

ALASKA LEGISLATURE / HOUSE

1467 SCOMM 55 JNT. SPEC. COMM. ON STATE TAX POLICY, 1986-1987

267

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SENSITIVITY ANALYSIS

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DISPOSABLE PERSONAL INCOME

EMPLOYMENT

		% FEDERAL OFFSET (C37)					
		+J12	5%	10%	15%	20%	25%
TAX EXPORTING (C38)	5%	(8137)	(8107)	(878)	(848)	(818)	
	10%	(8107)	(879)	(851)	(822)	86	
	15%	(878)	(851)	(824)	83	830	
	20%	(848)	(822)	83	828	853	

		% FEDERAL OFFSET					
		+P12	5%	10%	15%	20%	25%
	5%	4134	4285	4437	4588	4739	
	10%	4285	4429	4572	4715	4859	
	15%	4437	4572	4707	4843	4978	
	20%	4588	4715	4843	4970	5098	

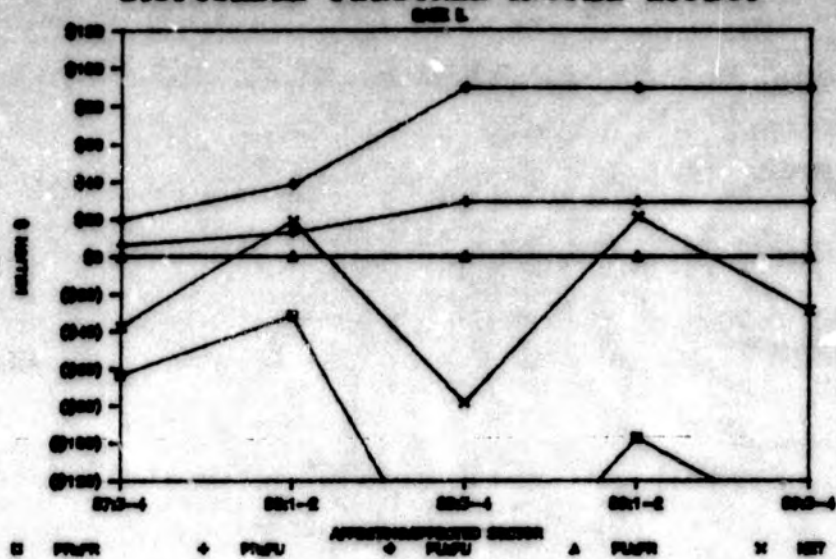
		PUBLIC MULTIPLIER (C50)					
		+J12	1.1	1.15	1.2	1.25	1.3
PRIVATE MULTIPLIER (C39)	1.1	(86)	(86)	(86)	(86)	(86)	
	1.15	(826)	(826)	(826)	(826)	(826)	
	1.2	(846)	(846)	(846)	(846)	(846)	
	1.25	(865)	(865)	(865)	(865)	(865)	
	1.3	(885)	(885)	(885)	(885)	(885)	

		PUBLIC MULTIPLIER (C50)					
		+P12	1.1	1.15	1.2	1.25	1.3
	1.1	1434	1428	1422	1417	1412	
	1.15	1046	1040	1035	1030	1025	
	1.2	659	653	647	642	638	
	1.25	272	266	260	255	250	
	1.3	-116	-122	-127	-132	-137	

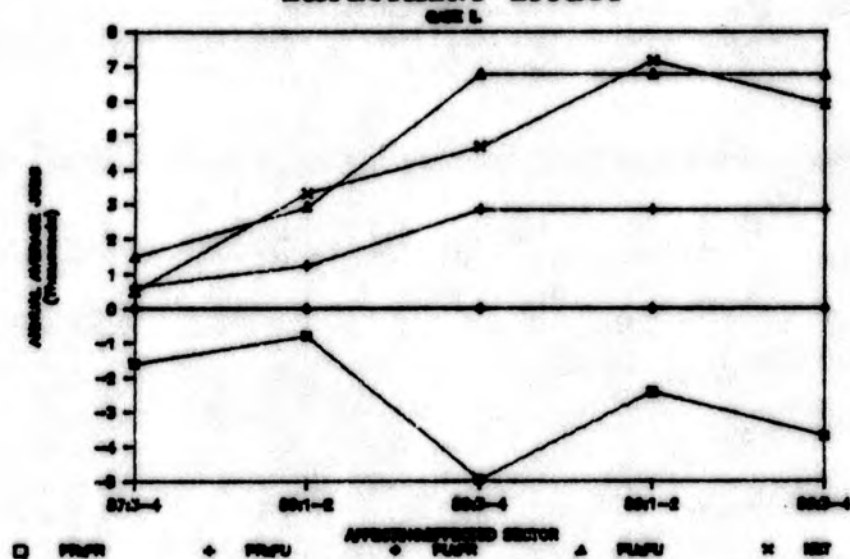
		PRIVATE MULTIPLIER (C39)					
		+J12	1.1	1.2	1.3	1.4	1.5
PUBLIC DPI CREATE (M51)	0	(86)	(846)	(885)	(8125)	(8165)	
	0.1	(86)	(846)	(885)	(8125)	(8165)	
	0.2	(86)	(846)	(885)	(8125)	(8165)	
	0.3	(86)	(846)	(885)	(8125)	(8165)	
	0.4	(86)	(846)	(885)	(8125)	(8165)	
	0.5	(86)	(846)	(885)	(8125)	(8165)	
	0.6	(86)	(846)	(885)	(8125)	(8165)	
	0.7	(86)	(846)	(885)	(8125)	(8165)	
	0.8	(86)	(846)	(885)	(8125)	(8165)	
	0.9	(86)	(846)	(885)	(8125)	(8165)	
	1	(86)	(846)	(885)	(8125)	(8165)	

		PRIVATE MULTIPLIER (C39)					
		+P12	1.1	1.2	1.3	1.4	1.5
	0	6234	5459	4684	3910	3135	
	0.1	6234	5459	4684	3910	3135	
	0.2	6234	5459	4684	3910	3135	
	0.3	6234	5459	4684	3910	3135	
	0.4	6234	5459	4684	3910	3135	
	0.5	6234	5459	4684	3910	3135	
	0.6	6234	5459	4684	3910	3135	
	0.7	6234	5459	4684	3910	3135	
	0.8	6234	5459	4684	3910	3135	
	0.9	6234	5459	4684	3910	3135	
	1	6234	5459	4684	3910	3135	

