might reduce their contractual saving by incurring more debt. Increases in everyday expenditures would be slight and would appear with a lag.

In order to investigate the long-run implications on consumer behavior of increases in income, it is valuable to use the concept of the Engel curve. An Engel curve describes the proportion of additional income spent on consumption of a particular good or category of good as income rises. Consumption expenditures for some goods rise more rapidly than income and are known as superior goods, while the reverse is true for inferior goods. Over the long run, one would expect a slight aggregate increase in the consumption of those goods which are superior as a result of Alaska Inc. This is because in the long run the Alaska Inc. payments will not be viewed as marginal increments to income, but rather as a normal part of annual income to be distributed between consumption and saving as all other income.

Table D.2 shows in very aggregate terms how the percentage of expenditures on various items by families changes as income increased

Table D.2

Selected Expenditures (and Percent of Total Income)  
of Families by Income Level, 1973

Expenditures	Income Group		\$5,000-5,999		\$10,000-11,999		\$25,000 +	
	(Average Income for Group)		(\$5,443)		(\$10,934)		(\$40,494)	
	\$	%	\$	%	\$	%	\$	%
Food Total	\$1,111	20	\$1,546	14	\$2,433	6		
Food at home	1,007	19	1,354	12	1,969	5		
Food away from home	85	2	181	2	443	1		
Alcoholic Beverages	54	1	70	1	165	0		
Tobacco	102	2	140	1	171	0		
Housing Total	1,690	31	2,231	20	4,818	12		
Shelter	971	18	1,164	11	2,684	7		
Fuel & Utilities	310	6	413	4	639	2		
House Furnishings	223	4	382	3	771	2		
Clothing	353	6	632	6	1,550	4		
Transportation	967	18	1,712	16	2,792	7		
Health Care	363	7	470	4	853	2		
Personal Care	67	1	101	1	207	1		
Recreation	339	6	532	5	1,943	5		
Vacation Trips	122	2	209	2	932	2		
Reading Materials	31	1	45	0	114	0		
Education	13	0	68	1	534	1		
Miscellaneous	43	1	95	1	363	1		
Personal Insurance and Pensions	327	6	756	7	2,265	6		
Gifts and Contributions	235	4	327	3	1,748	4		
Current Consumption Expenditures Excluding Personal Insurance and Pensions and Gifts & Contributions	5,134	94	7,643	70	15,943	39		

## Source:

U.S. Department of Labor, Bureau of Labor Statistics; Consumer Expenditure Survey Series; Interview Survey 1972-73; Average Annual Expenditures for Commodity and Service Groups Classified by Nine Family Characteristics, 1972 and 1973.

<sup>1</sup> Individual categories will not add to total because of exclusions.

in 1973. The most striking observation from the table is the decline in the category "current consumption expenditures" as family income increases. This category includes all purchases of durable and non-durable goods and services except for a few small items including housekeeping supplies, non-prescription drugs, and payment of mortgage principal. For the average family in the lower income category, 94 percent of income was spent on current consumption. This percentage fell to 70 percent for the middle income family and to 39 percent for the open-ended category of highest income families. For the population as a whole, the percentage was 69 percent. The implication of this is that savings of various kinds increase with income of the family.

The declining share of current consumption expenditures in the budget is accompanied by a changing mix of expenditures. Food consumption falls dramatically as a percentage of income both consumed at home and away from home. Transportation follows the same pattern, although the decline is less rapid. The shelter component of housing falls off identically with transportation, but the total housing decline is lessened by smaller drops in other components of the housing total such as home furnishings.

In this aggregated summary, no consumption items appear to take an increasing percentage of income as income rises except education. Those items which appear to take a proportionate share of income as income rises include vacation trips, personal care, personal insurance and

pensions, gifts and contributions, and miscellaneous. Clothing expenditures are proportional in the middle of the income range, but decline as a proportion of the top end.

Table D.2 must be interpreted with the understanding that it does not control for differences in size of family, age of head of household, location, race, education, family composition, or housing tenure. All of these affect the expenditure pattern. And being based upon a national sample, it is not necessarily representative of Alaskan consumption patterns at various income levels.

The broad implications of the table are, however, clear. As income rises, expenditures on the basic necessities such as food, clothing, shelter, and transportation rise, but more slowly than income. Expenditures in other broad categories hold fairly constant as a percentage of income and savings grows as a percentage of income. From this, it is clear that the expenditure pattern for marginal income differs from the average patterns but also that the marginal pattern is a function of the level of income.

Any change in the marginal propensity to consume and to save as a result of Alaska Inc. payments would be quite small because of the small relative size of Alaska Inc. payments. They would, thus, have a minimal effect on the average propensity to consume different goods. This would be particularly true in the case where the various responses of a whole

population to income change are being aggregated. For example, if a \$200 Alaska Inc. payment supplements a \$10,000 income, that is a 2 percent increase. If the average propensity to consume of that individual were .70 and all the Alaska Inc. increment were saved, the average propensity to consume would be reduced by 1 percent to .69.

The small size of this change eliminates the necessity of attempting to trace through the Alaskan economy the impact of expenditures and savings of particular types on economic activity defined by industrial sector. This task would have been impossible given a lack of data with which to relate levels of industrial activity to levels of types of expenditures as well as lack of information on Alaskan expenditures patterns.

Rather, increments to income derived from Alaska Inc. can be treated just like other small increments to income in analyzing their impact on consumption, because the change they introduce in the marginal propensity to consume various types of goods will be quite small.

## APPENDIX E

### ASSUMPTIONS TO RUN REGIONAL IMPACT CASES

Two cases were run through the Man-in-the-Arctic Program regional model--one which demonstrated the effects on the Alaskan economy of the introduction of a petrochemical refinery project and (alternatively) one which demonstrated the effects on the Alaskan economy of the expansion of fisheries enhancement in the form of non-profit private salmon hatcheries. Exogenous data series were developed for both cases as follows:

#### Petrochemicals (Table E.1)

The assumptions for petrochemicals were drawn from the proposals of the four finalists in the competition to use the state's royalty oil from Prudhoe Bay. The four proposals were quite different from each other, and the data was incomplete, so our data series reflect judgmental selection of data from the four proposals, which, it is hoped, fairly represent a world scale petrochemical plant and refinery in Alaska. Impacts occur both through impact on the state treasury and through direct employment.

Since the petrochemical plant is not subject to the state property tax on petroleum production and transportation equipment, and since we are assuming that the state receives a price at the wellhead which is the same as if the royalty oil were sold by oil companies as agents for the state, out of state, the major fiscal impact to the state of the petrochemical refinery was assumed to occur through the state taxes

Table E.1

Statewide Exogenous Impacts of Petrochemical Facility

	<u>Direct State Tax Receipts From Facility Operations (Million \$)</u>	<u>Local Property Tax (Million \$)</u>	<u>Construction Employment (Thousands)</u>	<u>Operating Employment (Thousands)</u>
1974	0	0	0	0
1975	0	0	0	0
1976	0	0	0	0
1977	0	0	0	0
1978	46	0	0	0
1979	51	0	.050	0
1980	54	2	1.050	0
1981	55	3.5	2.550	0
1982	56	6	2.550	.050
1983	58	10	2.550	.050
1984	62	17	1.550	.460
1985	66	30	0	.460
1986	67	30	0	.460
1987	65	30	0	.460
1988	55	30	0	.460
1989	50	30	0	.460
1990	47	30	0	.460

on corporate incomes, gross receipts, and individual incomes. Local impact was through the property tax. Some information was available in the four proposals concerning projected direct employment for building and running the refinery, which was also incorporated into the model runs as exogenous data.