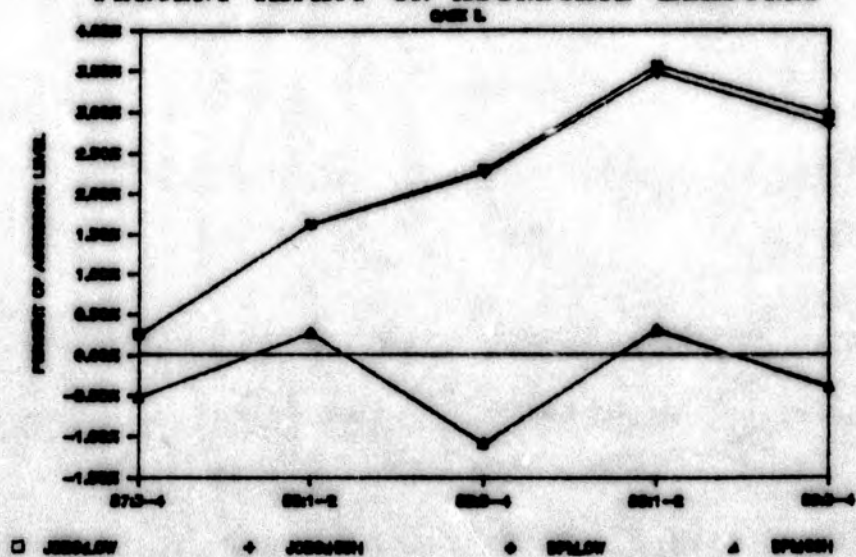
DISPOSABLE PERSONAL INCOME EFFECT



EMPLOYMENT EFFECT



PERCENT IMPACT ON AGGREGATE MEASURES



****CASE IV. ****PAGE 1.
REDUCE PF DIVIDEND--MINIMIZE PUBLIC JOB RETENTION

*****CASE IV.
REDUCE PF DIVIDEND--MINIMIZE PUBLIC JOB RETENTION

READ IMPACT SOURCE ACROSS AND LOCATION DOWN*****		ALASKA INCOME (MILL \$)			DISPOSABLE INCOME (MILL \$)			DISCRETIONARY SPENDING (MILL \$)			EMPLOYMENT (ANNUAL AVERAGE)			
		PRIVATE	PUBLIC	TOTAL	PRIVATE	PUBLIC	TOTAL	PRIVATE	PUBLIC	TOTAL	PRIV	PUBLIC	TOTAL	
****SUMMARY*****														
PRIVATE SECTOR		(\$578.0)	\$0.0	(\$578.0)	(\$495.9)	\$0.0	(\$495.9)	(\$436.5)	\$0.0	(\$436.5)	-1915	0	-1915	
PUBLIC SECTOR		\$0.0	\$467.0	\$467.0	\$116.8	\$0.0	\$116.8	\$105.1	\$0.0	\$105.1	0	0	0	
TOTAL		(\$578.0)	\$467.0	(\$111.0)	(\$379.2)	\$0.0	(\$379.2)	(\$331.4)	\$0.0	(\$331.4)	-1915	0	-1915	
TOTAL		87:3-4	(\$70.8)	\$28.0	(\$42.8)	(\$53.8)	\$0.0	(\$53.8)	(\$47.0)	\$0.0	(\$47.0)	-1358	0	-1358
EFFECT		88:1-2	(\$31.9)	\$55.0	\$23.1	(\$13.6)	\$0.0	(\$13.6)	(\$11.9)	\$0.0	(\$11.9)	-344	0	-344
		88:3-4	(\$216.1)	\$128.0	(\$88.1)	(\$153.3)	\$0.0	(\$153.3)	(\$134.0)	\$0.0	(\$134.0)	-3873	0	-3873
		89:1-2	(\$100.8)	\$128.0	\$27.2	(\$54.5)	\$0.0	(\$54.5)	(\$47.6)	\$0.0	(\$47.6)	-1377	0	-1377
		89:3-4	(\$158.4)	\$128.0	(\$30.4)	(\$103.9)	\$0.0	(\$103.9)	(\$90.8)	\$0.0	(\$90.8)	-2625	0	-2625
PRIVATE		87:3-4	(\$70.8)	\$0.0	(\$70.8)	(\$60.8)	\$0.0	(\$60.8)	(\$53.3)	\$0.0	(\$53.3)	-1358	0	-1358
SECTOR		88:1-2	(\$31.9)	\$0.0	(\$31.9)	(\$27.4)	\$0.0	(\$27.4)	(\$24.3)	\$0.0	(\$24.3)	-344	0	-344
IMPACT		88:3-4	(\$216.1)	\$0.0	(\$216.1)	(\$185.3)	\$0.0	(\$185.3)	(\$162.8)	\$0.0	(\$162.8)	-3873	0	-3873
		89:1-2	(\$100.8)	\$0.0	(\$100.8)	(\$86.5)	\$0.0	(\$86.5)	(\$76.4)	\$0.0	(\$76.4)	-1377	0	-1377
		89:3-4	(\$158.4)	\$0.0	(\$158.4)	(\$135.9)	\$0.0	(\$135.9)	(\$119.6)	\$0.0	(\$119.6)	-2625	0	-2625
PUBLIC		87:3-4	\$0.0	\$28.0	\$28.0	\$7.0	\$0.0	\$7.0	\$6.3	\$0.0	\$6.3	0	0	0
SECTOR		88:1-2	\$0.0	\$55.0	\$55.0	\$13.8	\$0.0	\$13.8	\$12.4	\$0.0	\$12.4	0	0	0
IMPACT		88:3-4	\$0.0	\$128.0	\$128.0	\$32.0	\$0.0	\$32.0	\$28.8	\$0.0	\$28.8	0	0	0
		89:1-2	\$0.0	\$128.0	\$128.0	\$32.0	\$0.0	\$32.0	\$28.8	\$0.0	\$28.8	0	0	0
		89:3-4	\$0.0	\$128.0	\$128.0	\$32.0	\$0.0	\$32.0	\$28.8	\$0.0	\$28.8	0	0	0

****ASSUMPTIONS*****DANGER!!!!!!*****

A.PRIVATE EFFECTS*****

C. DIRECT INCOME CHANGES*****

			PRIVATE	PUBLIC
*	0.14 OFFSET1	FEDERAL OFFSET: MARGINAL FEDERAL TAX RATE ON ALASKA INCOME		
*	0.01 LEAK1	TAX EXPORTING: PORTION OF INCOME TAX PAID BY NON-RESIDENTS		
*	1.35 MULT1	ECONOMIC MULTIPLIER ON RESIDENT DISPOSABLE PERSONAL INCOME	87:3-4	55 28
	0.85 DPIRATE	RATIO OF DPI/PI FOR SUPPORT SECTOR INCOME	88:1-2	28 55
	0.021 WAGESUP1	AVERAGE SUPPORT SECTOR WAGE (MILLION \$)	88:3-4	171 128
	0.15 COMP2	SUPPORT SECTOR BENEFITS AS % OF WAGE	89:1-2	85 128
	0.9 MPC1	MARGINAL PROPENSITY TO CONSUME OF TAXPAYER OR PF DIV RECIPIENT	89:3-4	128 128
	0.8 MPC3	MARGINAL PROPENSITY TO CONSUME OF SUPPORT SECTOR EMPLOYEE		
		TOTAL	467	467

B.PUBLIC EFFECTS*****

			0 POR1	PORTION OF \$ SPENT ON PUBLIC JOBS
*	0.15 OFFSET2	FEDERAL OFFSET: AVERAGE FEDERAL TAX RATE FOR STATE EMPLOYEE		
*	1.3 MULT2	ECONOMIC MULTIPLIER ON STATE EMPLOYEE DISPOSABLE PERSONAL INCOME		
	0.031 WAGEGOV1	AVERAGE STATE/LOCAL WAGE (MILLION \$)		
	0.22 COMP1	STATE GOVERNMENT BENEFITS AS % OF WAGE	0.25 DPI1	PORTION OF NON-JOB EXPENDITURES
	0.8 MPC2	MARGINAL PROPENSITY TO CONSUME OF GOVT EMPLOYEE		
	0.4 BEN1	LOCALLY SPENT PORTION OF PUBLIC EMPLOYEE BENEFITS		

87:3-4

DIRECT EFFECT

	ALASKA INCOME (MILL \$)			DISPOSABLE INCOME (MILL \$)			DISCRETIONARY SPENDING (MILL \$)			EMPLOYMENT (ANNUAL AVERAGE)		
	PRIVATE	PUBLIC	TOTAL	PRIVATE	PUBLIC	TOTAL	PRIVATE	PUBLIC	TOTAL	PRIV	PUBLIC	TOTAL
Private Sector	(\$54.5)	\$0.0	(\$54.5)	(\$46.8)	\$0.0	(\$46.8)	(\$42.1)	\$0.0	(\$42.1)	0	0	0
Public Sector	\$0.0	\$28.0	\$28.0	\$7.0	\$0.0	\$7.0	\$6.3	\$0.0	\$6.3	0	0	0
Total	(\$54.5)	\$28.0	(\$26.5)	(\$39.8)	\$0.0	(\$39.8)	(\$35.8)	\$0.0	(\$35.8)	0	0	0

INDIRECT EFFECT

Private Sector	(\$16.4)	\$0.0	(\$16.4)	(\$13.9)	\$0.0	(\$13.9)	(\$11.2)	\$0.0	(\$11.2)	-1358	0	-1358
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TOTAL EFFECT

Private Sector	(\$70.8)	\$0.0	(\$70.8)	(\$60.8)	\$0.0	(\$60.8)	(\$53.3)	\$0.0	(\$53.3)	-1358	0	-1358
Public Sector	\$0.0	\$28.0	\$28.0	\$7.0	\$0.0	\$7.0	\$6.3	\$0.0	\$6.3	0	0	0
Total	(\$70.8)	\$28.0	(\$42.8)	(\$53.8)	\$0.0	(\$53.8)	(\$47.0)	\$0.0	(\$47.0)	-1358	0	-1358

88:1-2

DIRECT EFFECT

Private Sector	(\$27.7)	\$0.0	(\$27.7)	(\$23.8)	\$0.0	(\$23.8)	(\$21.5)	\$0.0	(\$21.5)	0	0	0
Public Sector	\$0.0	\$55.0	\$55.0	\$13.8	\$0.0	\$13.8	\$12.4	\$0.0	\$12.4	0	0	0
Total	(\$27.7)	\$55.0	\$27.3	(\$10.1)	\$0.0	(\$10.1)	(\$9.1)	\$0.0	(\$9.1)	0	0	0

INDIRECT EFFECT

Private Sector	(\$4.2)	\$0.0	(\$4.2)	(\$3.5)	\$0.0	(\$3.5)	(\$2.8)	\$0.0	(\$2.8)	-344	0	-344
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TOTAL EFFECT