The refinery-petrochemical plant is assumed to be a world scale plant utilizing 150,000 barrels of oil per day at full capacity. The construction period extends from 1979 through 1984, and the company purchases and sells the state's royalty oil on the international market at competitive rates throughout the construction period. Construction of the plant occurs near Kenai, with about 2,000 persons working on site during the peak construction years, and 550 in the Anchorage area. Operations and maintenance employment was estimated at 460 persons, of which 410 were line production workers, divided 210-200 as residents of the Kenai and Anchorage areas, and 50 management workers, all located in Anchorage. The operations workers were assigned to the petroleum sector, rather than "other manufacturing," where they would ordinarily fit in the Department of Commerce Standard Industrial Classifications as grouped for the purpose of constructing the MAP regional model. This was done for two reasons. The first was that historically, the "other manufacturing" category has a low-value of output per employee, compared with national ratio for either chemicals or petroleum refining. Even the national figures for value added per employee are probably too

low for an Alaskan state-of-the-art, world scale plant using capital-intensive techniques, so the expedient of using the petroleum industry was adopted for estimating gross state product. The second reason was that wage rates in refining are nearly equal to those paid in oil and gas extraction, but are substantially greater than those paid in industries such as printing and publishing which make up the bulk of "other manufacturing."

To get the fiscal impact of the Business License Tax, we estimated sales of products (based on an average of the revenue estimates of two of the finalists) at 900 million 1977 dollars in the first year of operations, 1984, and at 1500 million 1977 dollars thereafter. The real price of petrochemicals was assumed to remain at 1977 levels to the end of the period, with the nominal price rising at 5 percent per year, the assumed rate of inflation. Business License Tax receipts were then estimated at one-fourth of one percent of gross sales. To get the corporate income tax estimate, we took the estimate of one of the four competing firms, which assumed the 9.4 percent maximum corporate tax rate and reduced it by 50 percent to be more in line with state experience concerning taxation of interstate firms, since it is not necessarily true that the corporate entity would be a firm doing business only in Alaska. Individual income taxes were estimated by the model and did not have to be assumed.

The local property tax was calculated on the basis of an initial value for the facility of \$1.5 billion and a tax rate of 20 mills. This value is gradually attained as the facility is built and remains through the simulation period.

Fisheries Enhancement (Table E.2)

The impact of fisheries enhancement appears in the Alaskan economy through several processes, the most important of which are identified in the assumptions used to run the regional model. The primary impacts occur through construction and operations employment in fish hatcheries, increased production labor hours in the fish canneries as a result of increased catch, increased output in fishing and fish processing, together with increases in incomes of fishermen and cannery workers, and, finally, increases in the yield of raw fish taxes.

In order to discuss investments approaching the orders of magnitude involved in the petrochemical case (\$1-2 billion, 1977 dollars), we assumed a private nonprofit hatchery program with 30 additional hatcheries of 25 million eggs capacity, at an investment of \$2-4 million, 1977 dollars, per hatchery. The numbers used in the simulations were based on F.L. Orth, The Economic Feasibility of Private Nonprofit Salmon Hatcheries, Alaska Sea Grant Report 77-4, June 1977, together with discussions with Orth, Armin Koernig of Prince William Sound Aquaculture Association, Ken Rumchildt of North Pacific Processors in Cordova, and judgment on the part of the investigators.

Table E.2

Statewide Exogenous Impacts of Fisheries Enhancement

	<u>Direct State Tax Receipts From Operations (Million \$)</u>	<u>Construction Employment (Thousands)</u>	<u>Hatchery Employment (Thousands)</u>	<u>Value Added in Canneries (Constant Million \$)</u>	<u>Additional Income in Fisheries (Million \$)</u>	<u>Value Added in Hatcheries (Constant Million \$)</u>
1974	0	0	0	0	0	0
1975	0	0	0	0	0	0
1976	0	0	0	0	0	0
1977	0	0	0	0	0	0
1978	0	0	0	0	0	0
1979	0	.210	0	0	0	0
1980	0	.360	.056	0	0	0
1981	0	.420	.096	0	0	0
1982	.144	.540	.168	2.327	4.756	.298
1983	.260	.210	.240	4.132	8.562	.512
1984	.478	0	.240	7.503	15.731	.898
1985	.716	0	.240	11.122	23.596	1.281
1986	.752	0	.240	11.515	24.777	1.281
1987	.790	0	.240	11.973	26.013	1.281
1988	.829	0	.240	12.422	27.315	1.281
1989	.871	0	.240	12.883	28.680	1.281
1990	.914	0	.240	13.359	30.115	1.281

The following assumptions were made concerning the hatcheries: combined survival rate of eggs and fry, 2 percent; hatchery escapement rate, 40 percent, brood stock requirement, .00083. We assumed that the income from hatchery operations would not be taxable and that sales of fish and fish products by the hatchery would not be subject to the raw fish tax. Landed values to fishermen were assumed to be based on pink salmon weighing 3.8 pounds apiece at a 1976 average landed price of 45 cents per pound, which escalates at the general rate of inflation in the economy. Based on the assumption that the eventual increase in output of about 9 million fish per year can be handled by the existing fleet, by catching fish incidental to fish which would otherwise be caught, a catching cost of two cents per fish (1976 costs) was assigned.

The hatcheries were assumed to be built between 1979 and 1983, each taking 30 workers about two construction seasons. Peak construction employment was assumed to be about 540 workers, in 1982. The hatcheries were allocated geographically as follows: Southwest and Southeast, eight hatcheries apiece; Southcentral and Interior (except Fairbanks area), six hatcheries apiece; Fairbanks area, two hatcheries. First returns of fish were assumed to occur two years after hatchery completion. Operations employment in hatcheries was assumed to be four full-time personnel and four full-time equivalent seasonal workers (about 12 workers for about one-third of the year). All were assigned to the fishing sector.

In fishing, limited entry laws were assumed to keep increases in employment of Alaskans to a minimum. However, because of increased catch, the output added to the economy by the fishing sector, fisherman net income (equal to the increase in value of catch, less additional catching costs), and the three percent raw fish tax all increase. Catch was assumed to be delivered in the Southwest Region for hatcheries in the Southwest, Interior, and Fairbanks; to be delivered in the Southcentral Region for increments to production caused by Southcentral hatcheries; and to be delivered in Southeast ports if caused by Southeast hatcheries.

Processor gross product effects were estimated by computing the historical ratio of Gross Product/Value to Fishermen from the methodology in the April 1974 and March 1975 issues of Alaska Review of Business and Economic Conditions for Food Manufacturing, applying the ratio to the estimated value of catch, and deflating by the estimated gross product deflator from the same source. Processor employment was estimated directly by the model.