Private Sector	(\$31.9)	\$0.0	(\$31.9)	(\$27.4)	\$0.0	(\$27.4)	(\$24.3)	\$0.0	(\$24.3)	-344	0	-344
Public Sector	\$0.0	\$55.0	\$55.0	\$13.8	\$0.0	\$13.8	\$12.4	\$0.0	\$12.4	0	0	0
Total	(\$31.9)	\$55.0	\$23.1	(\$13.6)	\$0.0	(\$13.6)	(\$11.9)	\$0.0	(\$11.9)	-344	0	-344

88:3-4

DIRECT EFFECT

Private Sector	(\$169.3)	\$0.0	(\$169.3)	(\$145.6)	\$0.0	(\$145.6)	(\$131.0)	\$0.0	(\$131.0)	0	0	0
Public Sector	\$0.0	\$128.0	\$128.0	\$32.0	\$0.0	\$32.0	\$28.8	\$0.0	\$28.8	0	0	0
Total	(\$169.3)	\$128.0	(\$41.3)	(\$113.6)	\$0.0	(\$113.6)	(\$102.2)	\$0.0	(\$102.2)	0	0	0

INDIRECT EFFECT

Private Sector	(\$46.8)	\$0.0	(\$46.8)	(\$39.8)	\$0.0	(\$39.8)	(\$31.8)	\$0.0	(\$31.8)	-3873	0	-3873
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TOTAL EFFECT

Private Sector	(\$216.1)	\$0.0	(\$216.1)	(\$185.3)	\$0.0	(\$185.3)	(\$162.8)	\$0.0	(\$162.8)	-3873	0	-3873
Public Sector	\$0.0	\$128.0	\$128.0	\$32.0	\$0.0	\$32.0	\$28.8	\$0.0	\$28.8	0	0	0
Total	(\$216.1)	\$128.0	(\$88.1)	(\$153.3)	\$0.0	(\$153.3)	(\$134.0)	\$0.0	(\$134.0)	-3873	0	-3873

REDUCE PF DIVIDEND--MINIMIZE PUBLIC JOB RETENTION

SENSITIVITY ANALYSIS

DISPOSABLE PERSONAL INCOME

EMPLOYMENT

	+J12	% FEDERAL OFFSET (C37)				
		5%	10%	15%	20%	25%
		5% (0411)	(0381)	(0351)	(0322)	(0292)
Z		10% (0381)	(0353)	(0325)	(0296)	(0268)
TAX		15% (0351)	(0325)	(0298)	(0271)	(0244)
EXPORTING		20% (0322)	(0296)	(0271)	(0246)	(0221)
(C38)						

	+P12	% FEDERAL OFFSET				
		5%	10%	15%	20%	25%
		5% -2078	-1927	-1776	-1624	-1473
		10% -1927	-1784	-1640	-1497	-1354
		15% -1776	-1640	-1505	-1370	-1234
		20% -1624	-1497	-1370	-1242	-1115

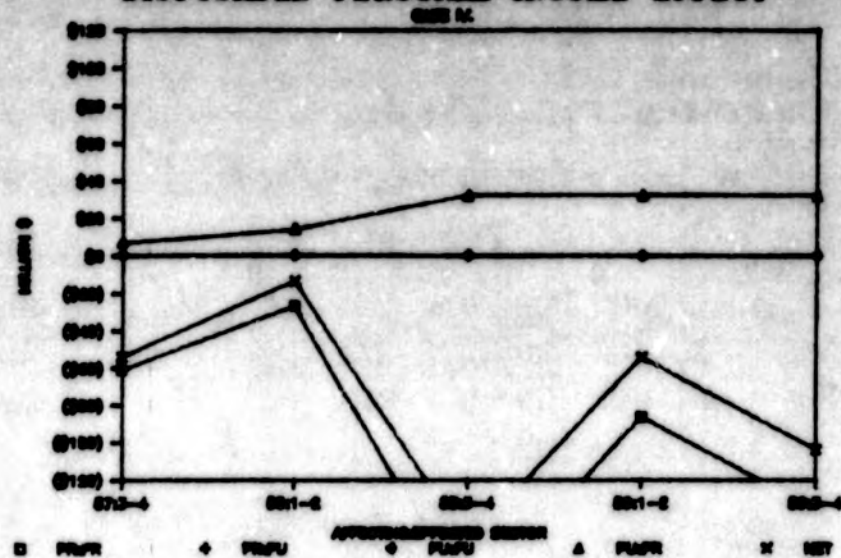
	+J12	PUBLIC MULTIPLIER (C50)				
		1.1	1.15	1.2	1.25	1.3
		1.1 (0309)	(0309)	(0309)	(0309)	(0309)
PRIVATE		1.15 (0323)	(0323)	(0323)	(0323)	(0323)
MULTI-		1.2 (0337)	(0337)	(0337)	(0337)	(0337)
PLIER		1.25 (0351)	(0351)	(0351)	(0351)	(0351)
(C39)		1.3 (0365)	(0365)	(0365)	(0365)	(0365)

	+P12	PUBLIC MULTIPLIER (C50)				
		1.1	1.15	1.2	1.25	1.3
		1.1 -547	-547	-547	-547	-547
		1.15 -821	-821	-821	-821	-821
		1.2 -1095	-1095	-1095	-1095	-1095
		1.25 -1368	-1368	-1368	-1368	-1368
		1.3 -1642	-1642	-1642	-1642	-1642

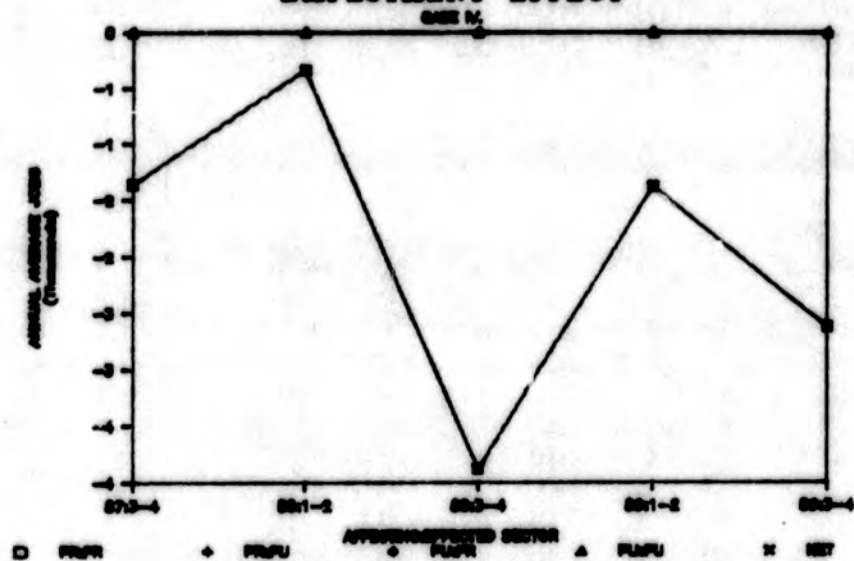
	+J12	PRIVATE MULTIPLIER (C39)				
		1.1	1.2	1.3	1.4	1.5
	0	(0437)	(0477)	(0517)	(0557)	(0596)
PUBLIC	0.1	(0386)	(0421)	(0456)	(0491)	(0526)
DPI	0.2	(0335)	(0365)	(0395)	(0426)	(0456)
CREATE	0.3	(0283)	(0309)	(0335)	(0361)	(0386)
(M51)	0.4	(0232)	(0253)	(0274)	(0295)	(0316)
	0.5	(0181)	(0197)	(0213)	(0230)	(0246)
	0.6	(0129)	(0141)	(0153)	(0164)	(0176)
	0.7	(078)	(085)	(092)	(099)	(0106)
	0.8	(026)	(029)	(031)	(034)	(036)
	0.9	025	027	030	032	034
	1	076	083	090	097	0104

	+P12	PRIVATE MULTIPLIER (C39)				
		1.1	1.2	1.3	1.4	1.5
	0	-775	-1550	-2324	-3099	-3874
	0.1	-684	-1368	-2051	-2735	-3419
	0.2	-593	-1186	-1778	-2371	-2964
	0.3	-502	-1004	-1505	-2007	-2509
	0.4	-411	-822	-1232	-1643	-2054
	0.5	-320	-640	-959	-1279	-1599
	0.6	-229	-458	-686	-915	-1144
	0.7	-138	-276	-413	-551	-689
	0.8	-47	-94	-140	-187	-234
	0.9	44	88	133	177	221
	1	135	270	406	541	676