#### REFERENCES

- Alaska. Budget Document, annual.
- Alaska Construction and Oil, various issues.
- Alaska Department of Administration. State Investment Portfolio.  
Various issues, 1970-1973.
- Alaska Department of Commerce and Economic Development, "Alaska Banks  
Statement of Condition," various issues.
- Alaska Department of Commerce and Economic Development. The Alaska  
Economy: Mid-Year Performance Report 1977. June 1977.
- Alaska Department of Revenue, Alaska's Oil and Gas Tax Structure.  
February 1977.
- Alaska Department of Revenue, Revenue Journal. October 1976, Vol. 1,  
No. 2.
- Alaska Department of Revenue. "Revenue News." February 16, 1971.
- Alaska Department of Revenue. "Revenue News." May 24, 1972.
- Alaska Department of Revenue. Revenue News: Annual Supplement, 1966-1973.
- Alaska Department of Revenue. Revenue Sources FY 1976-78.
- Alaska Industry, various issues.
- Alaska Legislative Affairs Agency memorandum, July 14, 1977.
- Alaska Legislative Affairs Agency memorandum, June 1, 1976.
- Alaska Legislative Affairs Agency memorandum, September 15, 1977.
- Alaska Royalty Oil and Gas Board. Various proposals submitted for  
purchase of state royalty oil.
- Anchorage Times, various issues.
- Baumol, William. "Macroeconomics of Unbalanced Growth: The Anatomy of  
Urban Crises." American Economic Review, June 1967, Vol. LVII, No. 3.
- Eppenbach, L. "What Happened to the \$900 Million." December 27, 1974,  
(Memo to Gov. Hammond).

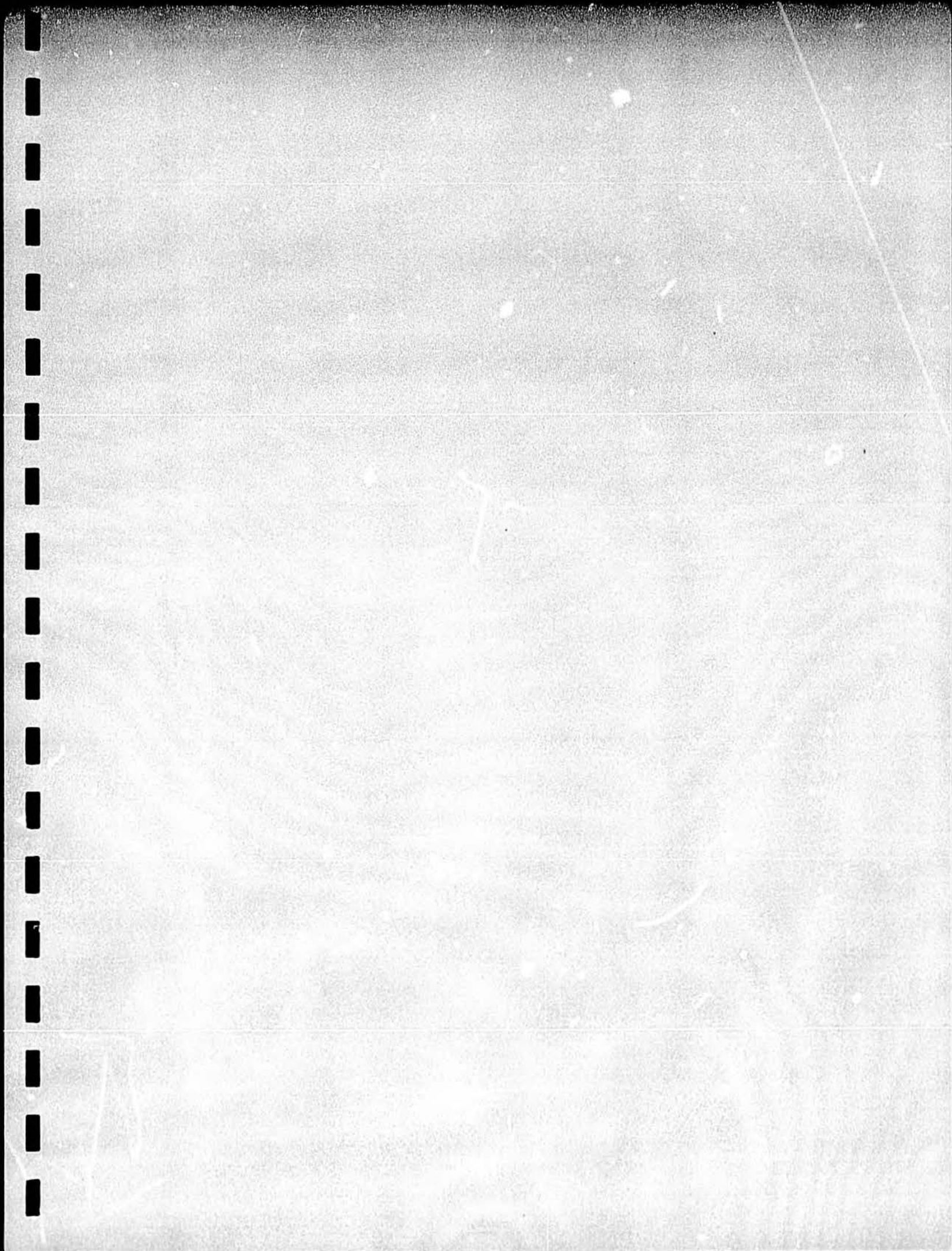
- Erion, G. "Insured Commercial Banks in Alaska: 1960-1966." in Federal Field Committee for Development Planning in Alaska. Studies on Alaska Regional Inflation. July 1969.
- Fabricant, Solomon. The Trend of Government Activity in the United States Since 1900. New York: NBER, 1952.
- Goldsmith, Scott. "Fiscal Options and the Growth of the Alaskan Economy." Unpublished paper, 1977.
- Katona, George and Eva Muller. Consumer Response to Income Increases. Washington, D.C.: Brookings, 1968.
- Kresge, David. "Alaska's Growth to 1990." Alaska Review of Business and Economic Conditions. January 1976, Vol. XIII, No. 1.
- Kresge, David, et al. Issues in Alaska Development. forthcoming 1978.
- Kresge, David and Monica Thomas. "Estimated Gross State Product for Alaska," Alaska Review of Business and Economic Conditions. April 1974, Vol. XI, No. 1.
- Musgrave, Richard. Fiscal Systems. New Haven and London: Yale University Press, 1969.
- Orth, Frank. The Economic Feasibility of Private Nonprofit Salmon Hatcheries. Alaska Sea Grant Report 774, June 1977.
- Rogers, George W. The Future of Alaska. Washington, D.C.: Resources for the Future, 1962.
- Seiver, Daniel. "Alaskan Economic Growth: A Regional Model With Induced Migration." Unpublished paper, 1975.
- Thomas, Monica and Earlene Goodwin. "Estimates of Alaska Gross Product by Region." Alaska Review of Business and Economic Conditions. March 1975, Vol. XII, No. 1.
- U.S. Department of Commerce, Bureau of Census. Current Population Report, various issues.
- U.S. Department of Commerce, Bureau of Census. Statistical Abstract, annual.
- U.S. Department of Commerce, Bureau of Census. 1970 Census.
- U.S. Department of Commerce, "Continuous Work History Sample."

U.S. Department of Commerce, Office of Business Economics, Survey of Current Business, various issues.

U.S. Department of Labor, Bureau of Labor Statistics. "Average Annual Expenditures for Commodity and Service Groups Classified by Nine Family Characteristics, 1972 and 1973." Consumer Expenditure Survey Series. Washington, D.C. 1976.

U.S. Federal Deposit Insurance Corporation, Call Reports and Income Statements, various.

U.S. Federal Housing Administration. The Residential Mortgage Market in Alaska. Washington, D.C., 1963.