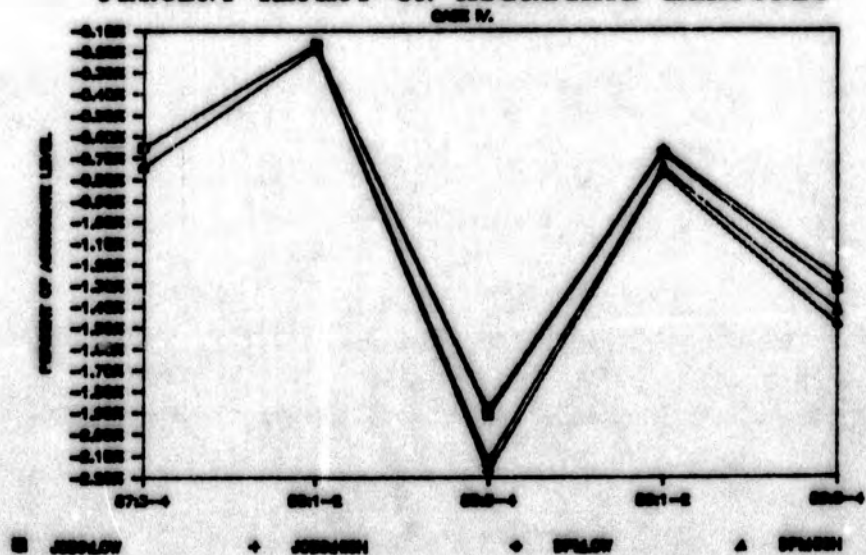
DISPOSABLE PERSONAL INCOME EFFECT



EMPLOYMENT EFFECT



PERCENT IMPACT ON AGGREGATE MEASURES



****CASE VI. *****PAGE 1.
REDUCE PF DIVIDEND--ACROSS THE BOARD RETENTION

*****CASE VI.
REDUCE PF DIVIDEND--ACROSS THE BOARD RETENTION

READ IMPACT SOURCE
ACROSS AND LOCATION
DOWN*****

ALASKA INCOME (MILL \$)			DISPOSABLE INCOME (MILL \$)			DISCRETIONARY SPENDING (MILL \$)			EMPLOYMENT (ANNUAL AVERAGE)		
PRIVATE	PUBLIC	TOTAL	PRIVATE	PUBLIC	TOTAL	PRIVATE	PUBLIC	TOTAL	PRIV	PUBLIC	TOTAL

****SUMMARY*****

PRIVATE SECTOR		(6606.8)	\$75.0	(531.9)	(520.4)	\$63.7	(456.7)	(456.1)	\$51.0	(405.1)	-2393	1242	-1152
PUBLIC SECTOR		\$0.0	\$467.0	\$467.0	\$46.7	\$195.2	\$241.9	\$42.0	\$156.2	\$198.2	0	2964	2964
TOTAL		(6606.8)	\$542.0	(664.9)	(473.7)	\$258.9	(214.8)	(414.1)	\$207.2	(206.9)	-2393	4205	1812
TOTAL	87:3-4	(672.6)	\$32.5	(440.1)	(59.4)	\$15.5	(43.9)	(52.0)	\$12.4	(39.5)	-1501	1261	-241
EFFECT	88:1-2	(35.3)	\$63.8	\$28.6	(24.8)	\$30.5	\$5.7	(21.6)	\$24.4	\$2.8	-625	2476	1851
	88:3-4	(224.0)	\$148.5	(75.4)	(179.3)	\$71.0	(108.3)	(156.7)	\$56.8	(99.9)	-4528	5763	1235
	89:1-2	(108.7)	\$148.5	\$39.9	(80.4)	\$71.0	(9.4)	(70.3)	\$56.8	(13.5)	-2031	5763	3732
	89:3-4	(166.3)	\$148.5	(17.8)	(129.6)	\$71.0	(58.9)	(113.5)	\$56.8	(56.7)	-3280	5763	2483
PRIVATE	87:3-4	(672.6)	\$4.5	(668.1)	(62.2)	\$3.8	(58.4)	(54.5)	\$3.1	(51.4)	-1501	372	-1129
SECTOR	88:1-2	(35.3)	\$8.8	(26.4)	(30.3)	\$7.5	(22.8)	(26.6)	\$6.0	(20.6)	-625	731	106
IMPACT	88:3-4	(224.0)	\$20.5	(203.4)	(192.1)	\$17.5	(174.6)	(168.2)	\$14.0	(154.2)	-4528	1702	-2827
	89:1-2	(108.7)	\$20.5	(88.1)	(93.2)	\$17.5	(75.8)	(81.8)	\$14.0	(67.6)	-2031	1702	-330
	89:3-4	(166.3)	\$20.5	(145.8)	(142.6)	\$17.5	(125.2)	(125.0)	\$14.0	(111.0)	-3280	1702	-1578
PUBLIC	87:3-4	\$0.0	\$28.0	\$28.0	\$2.8	\$11.7	\$14.5	\$2.5	\$9.4	\$11.9	0	888	888
SECTOR	88:1-2	\$0.0	\$55.0	\$55.0	\$5.5	\$23.0	\$28.5	\$5.0	\$18.4	\$23.3	0	1745	1745
IMPACT	88:3-4	\$0.0	\$128.0	\$128.0	\$12.8	\$53.5	\$66.3	\$11.5	\$42.8	\$54.3	0	4061	4061
	89:1-2	\$0.0	\$128.0	\$128.0	\$12.8	\$53.5	\$66.3	\$11.5	\$42.8	\$54.3	0	4061	4061
	89:3-4	\$0.0	\$128.0	\$128.0	\$12.8	\$53.5	\$66.3	\$11.5	\$42.8	\$54.3	0	4061	4061

****ASSUMPTIONS*****DANGER!!!!!!!!*****

A.PRIVATE EFFECTS*****

C. DIRECT INCOME CHANGES*****

			PRIVATE	PUBLIC
* 0.14 OFFSET1	FEDERAL OFFSET: MARGINAL FEDERAL TAX RATE ON ALASKA INCOME			
* 0.01 LEAK1	TAX EXPORTING: PORTION OF INCOME TAX PAID BY NON-RESIDENTS			
* 1.35 MULT1	ECONOMIC MULTIPLIER ON RESIDENT DISPOSABLE PERSONAL INCOME	87:3-4	55	28
0.85 DPIRATE	RATIO OF DPI/PI FOR SUPPORT SECTOR INCOME	88:1-2	28	55
0.021 WAGESUP1	AVERAGE SUPPORT SECTOR WAGE (MILLION \$)	88:3-4	171	128
0.15 COMP2	SUPPORT SECTOR BENEFITS AS % OF WAGE	89:1-2	85	128
0.9 MPC1	MARGINAL PROPENSITY TO CONSUME OF TAXPAYER OR PF DIV RECIPIENT	89:3-4	128	128
0.8 MPC3	MARGINAL PROPENSITY TO CONSUME OF SUPPORT SECTOR EMPLOYEE			
	TOTAL		467	467

B.PUBLIC EFFECTS*****

			0.6 POR1	PORTION OF \$ SPENT ON PUBLIC JOBS
* 0.15 OFFSET2	FEDERAL OFFSET: AVERAGE FEDERAL TAX RATE FOR STATE EMPLOYEE			
* 1.3 MULT2	ECONOMIC MULTIPLIER ON STATE EMPLOYEE DISPOSABLE PERSONAL INCOME			
0.031 WAGEGOV1	AVERAGE STATE/LOCAL WAGE (MILLION \$)			
0.22 COMP1	STATE GOVERNMENT BENEFITS AS % OF WAGE	0.25 DPI1		PORTION OF NON-JOB EXPENDITURES
0.8 MPC2	MARGINAL PROPENSITY TO CONSUME OF GOVT EMPLOYEE			
0.4 BEN1	LOCALLY SPENT PORTION OF PUBLIC EMPLOYEE BENEFITS			

*****CASE VI. *****PAGE 2.
REDUCE PF DIVIDEND--ACROSS THE BOARD RETENTION

*****CASE VI.
REDUCE PF DIVIDEND--ACROSS THE BOARD RETENTION

87:3-4

DIRECT EFFECT

	ALASKA INCOME (MILL \$)			DISPOSABLE INCOME (MILL \$)			DISCRETIONARY SPENDING (MILL \$)			EMPLOYMENT (ANNUAL AVERAGE)		
	PRIVATE	PUBLIC	TOTAL	PRIVATE	PUBLIC	TOTAL	PRIVATE	PUBLIC	TOTAL	PRIV	PUBLIC	TOTAL
Private Sector	(954.5)	90.0	(954.5)	(946.8)	90.0	(946.8)	(942.1)	90.0	(942.1)	0	0	0
Public Sector	90.0	928.0	928.0	92.8	911.7	914.5	92.5	99.4	911.9	0	888	888
Total	(954.5)	928.0	(926.5)	(944.0)	911.7	(932.3)	(939.6)	99.4	(930.3)	0	888	888

INDIRECT EFFECT

Private Sector	(918.1)	94.5	(913.6)	(915.4)	93.8	(911.6)	(912.3)	93.1	(99.3)	-1501	372	-1129
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TOTAL EFFECT

Private Sector	(972.6)	94.5	(968.1)	(962.2)	93.8	(958.4)	(954.5)	93.1	(951.4)	-1501	372	-1129
Public Sector	90.0	928.0	928.0	92.8	911.7	914.5	92.5	99.4	911.9	0	888	888
Total	(972.6)	932.5	(940.1)	(959.4)	915.5	(943.9)	(952.0)	912.4	(939.5)	-1501	1261	-241

88:1-2

DIRECT EFFECT

Private Sector	(927.7)	90.0	(927.7)	(923.8)	90.0	(923.8)	(921.5)	90.0	(921.5)	0	0	0
Public Sector	90.0	955.0	955.0	95.5	923.0	928.5	95.0	918.4	923.3	0	1745	1745
Total	(927.7)	955.0	927.3	(918.3)	923.0	94.7	(916.5)	918.4	91.9	0	1745	1745

INDIRECT EFFECT

Private Sector	(97.6)	98.8	91.3	(96.4)	97.5	91.1	(95.1)	96.0	90.9	-625	731	106
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TOTAL EFFECT

Private Sector	(935.3)	98.8	(926.4)	(930.3)	97.5	(922.8)	(926.6)	96.0	(920.6)	-625	731	106
Public Sector	90.0	955.0	955.0	95.5	923.0	928.5	95.0	918.4	923.3	0	1745	1745
Total	(935.3)	963.8	928.6	(924.8)	930.5	95.7	(921.6)	924.4	92.8	-625	2476	1851

88:3-4

DIRECT EFFECT

Private Sector	(9169.3)	90.0	(9169.3)	(9145.6)	90.0	(9145.6)	(9131.0)	90.0	(9131.0)	0	0	0
Public Sector	90.0	9128.0	9128.0	912.8	953.5	966.3	911.5	942.8	954.3	0	4061	4061
Total	(9169.3)	9128.0	(941.3)	(9132.8)	953.5	(979.3)	(9119.5)	942.8	(976.7)	0	4061	4061

INDIRECT EFFECT

Private Sector	(954.7)	920.5	(934.1)	(946.5)	917.5	(929.0)	(937.2)	914.0	(923.2)	-4528	1702	-2827
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TOTAL EFFECT

Private Sector	(9224.0)	920.5	(9203.4)	(9192.1)	917.5	(9174.6)	(9168.2)	914.0	(9154.2)	-4528	1702	-2827
Public Sector	90.0	9128.0	9128.0	912.8	953.5	966.3	911.5	942.8	954.3	0	4061	4061
Total	(9224.0)	9148.5	(975.4)	(9179.3)	971.0	(9108.3)	(9156.7)	956.8	(999.9)	-4528	5763	1235

REDUCE PF DIVIDEND--ACROSS THE BOARD RETENTION

SENSITIVITY ANALYSIS

00DISPOSABLE PERSONAL INCOME00

00EMPLOYMENT00

	% FEDERAL OFFSET (C37)					
	+J12	5%	10%	15%	20%	25%
	5%	(0247)	(0217)	(0187)	(0157)	(0127)
	10%	(0217)	(0189)	(0160)	(0132)	(0104)
	15%	(0187)	(0160)	(0134)	(0107)	(080)
	20%	(0157)	(0132)	(0107)	(082)	(056)
EXPORTING (C38)						

	% FEDERAL OFFSET					
	+P12	5%	10%	15%	20%	25%
	5%	1649	1800	1952	2103	2254
	10%	1800	1944	2087	2230	2374
	15%	1952	2087	2223	2358	2493
	20%	2103	2230	2358	2485	2613

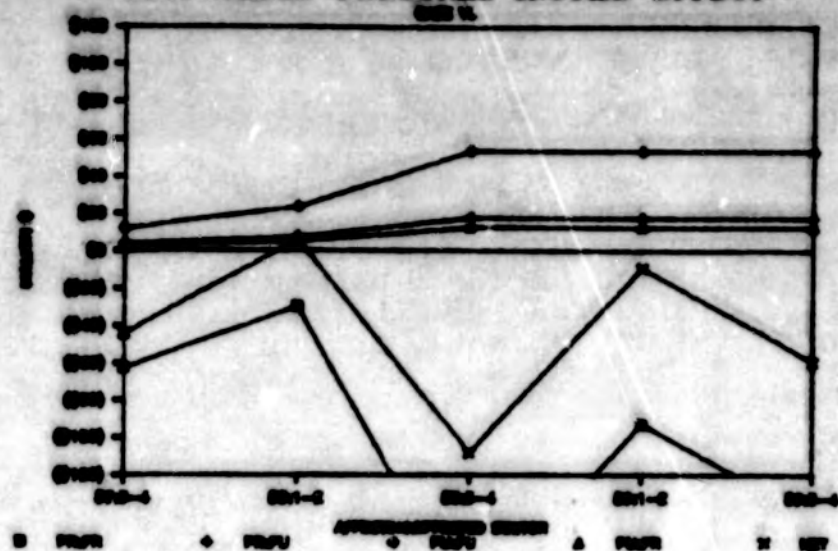
	PUBLIC MULTIPLIER (C50)					
	+J12	1.1	1.15	1.2	1.25	1.3
	1.1	(0127)	(0127)	(0127)	(0127)	(0127)
	1.15	(0145)	(0145)	(0145)	(0145)	(0145)
	1.2	(0162)	(0162)	(0162)	(0162)	(0162)
	1.25	(0180)	(0180)	(0180)	(0180)	(0180)
	1.3	(0197)	(0197)	(0197)	(0197)	(0197)
PRIVATE MULTI- PLIER (C39)						

	PUBLIC MULTIPLIER (C50)					
	+P12	1.1	1.15	1.2	1.25	1.3
	1.1	641	638	634	631	629
	1.15	300	296	293	289	287
	1.2	-42	-46	-49	-52	-55
	1.25	-384	-388	-391	-394	-397
	1.3	-726	-730	-733	-736	-739

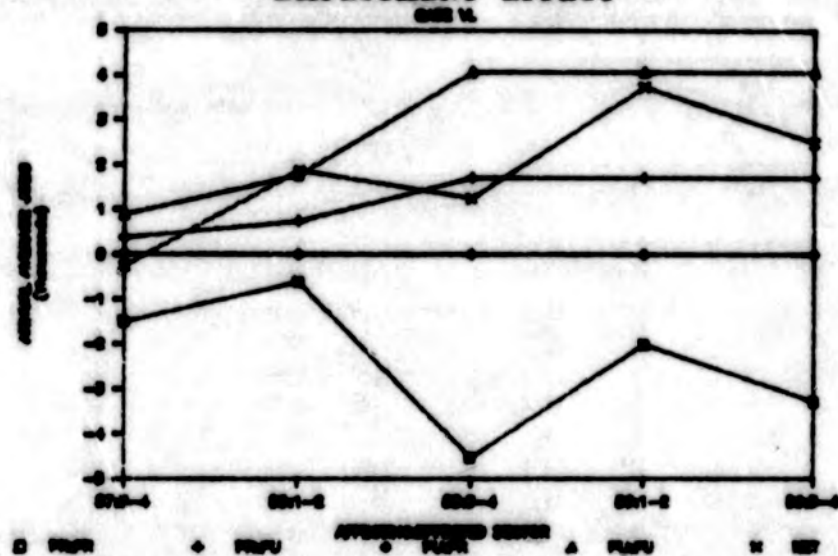
	PRIVATE MULTIPLIER (C39)					
	+J12	1.1	1.2	1.3	1.4	1.5
	0	(0178)	(0218)	(0258)	(0298)	(0337)
	0.1	(0158)	(0196)	(0234)	(0272)	(0309)
	0.2	(0137)	(0173)	(0209)	(0245)	(0281)
	0.3	(0117)	(0151)	(0185)	(0219)	(0253)
	0.4	(096)	(0129)	(0161)	(0193)	(0225)
	0.5	(076)	(0106)	(0137)	(0167)	(0197)
	0.6	(055)	(084)	(0112)	(0141)	(0169)
	0.7	(035)	(061)	(088)	(0115)	(0141)
	0.8	(014)	(039)	(064)	(088)	(0113)
	0.9	87	(016)	(039)	(062)	(085)
	1	827	86	(015)	(036)	(057)
PUBLIC DP: CREATE (W51)						

	PRIVATE MULTIPLIER (C39)					
	+P12	1.1	1.2	1.3	1.4	1.5
	0	3430	2656	1881	1106	331
	0.1	3467	2728	1990	1252	513
	0.2	3503	2801	2099	1397	695
	0.3	3540	2874	2208	1543	877
	0.4	3576	2947	2318	1688	1059
	0.5	3612	3020	2427	1834	1241
	0.6	3649	3092	2536	1980	1423
	0.7	3685	3165	2645	2125	1605
	0.8	3722	3238	2754	2271	1787
	0.9	3758	3311	2864	2416	1969
	1	3794	3384	2973	2562	2151