M E M O R A N D U M

TO: Clark Gruening, Chairman, House Permanent Fund Committee

FROM: Lee Gorsuch, Director, Institute of Social and Economic Research, University of Alaska

SUBJECT: Alaska Native Regional Corporations and the Permanent Fund

February 1, 1978

In late July, we agreed to include several questions related to the Permanent Fund in the study of regional corporations we are conducting in collaboration with the Alaska Native Foundation. The questions included were designed to (1) ascertain Native regional corporation views of potential Permanent Fund investment needs and of possible opportunities in rural areas, and (2) explore potential areas of cooperation between the Permanent Fund and Native corporation investments.

We have made no material changes in the responses we received, nor have we analyzed them. The responses constitute the views of selected executives of six of the twelve Native regional corporations. This memorandum summarizes the responses we obtained which included specific ideas and examples of investment opportunities and perceptions of the broader Permanent Fund policy issues.

While our overall study covers all Native regional corporations, we were only able to address the Permanent Fund related questions to six of them. This is due primarily to our survey having already been completed in a number of regions prior to the add on of the Permanent Fund related questions in late July.

General Investment Policies and Goals

Respondents were asked for their opinions as to what Permanent Fund investment policies and goals should be in general and how they should apply to rural areas in particular.

All respondents supported the concept of the Permanent Fund and generally regarded it to be of great potential value in meeting rural area needs.

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Some Specific Comments

- o The Fund should be used primarily to ensure that there is sound and steady growth in the economy of the state. Don't want rapid growth booms and busts... Use the Fund to help stabilize the economy... Help knock out the valleys and knock off the peaks on the economic growth of the state.
- o The Permanent Fund should not be used to any great extent to subsidize something that cannot naturally occur or at least stand on its own after a brief period of time... Don't like the idea of subsidized business, but could use the Fund to help get things going and then get out; that sort of thing.
- o Remove from political spectrum.
- o Can't differentiate between urban and rural areas and projects. Need to look at each individual investment... The availability of other funding in urban areas and lack of it in rural areas, will soon take the Permanent Fund to rural areas and small communities.
- o Rates of profit are not commensurate with the risks that exist in rural areas... If the Permanent Fund has a goal of doing something for rural Alaska, it is going to have to accept something other than the maximum return. But this may be justified by reducing other costs or enhancing other returns to the public than directly in terms of Permanent Fund growth... Rates of return can take into account broader values through shadow pricing.

Relationship Between Permanent Fund and Regional Corporations

All respondents expressed an interest in having Permanent Fund monies available to regional corporations in support of their in-state investments.

There was consensus that the Permanent Fund should be a source of funding and perform a role comparable to that of a bank. It should provide funding on the basis of proposals and appropriate collateral, similar to EDA, FHA, state loan programs, etc.

While emphasis was on loan programs, the possibility of joint ventures was also envisaged. Under such circumstances, according to our respondents, the Permanent Fund should provide money only, not

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management. It would, in effect, become a limited partner, with the applicant corporation functioning as the general partner. The respondents fully accepted the accountability associated with the partnership arrangement but were insistent that the state should not be directly involved in management of particular enterprises.

Interest was also expressed in intermediateterm financing. Commercial banks generally finance projects on a 5-7 year term, maximum, and insurance companies lend for a period of 20-30 years. The respondents felt a void exists in the availability of 8-20 year money.

Respondents also emphasized the need to make money available expeditiously, without too much red tape and delay. (It was suggested that sometimes the real cost of "cheap" money (e.g., 5%) turned out to be about 20%.)

One respondent saw no reason to support Native corporations by virtue of their being Native corporations or just to put money into the bush. This respondent suggested that the Permanent Fund participate only when a beneficial investment can be shown. At the same time, this respondent felt that there were many opportunities for "beneficial" investments in rural areas and with Native corporations.

#### Financing Corporation Investments

An attempt was made to elicit specific examples of situations where the Permanent Fund could today assist, or could in the past have assisted, with the financing of regional corporation projects:

- o The Harbor View apartment complex in Kodiak is at this time financed by a credit union (50%) and by Koniag Corporation (50%). The project meets local needs, creates jobs - and is carrying itself. No commercial institution would touch the project initially, and public funds would have helped. Even today, Permanent Fund participation in the project's financing could free Koniag equity and enable Koniag to initiate other projects. As Mortgagor, the Permanent Fund's investment would be secured by a profitable real estate project.
- o Similarly, Ahtna Lodge at Glenallen has a very high regional corporation equity. Additional financing was provided under the State Tourism Loan Program, by a private bank, and by CEDC. Refinancing of Ahtna's equity would free its capital for further investments. If the interest rates of the new capital provided by the Permanent Fund were lower than current ones, profitability could be achieved earlier even with a higher debt level.

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February 1, 1978  
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- o Cook Inlet has several high yield projects, including office buildings and hotels, where conversion of equity into a loan, consolidation of existing debt, and refinancing of existing medium-term notes could all have a very favorable economic impact on the corporation.
- o Most of respondents regarded fisheries to be one economic activity in which Permanent Fund loans or guarantees could have made investments possible in the past and could still facilitate projects presently and in the future. In each case, capital requirements were viewed as having been or being too large to be borne solely by the regional corporations. Among the investment possibilities cited were major high seas processing ships; boats and on-shore plants; and a large enterprise involved in harvesting, processing, and sales of sea foods.

#### Areas of Prospective Investment

Fisheries and mineral resources development and processing were mentioned over and over as prime candidates for future Permanent Fund support in the various regions.

As might be expected, the principal emphasis in fisheries was on high seas and on-shore facilities related to taking full advantage of the extended (200 mile) fisheries jurisdiction in the waters adjacent to Alaska. Great opportunities are seen for large-scale protein development, but concern exists about obtaining initial financing for what, in effect, will constitute a new approach to fisheries in the United States. Financing is seen as being required for large fleets, on-shore installations, transportation and marketing, research -- in other words, everything to initiate broad utilization of off-shore fisheries.

A number of regions currently have mineral contracts with options to participate in production if exploration indicates existence of economically feasible resource deposits. Exercising such options will mean that regional corporations will have to pay a share of future costs. While under such circumstances private financing of what would likely be large capital requirements could probably be arranged, respondents felt the Permanent Fund could earn a high yield by financing such ventures... Specific opportunities suggested for Permanent Fund involvement in the minerals area were the development and industrialization of the Beluga coal fields and the establishment of a cement manufacturing plant. Aside from these specific areas, others were mentioned only in general terms. These included geothermal energy development, housing and investment guarantees, and OCS-related projects.

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Other Comments and Suggestions

Human resources development was stressed by a number of respondents. While several pointed to job creation as a major goal for rural areas, another respondent saw this factor pertinent only as a consideration if judging between two projects of equal merit, believing that most investments in Alaska would assist with local employment.

One respondent saw the lack of people with interest, attitudes, and skills appropriate to business and financial management as the greatest obstacle to development in rural Alaska.

A suggestion was made that the Permanent Fund could facilitate some sort of one-stop-financing service. The idea came up in connection with a discussion of constraints facing small business, where money may be available but not getting to where it should or could be. Many existing financial institutions simply do not service rural areas. A servicing facility or process sponsored in connection with the Permanent Fund could actually facilitate the availability of commercial financing and of other funding sources, such as EDA, SBA, BIA, and others.