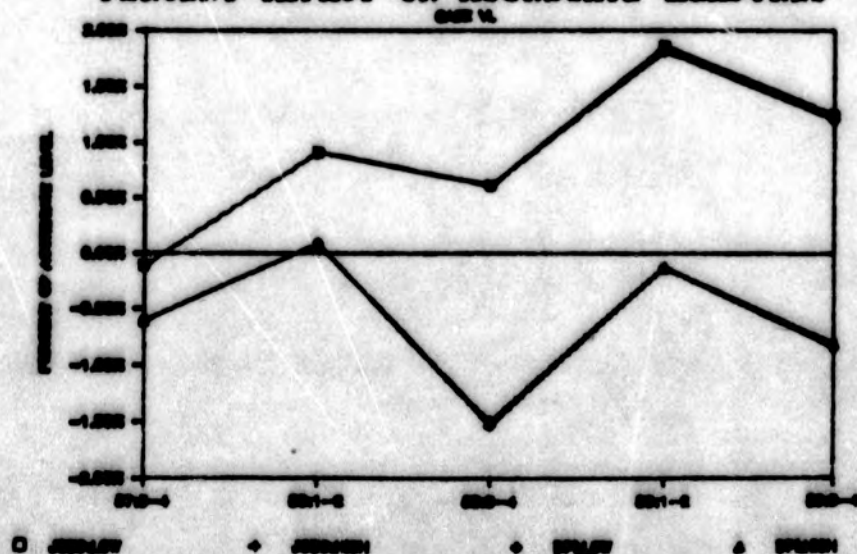
DISPOSABLE PERSONAL INCOME EFFECT



EMPLOYMENT EFFECT



PERCENT IMPACT ON AGGREGATE MEASURES



READ IMPACT SOURCE
ACROSS AND LOCATION
DOWN*****

ALASKA INCOME
(MILL \$)

DISPOSABLE INCOME
(MILL \$)

DISCRETIONARY SPENDING
(MILL \$)

EMPLOYMENT
(ANNUAL AVERAGE)

*****SUMMARY*****

		PRIVATE	PUBLIC	TOTAL	PRIVATE	PUBLIC	TOTAL	PRIVATE	PUBLIC	TOTAL	PRIV	PUBLIC	TOTAL	
MARY*****														
PRIVATE SECTOR		(6626.0)	60.0	(6626.0)	(6536.8)	60.0	(6536.8)	(6429.4)	60.0	(6429.4)	-2712	0	-2712	
PUBLIC SECTOR		60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	0	0	0	
TOTAL		(6626.0)	60.0	(6626.0)	(6536.8)	60.0	(6536.8)	(6429.4)	60.0	(6429.4)	-2712	0	-2712	
TOTAL		87:3-4	(673.7)	60.0	(673.7)	(663.2)	60.0	(663.2)	(650.6)	60.0	(650.6)	-1597	0	-1597
EFFECT		88:1-2	(637.5)	60.0	(637.5)	(632.2)	60.0	(632.2)	(625.7)	60.0	(625.7)	-813	0	-813
		88:3-4	(6229.2)	60.0	(6229.2)	(6196.5)	60.0	(6196.5)	(6157.2)	60.0	(6157.2)	-4965	0	-4965
		89:1-2	(6113.9)	60.0	(6113.9)	(6077.7)	60.0	(6077.7)	(6078.2)	60.0	(6078.2)	-2468	0	-2468
		89:3-4	(6171.6)	60.0	(6171.6)	(6147.1)	60.0	(6147.1)	(6117.7)	60.0	(6117.7)	-3716	0	-3716
PRIVATE		87:3-4	(673.7)	60.0	(673.7)	(663.2)	60.0	(663.2)	(650.6)	60.0	(650.6)	-1597	0	-1597
SECTOR		88:1-2	(637.5)	60.0	(637.5)	(632.2)	60.0	(632.2)	(625.7)	60.0	(625.7)	-813	0	-813
IMPACT		88:3-4	(6229.2)	60.0	(6229.2)	(6196.5)	60.0	(6196.5)	(6157.2)	60.0	(6157.2)	-4965	0	-4965
		89:1-2	(6113.9)	60.0	(6113.9)	(6077.7)	60.0	(6077.7)	(6078.2)	60.0	(6078.2)	-2468	0	-2468
		89:3-4	(6171.6)	60.0	(6171.6)	(6147.1)	60.0	(6147.1)	(6117.7)	60.0	(6117.7)	-3716	0	-3716
PUBLIC		87:3-4	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	0	0	0	
SECTOR		88:1-2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	0	0	0	
IMPACT		88:3-4	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	0	0	0	
		89:1-2	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	0	0	0	
		89:3-4	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	0	0	0	

*****ASSUMPTIONS*****DANGER!!!!!!*****

A.PRIVATE EFFECTS*****

C. DIRECT INCOME CHANGES*****

			PRIVATE	PUBLIC
*	0.14 OFFSET1	FEDERAL OFFSET: MARGINAL FEDERAL TAX RATE ON ALASKA INCOME		
*	0.01 LEAN1	TAX EXPORTING: PORTION OF INCOME TAX PAID BY NON-RESIDENTS		
*	1.35 MULT1	ECONOMIC MULTIPLIER ON RESIDENT DISPOSABLE PERSONAL INCOME	87:3-4	55 0
	0.85 DPIRATE	RATIO OF DPI/PI FOR SUPPORT SECTOR INCOME	88:1-2	28 0
	0.021 WAGESUP1	AVERAGE SUPPORT SECTOR WAGE (MILLION \$)	88:3-4	171 0
	0.15 COMP2	SUPPORT SECTOR BENEFITS AS % OF WAGE	89:1-2	85 0
	0.8 NPC1	MARGINAL PROPENSITY TO CONSUME OF TAXPAYER OR PF DIV RECIPIENT	89:3-4	128 0
	0.8 NPC3	MARGINAL PROPENSITY TO CONSUME OF SUPPORT SECTOR EMPLOYEE		
		TOTAL	467	0

B.PUBLIC EFFECTS*****

			1 POR1	PORTION OF \$ SPENT ON PUBLIC JOBS
*	1 OFFSET2	FEDERAL OFFSET: AVERAGE FEDERAL TAX RATE FOR STATE EMPLOYEE		
*	1.3 MULT2	ECONOMIC MULTIPLIER ON STATE EMPLOYEE DISPOSABLE PERSONAL INCOME		
	0.031 WAGEGOV1	AVERAGE STATE/LOCAL WAGE (MILLION \$)		
	0.22 COMP1	STATE GOVERNMENT BENEFITS AS % OF WAGE	0.25 DPI1	PORTION OF NON-JOB EXPENDITURES
	0.8 NPC2	MARGINAL PROPENSITY TO CONSUME OF GOVT EMPLOYEE		
	0.4 BEN1	LOCALLY SPENT PORTION OF PUBLIC EMPLOYEE BENEFITS		

		ALASKA INCOME (MILL \$)			DISPOSABLE INCOME (MILL \$)			DISCRETIONARY SPENDING (MILL \$)			EMPLOYMENT (ANNUAL AVERAGE)		
		PRIVATE	PUBLIC	TOTAL	PRIVATE	PUBLIC	TOTAL	PRIVATE	PUBLIC	TOTAL	PRIV	PUBLIC	TOTAL
87:3-4													
DIRECT EFFECT													
Private Sector		(954.5)	90.0	(954.5)	(946.8)	90.0	(946.8)	(937.5)	90.0	(937.5)	0	0	0
Public Sector		90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	0	0	0
Total		(954.5)	90.0	(954.5)	(946.8)	90.0	(946.8)	(937.5)	90.0	(937.5)	0	0	0
INDIRECT EFFECT													
Private Sector		(819.3)	90.0	(819.3)	(816.4)	90.0	(816.4)	(813.1)	90.0	(813.1)	-1597	0	-1597
TOTAL EFFECT													
Private Sector		(973.7)	90.0	(973.7)	(963.2)	90.0	(963.2)	(950.6)	90.0	(950.6)	-1597	0	-1597
Public Sector		90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	0	0	0
Total		(973.7)	90.0	(973.7)	(963.2)	90.0	(963.2)	(950.6)	90.0	(950.6)	-1597	0	-1597
88:1-2													
DIRECT EFFECT													
Private Sector		(927.7)	90.0	(927.7)	(923.8)	90.0	(923.8)	(919.1)	90.0	(919.1)	0	0	0
Public Sector		90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	0	0	0
Total		(927.7)	90.0	(927.7)	(923.8)	90.0	(923.8)	(919.1)	90.0	(919.1)	0	0	0
INDIRECT EFFECT													
Private Sector		(99.8)	90.0	(99.8)	(98.3)	90.0	(98.3)	(96.7)	90.0	(96.7)	-813	0	-813
TOTAL EFFECT													
Private Sector		(937.5)	90.0	(937.5)	(932.2)	90.0	(932.2)	(925.7)	90.0	(925.7)	-813	0	-813
Public Sector		90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	0	0	0
Total		(937.5)	90.0	(937.5)	(932.2)	90.0	(932.2)	(925.7)	90.0	(925.7)	-813	0	-813
88:3-4													
DIRECT EFFECT													
Private Sector		(9169.3)	90.0	(9169.3)	(9145.6)	90.0	(9145.6)	(9116.5)	90.0	(9116.5)	0	0	0
Public Sector		90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	0	0	0
Total		(9169.3)	90.0	(9169.3)	(9145.6)	90.0	(9145.6)	(9116.5)	90.0	(9116.5)	0	0	0
INDIRECT EFFECT													
Private Sector		(959.9)	90.0	(959.9)	(951.0)	90.0	(951.0)	(940.8)	90.0	(940.8)	-4965	0	-4965
TOTAL EFFECT													
Private Sector		(9229.2)	90.0	(9229.2)	(9196.5)	90.0	(9196.5)	(9157.2)	90.0	(9157.2)	-4965	0	-4965
Public Sector		90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	0	0	0
Total		(9229.2)	90.0	(9229.2)	(9196.5)	90.0	(9196.5)	(9157.2)	90.0	(9157.2)	-4965	0	-4965

SENSITIVITY ANALYSIS

DISPOSABLE PERSONAL INCOME

EMPLOYMENT

	+J12	% FEDERAL OFFSET (C37)				
		5%	10%	15%	20%	25%
Z		5% (0569)	(0539)	(0509)	(0479)	(0449)
TAX		10% (0539)	(0511)	(0482)	(0454)	(0426)
EXPORTING		15% (0509)	(0482)	(0456)	(0429)	(0402)
(C38)		20% (0479)	(0454)	(0429)	(0403)	(0378)

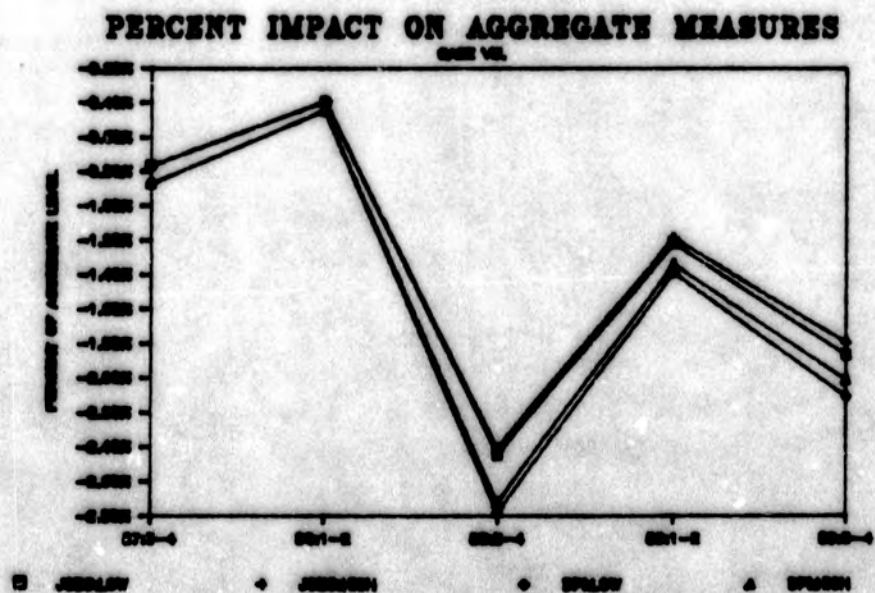
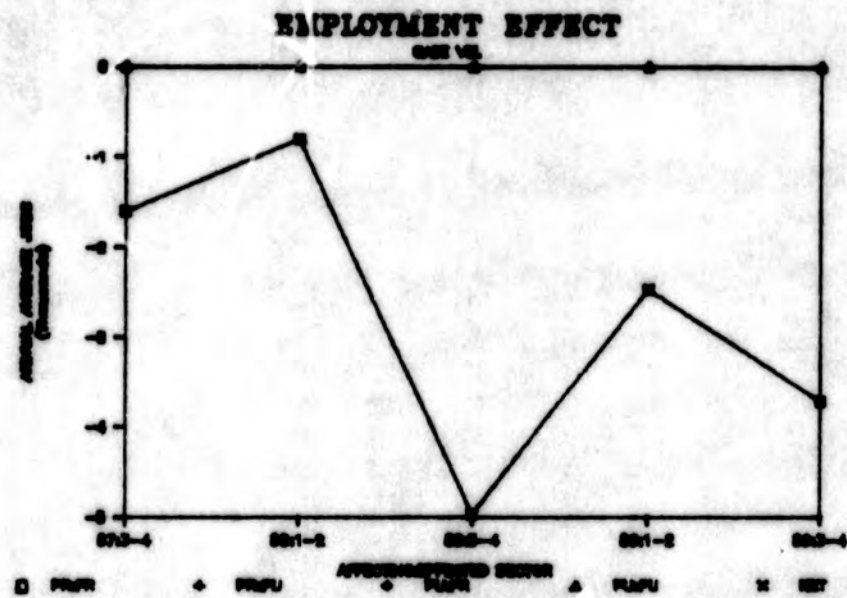
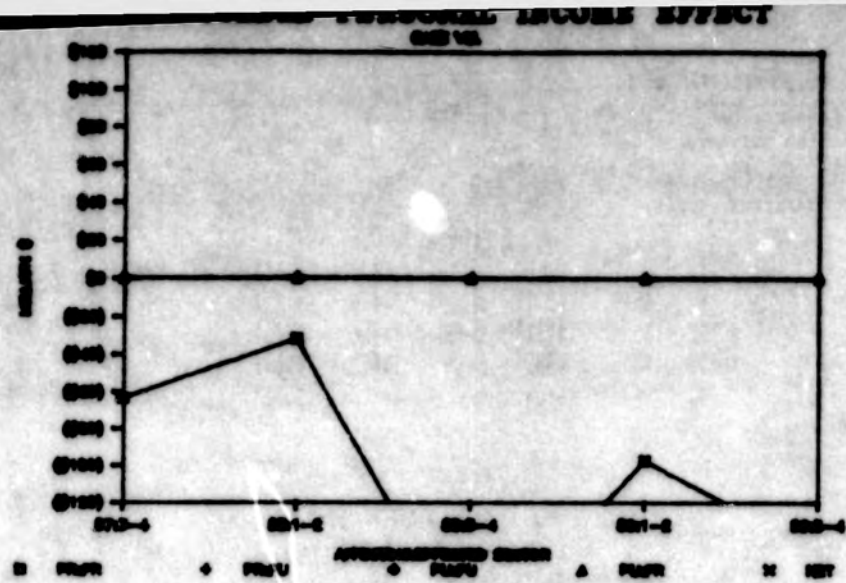
	+P12	% FEDERAL OFFSET				
		5%	10%	15%	20%	25%
		5% -2874	-2723	-2572	-2421	-2269
		10% -2723	-2580	-2437	-2293	-2150
		15% -2572	-2437	-2301	-2166	-2030
		20% -2421	-2293	-2166	-2038	-1911

	+J12	PUBLIC MULTIPLIER (C50)				
		1.1	1.15	1.2	1.25	1.3
PRIVATE		1.1 (0437)	(0437)	(0437)	(0437)	(0437)
MULTI-		1.15 (0457)	(0457)	(0457)	(0457)	(0457)
PLIER		1.2 (0477)	(0477)	(0477)	(0477)	(0477)
(C39)		1.25 (0497)	(0497)	(0497)	(0497)	(0497)
		1.3 (0517)	(0517)	(0517)	(0517)	(0517)

	+P12	PUBLIC MULTIPLIER (C50)				
		1.1	1.15	1.2	1.25	1.3
		1.1 -775	-775	-775	-775	-775
		1.15 -1162	-1162	-1162	-1162	-1162
		1.2 -1550	-1550	-1550	-1550	-1550
		1.25 -1937	-1937	-1937	-1937	-1937
		1.3 -2324	-2324	-2324	-2324	-2324