The hope was also expressed that the Permanent Fund would encourage a greater understanding of rural investment opportunities and investment environment. It was pointed out that most of the demand studies and many feasibility studies done for rural areas are based upon urban notions of yield and, therefore, often greatly understate risks and misinterpret the return opportunities. Even the most skilled appraisers are not sufficiently qualified to deal with rural areas and make appropriate judgements. If the Permanent Fund is to obtain good feasibility studies, our respondents felt it will need to develop its own capability to analyze economic and business opportunities or to sponsor somebody else in development of the appropriate analytic capability, as does the World Bank and other international lending institutions.

In conclusion, I want to emphasize that ISER has not analyzed or endorsed the suggestions offered above nor should they be interpreted to be an official position of the Alaska Native regional corporations. Rather, these are the views of several executive officers of the corporations.

LG/m

SCOMM

#9:18

# Alaska State Legislature

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REPRESENTATIVE BILL MILES

April 22, 1977

Mr. Gilbert C. Powers  
Vice President  
Kidder, Peabody & Co.  
4100 Seattle First National Bank Building  
Seattle, Washington 98154

Dear Mr. Powers:

Thank you for the letter and information concerning the Alaska Permanent Fund. I especially appreciate the work you must have done to come up with the names of Robert E. Blixt, John Hitchman, Daniel Forrestal III, and Beirne Chisolm...and the fact that they would be willing to come to Alaska without consulting fees, being reimbursed for travel expenses only.

I'm forwarding a copy of your letter to Representative Hugh Malone, the Speaker of the House of Representatives and Representative Clark Gruening, Chairman of the House Permanent Fund Committee for their comments. When we have finalized our schedule for summer work, I'll get back to you.

Again, many, many thanks for the information.

Sincerely yours,

Bill Miles

BM:jad

Enclosure

cc: Representative Hugh Malone  
✓ Representative Clark Gruening

# Kidder, Peabody & Co.

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April 15, 1977

Representative William Miles  
Alaska State Legislature House  
120 - 4th Street  
Juneau, Alaska 99801

Dear Bill:

Thank you for your patience in awaiting this response with regard to who might be appropriate and available to consult the Legislative Committee on the Alaska Permanent Fund's structure. Please appreciate that after extensive investigation into who would have these important qualifications, the real difficulty came in making the contacts and establishing communications.

The following individuals are most experienced and eminently qualified to discuss and advise on state fund structure. I can assure you that the newness and unique composition of the Permanent Fund would make the structuring of same a personal professional challenge for anyone who might be involved in a consulting capacity. It is always gratifying to be in the creative stages of a pioneer project that is so close to one's experiences.

This was made quite clear to me by Robert E. Blixt, Executive Secretary of the Minnesota State Board of Investment, who would be not only interested, but complimented to consult. Bob's excellent credentials are enclosed for your perusal. He is very close to Kidder, Peabody & Co. and we, of course, have absolute confidence in recommending him to you.

That same confidence can be expressed for John A. Hitchman, Executive Secretary-State Finance Committee for Washington State. John is a good friend of ours and would be most happy to offer his experience and foresight in permanent fund structure.

Daniel J. Forrestal III, President of First International Investment Management, Inc. of Dallas, Texas, is also eminently well qualified and strongly versed in the management of state funds which derive their revenues from "analagous" sources. Dan would be most willing to be called upon.

Representative William Miles  
Page 2  
April 15, 1977

On a source-of-funds basis, the University of Texas Permanent School Fund would, of course, be quite parallel. I am confident that, with your authorization and on your behalf, we could solicit a most valuable contribution from the administrators of that fund.

At Kidder, Peabody & Co. the most experienced person in the area of fund management and structure would be Mr. Beirne O. Chisolm, President of Webster Management Corporation. Webster Management is a wholly-owned subsidiary company of Kidder, Peabody & Co. registered under the Investment Advisors Act of 1940 and is responsible for the management of what is currently about \$500,000,000.00 in private funds.

I know that these individuals would be most willing to contribute their time and energies without consulting fees and would look only for the defrayal of travel expenses. They would not expect to be paid fees and in most cases it would represent a conflict of interest.

Certainly, all can help with the development of one phase or another, whether it be setting up a system of checks and balances in investments, the creation of a harmonious advisory committee, the establishment of logical percentages of permanency, or the difficult tasks of deciding what to own and what pitfalls to avoid.

Please know that at a moment's notice I will be most pleased to provide any introductions or arrange any meeting that might be desired. I sincerely hope this has been helpful and do hope you know we are most anxious to help to the extent that we are able.

Both Ernie Burgess and I look forward to hearing from you soon.

Very truly yours,



Gilbert C. Powers  
Vice President  
Resident Officer

GCP:pe  
Enc.

CC Ernest A. Burgess

# INVESTMENT MANAGEMENT FOR ALASKA'S SECOND DECADE

*Text of remarks made by Robert A. Krantz Jr., Vice President and  
General Counsel of Kidder, Peabody & Co. Incorporated, before the  
Tenth Annual Convention of the Alaska State Chamber of Commerce,  
Ketchikan, Alaska, October 4, 1969*



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Boston Stock Exchange and Midwest Stock Exchange.*

270-3865

## INVESTMENT MANAGEMENT FOR ALASKA'S SECOND DECADE

It is a great privilege to be here. The questions that you are considering at this annual meeting are of critical and profound importance to the entire future of Alaska. The decisions that the State must make as to the application and investment of the fund of capital that is so suddenly being created will affect not only the lives of each of you but the lives of your children and grandchildren and every successive generation thereafter. I would like to take this opportunity to share with you some serious and sobering thoughts on the nature of the responsibilities that you must assume in making these decisions and on the investment philosophy that should accompany their implementation.

Before getting to this subject, however, I want to take a couple of minutes to address myself to two questions that I think you have a right to ask and which may well have crossed many of your minds this morning. The first question is this: What do you, Mr. Krantz, or your firm of Kidder, Peabody, want to get out of Alaska? In short, why are you here? Let me be perfectly frank about this. We want to do business with this State and its People in the future. More specifically, we want the opportunity to compete with others for the investment and securities business that you will have to offer on a basis that is sound for the People and the State today and that will remain sound tomorrow. I assure you that having this on a sound basis is as much in our long-range interest as it is in yours.

The second question that you might appropriately ask is what gives me, an "outsider", any right to come up here and tell you what decisions you should be making? To this question, I would reply first that neither I, nor Kidder, Peabody, nor any "outsider" has any right to *tell* you what you should be doing with this money. It would be exceedingly presumptuous for us to even try to do this. Nevertheless, we have been asked to present our views on a subject which we feel very strongly about and I am going to try to describe these to you. If it should sound as though I am *telling* you, rather than suggesting to you, what you should do with *your* money, I hope you will simply blame this fault on the strength of the speaker's convictions.

I also think I should admit right here that there are a great many problems that will confront the State of Alaska in the application and utilization of its funds that I am not at all qualified or prepared to discuss. In previous discussions with officials of the State, our firm has explained these by reference to a concept of two funds and I would like to use the same concept today. One fund, which we shall call Fund A, is the treasury of the State of Alaska. This fund—

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Text of remarks made by Robert A. Krantz, Jr., Vice President and General Counsel of Kidder, Peabody & Co. Incorporated, before the Tenth Annual Convention of the Alaska State Chamber of Commerce, Ketchikan, Alaska, October 4, 1969.

your "General Fund"—already exists, of course, and is comprised of revenues from your various State taxes, license fees, etc., plus "miscellaneous income", including income from mineral resources which even last year already accounted for something in excess of 15% of total state revenues. Under your State Constitution, some of these revenues—specifically those which fall within the category of "proceeds of any state tax or license"—are required to be deposited in this general fund and may not be dedicated to any special purpose except to the extent required by the federal government in order to participate in federal programs. I understand that earlier this year your Attorney General rendered an opinion that royalties, rental payments or bonus receipts from oil and gas leases are not comprehended within this Constitutional limitation. If this is so, it would seem clear that your Constitution does not require that the State continue to hold in Fund A the proceeds from the sale on September 10.

Under your present statutes, the proceeds received into the State treasury are required to be invested in interest-bearing U.S. government obligations. There is no doubt whatever in our minds that as a matter of sound State administration and capability to meet current State operating requirements, the reasoning behind this requirement—which places prime importance on the assured liquidity of State funds—is impossible to dispute. This is not to say that you have a perfect statute in this respect,—if it were up to me, I would seriously consider broadening the permissible range of investments of your General Fund in the interest of increasing yield while at the same time assuring that it continues to be a ready source of liquid funds.

I do not propose to focus today on the investment of Fund A, however. Instead I would like to describe what we shall call Fund B. This Fund, which has not yet come into existence, would complement Fund A in ways which I shall come to, but would be held and administered entirely separately and would be constituted and maintained as *a perpetual and permanent capital fund for the continuing development of the State of Alaska.*

What do I mean by a "perpetual and permanent capital fund"? Simply a fund in which the capital is required to be maintained intact at all times, and is not subject to appropriation for any purpose whatever. The income of this Fund B would, of course, be available for whatever uses may be deemed appropriate by the legislature and the executive department in the interests of the people of Alaska. Furthermore, investments in Alaskan companies or projects could well be given a measure of priority over out-of-state investments. But the Fund would be designed from the outset to conserve and increase capital and to insure the flow of income from now to eternity.

In recent weeks, a number of representatives of our firm have had discussions with various people in Alaska on the subject of investment and utilization of the proceeds from the State's oil and gas interests and in these discussions we have been gratified to find that so many responsible people in the State are

thinking along these same lines. Presumably their reasoning is much the same as ours. In the investment banking world, we are constantly exposed on almost a day-to-day basis to situations which demonstrate the insatiability of the demand for funds once they become available and the ease with which capital can be dissipated. This is found at all levels—unfortunately in our own homes as well as within business and philanthropic organizations. It is at the government level, however, that we find this intense pressure for current expenditure in its most extreme degree. This is perhaps an inevitable product of our political system, and we do not wish to be on record as either for or against it. It is simply a fact of life. In considering what is best for Alaska in the long run it is obvious to us, however, that the danger of dissipation of capital through appropriations from capital to meet current operating demands is most acute in the very type of situation in which Alaska suddenly finds itself. We suggest that strong self-imposed discipline is most called for at a time such as this and that is why we regard it as essential in securing the greatness of the future of Alaska that the major portion of the proceeds derived from the sales last month be permanently removed from the type of pressure we have described. This is what we would hope that Alaska could accomplish through forming what we call "Fund B".

In this same connection, I also want to emphasize that although \$900 million is clearly a large amount of money in an absolute sense, it is not large in relation to the dimensions of the problems inherent in the long-range development of the State of Alaska. The vast needs of the State underscore the importance of seizing upon this opportunity to establish for the State a permanent capital base which will in turn provide a perpetual flow of investment income which can be utilized to support the financing of local as well as State development projects and to attract new industry and capital investment into the State.

While the approach I am suggesting would be bold and far-reaching, it would certainly not be unprecedented. The Permanent University Fund set up by the State of Texas more than one hundred years ago is perhaps the most strikingly analogous situation. This Fund, which was originally endowed with certain lands in 1839, even before Texas became a state, was subsequently augmented by the transfer to the Fund of two million additional acres, including one million acres of semi-arid land in the western portion of the State. As on your North Slope, great areas of this land proved to be oil producing. Pursuant to requirements set forth in the Texas Constitution, the proceeds of sales and leases of these land grants, together with all royalties on the oil and gas interests, were—and are even today—required to be invested and maintained as a permanent capital fund, with the investment income being available only for the construction of permanent improvements for the University of Texas System and the Texas A and M University System. Today the assets of the Fund include cash and securities valued at more than \$500 million as well as its interest in royalties on oil and gas lands which are producing 40 million barrels of oil and 100 billion cubic feet of gas annually.

I refer to the Permanent University Fund in Texas not only because it is analogous to the type of Fund B that we have in mind but also because we believe it will be important for the State of Alaska to avoid some of the errors that we believe were made by the State of Texas in the formulation and continued management of its Fund. As I have already said, we firmly believe in the wisdom of the basic approach, which was to preserve and build capital forever and not permit diversion of capital for any purpose. The first error, however, was made in restricting so tightly the permissible use of the income. Since the Texas Constitution provided that investment income could be used only for permanent improvements, the University was for at least 100 years in the position of depending upon annual legislative appropriations in order to meet its recurring operating deficits. Freedom to increase faculty salaries, for example, was denied to the Board of Regents notwithstanding its annual investment income of more than \$20 million from the Fund.

A second major error that we believe was made in the case of the Permanent University Fund was more understandable in terms of prevailing investment philosophy in 1876 when the first enabling provision in the Texas Constitution was adopted. At that time, and well into this century, investments of the Fund other than in the original lands and oil and gas interests themselves, were strictly limited to U. S. Government and Texas State bonds. Not until 1956 was it possible to amend the Constitution to permit a broader range by substituting a "prudent man" test with a further specific allowance that up to 50 per cent of the Fund might be invested in corporate bonds and stocks.

This history of permissible investments of the Texas Permanent University Fund is typical of the historical trend of legal limitations imposed by other States, not with respect to investment of State funds, such as Fund A, but with respect to investments by State pension funds, insurance companies, savings banks and other institutions which do not have need for readily available funds at all times. A review of these changes over the years compels us to the recommendation that from the outset exceedingly broad discretion should be delegated by the State of Alaska with respect to investment of the principal of "Fund B". As you may realize, the prevailing philosophy earlier in this century, when the soundness of the dollar was assumed, was to assure the preservation of institutional capital—by savings banks, insurance companies, special state funds, etc.—by enactment of rigidly defined legal investment statutes. The State of New York was the leader. Its legal list was copied by a number of other states and provided, among other things, that these types of institutional capital could be invested only in the "safest investments"—government and state obligations plus utility and railroad bonds. With the depression of the nineteen thirties and the resulting defaults and reorganizations of hundreds of railroads and utilities, the concept that a legal list would protect capital was shattered. In many cases this led to even more conservative fund management—investment only in government obligations. The history of the capital markets since World War II has vividly illustrated the folly of this approach. We have now been in a period

of fairly steady inflation for twenty-five years. Again legal limitations which emphasize safety of principal and assurance of income have failed to provide protection against deterioration of institutional capital set aside in legal portfolios. Within the past decade, this has led to the amendment of dozens of legal list statutes in favor of the standard of the hypothetical "prudent man"—in other words, the tendency in recent years has been to amend these laws to permit such investments as the ordinarily prudent man might make in the management of his own affairs. During the same period it has also become generally acknowledged that this hypothetical prudent man would be concerned by the continuing erosion of the dollar and would therefore concentrate an increasing percentage of his portfolio in equity investments. This reaction has most recently been reflected in the appearance of the "go-go" or "performance" concept of institutional fund management. This philosophy has produced a growing pressure in every state to liberalize legal investment laws to permit state pension funds, insurance companies, banks and other regulated institutions to participate in "performance-oriented" investment programs. It is still too early to gauge the success of this approach on its record. In many cases it would appear to us that too much emphasis is being placed on timing of transactions and too little on the intrinsic value of the investments. Another reactionary wave may well be coming.

I certainly do not wish to suggest that I or my firm, more than anyone else, possesses a crystal ball, but we would urge that there is little reason to adopt by legislation rigid criteria of safety or investment yield which would inhibit flexibility of investment. Instead, for a permanent fund such as the "Fund B" we are discussing, the law of Alaska should allow wide latitude in the range of permissible investments and seek safety more in the way investment decisions are made than in limitations as to what types of investments may be acquired.

I do not wish to be misunderstood in this regard—we do not advocate rampant speculation of State funds, nor do we suggest that the more aggressive "go-go" approach is compatible with the long-range objectives of a fund such as Fund B. I want to stress, however, that limitation of the areas in which investment decisions are permitted to be made will invariably result sooner or later in reducing the rate of investment growth.

By its nature, Fund B would be the antithesis of what I have called Fund A. In Fund B, soundness of investments is essential but liquidity is not. In investment terms, this means that Fund B would not be required to, and generally *should* not, sacrifice either yield or the opportunity for capital appreciation, to liquidity of investment. For example, thousands of debt securities of major corporations are sold privately each year. In tight money markets such as the one we are presently in, with bonds selling at record lows and correspondingly record yields, corporate debt purchased privately will yield anywhere from as much as  $\frac{1}{2}$  of 1% more than corresponding public issues of the same quality. It is important to understand how much this can mean. If, for example, you can purchase \$1 million of 20-year bonds in the private market which yield  $6\frac{1}{2}\%$

instead of 6%, the return on the additional  $\frac{1}{2}$  of 1% interest will amount to \$104,000 over the 20-year life of the bonds. What you may have to give up in turning to this kind of market is, of course, the right to resell your bonds at any time without complying with the registration requirements under the Securities Act of 1933. Alaska's Fund B should be in a position, however, to take advantage of the extra yield made possible by foregoing the instant liquidity which it really does not need in this kind of investment.

A second major area in which yield could be maximized at the expense of liquidity, is in direct investment in prime real estate or in debt secured by mortgages or other liens on income-producing real estate. This is a vast area, offering a variety of choices and high yields to every type of investor. Again, however, you have to realize when you invest in land or in real estate mortgages that it will not always be possible to liquidate your investment by re-selling whenever you need the cash. If Fund B is constituted as we recommend, however, this consideration will be unimportant and I would think that investments in income-producing real estate, in first mortgages on such real estate, or in first mortgages on property leased to the U. S. government or major corporate tenants, should constitute a significant percentage of its portfolio.

In money markets such as the one we have been experiencing over the past eighteen months, and which shows little signs of changing in the near future, the types of investments I have just been describing frequently offer added attractiveness as a hedge against inflation. Institutional investors with immediately available and lendable funds are today able to demand not only high interest rates but also, even in quality-grade investments, additional consideration in the form of an interest in the issuer's future growth. This may and often does take the form of warrants or options to purchase the borrower's stock which may be exercised at a predetermined price within a given number of years. Convertible issues, of course, offer an alternative technique for achieving equity participation while at the same time realizing a handsome current return. In recent months, even mortgage lenders on prime real estate backed by government guarantees of repayment have been able to insist upon a similar type of conversion privilege or overriding participation which will enable them to benefit from projected appreciation in land values. The investment limitations imposed upon Fund B should, of course, be sufficiently flexible to permit it not only to take this type of interest into its portfolio but also to exercise its options or conversion privileges when and as this becomes attractive in the future and to continue to hold the interests so obtained.

What about investments by Fund B in common stocks? Here the important question is not whether this should be allowed—clearly it should, both as a matter of authorizing a flexible approach to investment decision-making and as a matter of enabling Fund B to arrange its investment portfolio with a view to neutralizing the long-term effects of inflation. Instead, the important question is the *extent* to which this should be authorized and the types of safeguards that should

be imposed in order to protect the stream of income from the Fund. We have already referred to the experience of the Permanent University Fund in Texas which until last year limited to 50 per cent the portion of its portfolio which could be invested in corporate securities. In addition, the Texas Constitution also imposed a blanket restriction which prohibited any purchase of common stocks which were not listed on an exchange or issued by a bank or insurance company, and further prohibited any investment in common stock which had not paid dividends for at least ten consecutive years. By constitutional amendment adopted last year the overall 50 per cent limitation was repealed and the ten year dividend requirement was reduced to five years. This is today a common standard and, for that matter, this same requirement is presently imposed by the State of Alaska for investments in common stocks by domestic insurance companies. (In addition, Alaska requires that such investments be only in stock of companies whose net earnings over this five year period have been at least  $1\frac{1}{2}$  times as great as their average annual fixed charges, including debt service and preferred dividend requirements.) Should Fund B be subjected to these types of requirements? In answering this question you must bear in mind that although one objective of Fund B is to preserve capital—which would include preservation of the value of its capital—it will also be designed as a fund to generate income for development of the State. Although I strongly urge broad flexibility, it may be important to build in restrictions against investment in non-dividend paying common stocks in order to assure the continuity of a substantial income stream. If Fund B is to be allowed to invest any portion of its funds in stocks which do not have established dividend records, the percentage should be very tightly limited—I personally would consider 2% to be liberal in this respect.

In my comments thus far, I have concentrated on the philosophy of Fund B and its investment and tried to stay away from questions concerning the ways in which its income should be utilized on the theory that the people of Alaska are experts on the needs of the State and their priorities and I am not. At the risk of rushing in where angels fear to tread, however, I would like to suggest for your consideration one application of the income which would produce important collateral benefits to the State at minimal cost, perhaps no cost at all. This suggestion is that the income initially generated from investment of the bonus payments, together with the future income-producing capacity of Fund B, be contingently pledged to support payment of principal and interest on future general obligation bonds issued by the State. The objective of such a contingent pledge would be to increase the credit rating of the State's bonds from their present Baa status to AAA quality as soon as possible. In view of the relationship of current state expenditures and debt service requirements to projected State revenues over the next decade—which will include greatly increased income from severance taxes and royalties—the likelihood of ever actually having to draw upon Fund B's income to fulfill on the pledge seems remote indeed. Yet if we assume that this pledge technique could lead to AAA rating, the annual savings could amount to as much as 1% of the principal amount of all future State bond issues.

It is logical next to ask—and for that matter we have been asked—whether this same type of approach might also be utilized to strengthen the credit of Alaska's municipalities, boroughs and other local taxing districts, and thereby facilitate the financing of local improvements. In other words, if it makes sense to pledge the income of Fund B in support of State obligations, why does it not equally make sense to enter into the same kind of commitment on behalf of local government units, perhaps on a subordinated basis? Let me say that something along these lines may well make sense and might be of great value to the future development of the State, but only if it is conceived and established within a framework which takes into account the basic problem of facilitating local solutions to local problems without encouraging uneconomic projects and without impairing local fiscal integrity. It seems self-evident, even to an outsider, that, a subordinated contingent pledge or a debt service reserve of the income of Fund B to repay any and all bond issues for local improvements, without regard to the financial feasibility of the specific project involved or the ability of the community to meet its obligations under the issue, would not be in the best long-range interest of the State and might well lead to early deterioration of the income generated by the Fund. One obvious approach would be to create a special agency or commission of the State which would be vested with authority to pass upon the quality of each proposed local bond issue and determine whether the income of Fund B should or should not be pledged to support the issue. Frankly, I would be troubled by this approach. First, I am afraid it would lead to an unfortunate combination of too much dependence by local government upon a state agency and too much control by the state agency over the local community's control of its own development. Secondly, the state agency would be exercising frightening powers—its refusal to back a local project with a pledge of Fund B's income would in all likelihood constitute the kiss of death for the particular project involved. It would be naive not to recognize the tremendous political pressures that would be brought to bear on the members of any state agency having such sweeping powers.

Although we have given considerable thought to these problems, I certainly am not prepared at this time to offer any one solution as the best one. Indeed, within Kidder, Peabody itself there is a healthy divergence of ideas in this area. One thought that has occurred to us is that these potential problems might be alleviated by relying upon banks or other institutional investors, or upon the municipal bond market in general, to assess the intrinsic quality of proposed local government issues. This technique has been utilized in a number of programs sponsored by the federal government and for that matter in certain state government programs in Alaska. For example, the authority of your State Development Corporation to make loans is in effect conditioned upon the applicant being able to persuade an Alaska bank to lend a given percentage of the funds on the same basis. Since the Development Corporation does not subordinate its loan to that of the bank, it is able to rely upon the bank's independent determination that the loan is economically sound. There are a number of ways in which this same technique could be adapted to local government financing. One approach would

be the establishment of a State Municipal Finance Corporation, which, like the State Development Corporation, would have authority to purchase a given percentage of any local bond issue but only on the condition that the balance of the issue be purchased by independent investors. If this approach were adopted, a subordinated pledge of Fund B's income might well be extended to all of the bonds issued by what I call the State Municipal Finance Corporation, in which event any savings in interest or financing costs might be remitted to the local government issuer or applied against its interest payments to the corporation.

Something developed along the lines I have described might tend to reduce the dependence of the financially stronger local governments on Juneau, and at the same time permit them to share in the benefits of strengthened credit stemming from Fund B's flow of income. For this reason, I believe this idea is worthy of further consideration. In candor, however, I must say that this approach has been criticized by some of our people whose views I thoroughly respect on the ground that it would in effect benefit only those municipalities and local districts which least need help and would do nothing to help those which have demonstrated their inability to obtain financing in the public markets. This criticism may well be valid. When it was first expressed, some of us thought that the proper reply was that even though the State undoubtedly has an intense interest in the development of these poorer communities, and even though State aid or grants, or low-interest rate loans, might be appropriate, the extent of this type of direct assistance should be determined and directly controlled by the legislative and the executive branches of the State Government and not by a semi-autonomous State agency. It may be, however, that a special state corporation such as the one I have described, should also be authorized to participate in this type of direct assistance function. For example, whatever portion of the income of Fund B that the State deems appropriate might be dedicated to a special reserve fund to support a special series of bonds issued by such a corporation, the proceeds of which would be earmarked solely for assistance to the poorer local governments—those which are unable to finance their local development at prevailing interest rates but which would be able to do so if, for example, they could borrow funds at lower-than-market interest rates. In this way, the State might share with the local community a portion of the cost of development without assuming control of that development.

I sincerely hope that you will not construe the comments I have been making as anything more than preliminary thoughts on approaches that might be considered in trying to facilitate development at the local level through use of the revenues generated by Fund B. These are certainly not definitive or complete. Having introduced the subject, however, I thought it only fair to tell you some of the ideas that have been crossing through our minds.

The final aspect that I want to comment upon this morning involves the manner in which investment decisions will be made by the State of Alaska and the determination of who will be responsible for such decisions and for the investment record of the Fund. The problem is not only to insure that the State receives

the benefit of expert investment thinking and research. It also encompasses the development of procedures designed to assure the people of Alaska that decisions as to the investment of their funds are made solely from the standpoint of what is best for the State and by people who have no conflicting responsibilities. Perhaps the worst thing that can happen for any institutional fund such as Fund B is for its investors—and here I refer to the people of the State—to lose confidence in the integrity of the Fund's managers, the people who are investing their money. It is perhaps unfortunate that even the slightest doubt or suspicion as to investment motives can tend to have this effect. Within the past few days, we have witnessed a manifestation of this on the national level with the appointment of a nominee to the Supreme Court thrown into question because of a personal investment. The same kind of thing can happen, and perhaps will happen, in Alaska unless the most scrupulous care is taken in seeing to it that the persons retained and paid to manage Fund B are fully independent and have no competing interest to serve.

How should you go about this? We are strongly of the opinion that in the long run the most satisfactory solution from every standpoint is for Alaska to develop its own in-house investment expertise with the responsibility for investment decision and management placed squarely on the shoulders of an independent investment committee whose sole concern is the investment of the Fund. Hopefully, the membership of such a committee could be appointed in a way and for terms of office which would minimize the political pressures that could be brought to bear upon it. Such a committee and full time staff should, of course, have the benefit of a continuous flow of the investment ideas and research of those nationally recognized securities and investment firms which would serve the State as broker and agent in the handling of the Fund's securities transactions. I can personally assure you that in the handling of an account such as Fund B any recognized securities firm would fully expect to provide this type of expert research and investment advice as an integral part of the service it would perform. This advice should be carefully evaluated by the investment staff of the state committee, however, and the actual decision as to each proposed purchase or sale should be made only by the committee or its chief executive director or officer. Delegation of this authority should not be permitted.

The principal difficulty with this approach is, of course, that it takes time to find the right people to serve on and staff such a committee and during whatever time this process consumes there will be funds to invest. It is therefore difficult to avoid the conclusion that as an interim solution the State will have to look to a paid independent outside investment counseling or advisory organization to provide the expertise which is so clearly needed. In making this selection, we would strongly urge that in addition to scrutinizing the record of the particular adviser and the qualifications of the particular people who would be assigned to advise the State, the State should also carefully consider the independence of the adviser from competing interests. In all likelihood, any advisory organization that the State might consider for this appointment will have a multitude of other

advisory clients to whom it also owes responsibilities. Although this type of competing interest is what the State should be trying to get away from in developing its own in-house investment capability, it will inevitably be encountered in looking to outside advisers. We would suggest that the retention of any advisory organization which has additional types of competing interests in other areas of the securities business, however, would invite criticism.

One final thought. From more than a hundred years in the securities business and more than a quarter century of that under the jurisdiction of the Securities and Exchange Commission, we have come to recognize that the surest solution to many of the problems of investing other people's money is complete and prompt disclosure of what is done. The people of Alaska will be entitled to full and complete disclosure of the operations and investments of Fund B and giving them the right to such disclosure should go a long way encouraging their confidence in the Fund. Such disclosure should be required by law.

In concluding, let me express my appreciation and that of Kidder Peabody for the opportunity given us to participate in the discussions at this annual meeting. Your second decade will be one of excitement and challenge and I consider it a privilege to have been able to contribute some of our thoughts on an important aspect of this challenge.