	+J12	PRIVATE MULTIPLIER (C39)				
		1.1	1.2	1.3	1.4	1.5
PUBLIC		0 (0437)	(0477)	(0517)	(0557)	(0596)
DP1		0.1 (0437)	(0477)	(0517)	(0557)	(0596)
CREATE		0.2 (0437)	(0477)	(0517)	(0557)	(0596)
(M51)		0.3 (0437)	(0477)	(0517)	(0557)	(0596)
		0.4 (0437)	(0477)	(0517)	(0557)	(0596)
		0.5 (0437)	(0477)	(0517)	(0557)	(0596)
		0.6 (0437)	(0477)	(0517)	(0557)	(0596)
		0.7 (0437)	(0477)	(0517)	(0557)	(0596)
		0.8 (0437)	(0477)	(0517)	(0557)	(0596)
		0.9 (0437)	(0477)	(0517)	(0557)	(0596)
		1 (0437)	(0477)	(0517)	(0557)	(0596)

	+P12	PRIVATE MULTIPLIER (C39)				
		1.1	1.2	1.3	1.4	1.5
		0 -775	-1550	-2324	-3099	-3874
		0.1 -775	-1550	-2324	-3099	-3874
		0.2 -775	-1550	-2324	-3099	-3874
		0.3 -775	-1550	-2324	-3099	-3874
		0.4 -775	-1550	-2324	-3099	-3874
		0.5 -775	-1550	-2324	-3099	-3874
		0.6 -775	-1550	-2324	-3099	-3874
		0.7 -775	-1550	-2324	-3099	-3874
		0.8 -775	-1550	-2324	-3099	-3874
		0.9 -775	-1550	-2324	-3099	-3874
		1 -775	-1550	-2324	-3099	-3874



II.b. The Reduction of Private-Sector Purchasing Power from A Tax

The percentage of a dollar of tax proceeds which represents a reduction of resident private-sector purchasing power depends upon the following three factors:

- the federal tax "offset"
- "tax exporting"
- the marginal propensity to consume of the resident tax-paying population

The higher the federal "offset" and "tax exporting," the smaller the percentage reduction in the disposable personal income of Alaskans. The lower the marginal propensity to consume of the resident taxpaying population, the smaller the percentage reduction in purchasing power associated with a given reduction in disposable income.

The federal "offset" arises because taxpayers who itemize on their federal return may claim state income tax payments as a deduction against their federal adjusted gross income. Consequently, the additional liability they incur from the imposition of a state income tax is their state tax payment minus the reduction in their federal liability. The "offset" is calculated as their marginal federal tax rate multiplied by their state tax payment.

For those taxpayers who currently itemize on their federal return in the absence of the state income tax, the "offset" is complete. For those taxpayers who would only itemize on their federal return because the state income tax deduction brings their itemized deduction total over the standard deduction, the benefit is limited to their marginal tax rate times the amount of the excess deduction. The excess deduction is that portion of itemized deductions above the standard deduction.

The Alaska Department of Revenue recently estimated that the federal "offset" for three hypothetical state tax schedules would vary between 20 percent and 23 percent, partially dependent upon the size of the tax base--aggregate income.⁴ This large "offset" results from the combination of high nominal income levels in the state combined with the progressivity of the federal tax. This makes the tax saving from itemizing deductions more attractive to a typical Alaskan than a typical resident of lower-cost states. Thus, in 1979, for example, about 64 percent of adjusted gross income in Alaska was reported on itemized returns, compared to 54 percent for

⁴Vincent Wright et al., Revenue Alternatives: Individual Income Tax, Alaska Department of Revenue, December 1986.

the nation as a whole.⁵ The higher "offset" may be viewed as partial compensation for the fact that Alaskan federal tax liability is a larger percentage of income than the national average due to the fact that the federal rates are applied progressively to nominal rather than real income levels.

An estimate of a 20 percent federal tax "offset" is reasonable in this analysis because of the proportionality of the proposed state tax, which would distribute the burden over all income groups rather than concentrating it at the upper end of the income distribution. As a result, a somewhat higher proportion than under former tax schedules would fall into categories where most returns are not itemized and would thus not benefit from the "offset." The "offset" is a weighted average of the federal tax rates, which in 1988 will be 0 percent, 15 percent, and 28 percent for the vast majority of taxpayers. The breakpoint between the lower and higher rates occurs in the range of \$45 thousand adjusted gross income (AGI). This is also about the level which divides Alaska adjusted gross income, with about half reported on returns with AGI above \$50 thousand and half on returns reporting AGI below that level.⁶

"Tax exporting" is the payment of the Alaska personal income tax by nonresidents who work but do not live in the state. The percentage of such payments depends upon the importance of wages in the tax base of the state, the percentage of wages earned by nonresidents, and the tax rate applicable to nonresident earnings. In these respects, Alaska ranks high as a state with a large potential for "tax exporting." Not only is the personal income tax base in Alaska heavily weighted toward wages and salaries relative to other types of income such as interest, dividend, rents, and retirement benefits but also the nonresident component of wages paid in Alaska is the highest of any state. Other types of tax exporting occur due to nonresident ownership of other factors of production, but labor is the most important and the only one considered here.

Information is available on "tax exporting" from three sources: the federal government personal income statistics for Alaska, the Alaska Department of Revenue analyses of income tax returns from past years, and the Alaska Department of Labor analyses of wage payments by residency by industry for 1984 and 1985. These sources suggest that nonresident wages paid have varied from about 5 percent to 30 percent of total wages dependent upon the size of the economy, the stage of the business cycle, and the definition of a nonresident. Nonresident wage payments are concentrated in certain industries, primarily construction, manufacturing, and petroleum, so the

⁵Individual Income Tax Returns, 1979, Statistics of Income, U.S. Department of Treasury, Internal Revenue Service.

⁶Alaska Department of Revenue, Federal Income Taxpayer Profile: 1978, 1981, 1982, March 1985.

proportion of nonresident payments fluctuates with the importance of those sectors in the economy. As the support and government sectors of the economy have grown, the nonresident component of wages has trended downward. On the other hand, during periods of economic boom, when typically the construction industry is at a cyclical peak, the proportion of nonresident wages has increased and remained high after the peak has passed. This pattern is observable in the data shown in Table 1.

Information from Alaska tax returns in prior years is more accurate but less timely because state tax payments ended in the late 1970s. It suggests a pattern similar to that in the resident adjustment data, although it includes part-year residents as well as nonresidents.

The Department of Labor information also includes part-year residents. Part-year residents are those individuals who moved either into or out of the state during the year. In a stable economy some turnover of the labor force would naturally occur through migration, thus accounting for a part-year resident population even if the economy is not growing. In Alaska there have been few periods of stable economic activity, but Census and other information suggests that the turnover of the population is relatively high even when the net change in employment is low. This is particularly true in certain occupations such as the military. The Alaska income of part-year residents should be considered resident income, because the individual is a resident while the Alaska income is being earned.

The economy is expected to contract this year and next and then resume growth at a slower rate than in the past. This suggests that the trend toward a lower nonresident portion of wages will continue as those industries with high resident components grow relative to the total. During the contractionary phase of the business cycle, the nonresident portion will also contract as the construction industry gets smaller.

We estimate the nonresident portion of wages to be 8 percent for the purpose of this analysis. This does not include part-year residents who we count as Alaskan residents. This is a conservative (low) estimate which takes account of the fact that an income tax which included withholding would draw purchasing power from the Alaska economy from nonresident workers as well as residents. This is because nonresident workers spend some of their income in the Alaska economy during the time they are in the state working. A tax on their income would reduce their in-state purchases. In addition, an income tax would reduce the incentive for nonresidents to work in Alaska. We also assume that the average tax rate applicable to nonresident income will be the same as that for residents.

TABLE 1. NONRESIDENT WAGES IN ALASKA
(million \$)

Year	Income	Wages	Residence Adjustment	Residence Adjustment as Percent of Income	Residence Adjustment as Percent of Wages	Percent of State Income Tax Paid by Nonresidents	Percent of Wages Paid to Nonresidents
1969	1330.8	1127.2	-68.7	5.2	6.1		
1970	1517.5	1266.6	-73.1	4.8	5.8		
1971	1670.7	1381.6	-71.4	4.3	5.2		
1972	1831.6	1507.8	-70.2	3.8	4.		
1973	2160.1	1663.1	-80.6	3.7	4.6		
1974	2631.9	2226.1	-226.8	8.6	10.7		
1975	3754.6	3562.1	-644.5	17.2	18.1		
1976	4520.5	4403.4	-932.4	20.6	21.2	31	
1977	4674.4	3940.4	-484.4	10.4	12.3	18	
1978	4804.8	3731.4	-315.5	6.5	8.5	12	
1979	5017.4	3874.5	-288.9	5.8	7.5	11	
1980	5585.9	4387.9	-327.3	5.9	7.5		
1981	6421.4	5242.0	-427.0	6.6	8.1		
1982	7701.7	6078.6	-538.8	7.0	8.9		
1983	8690.2	6667.2	-583.7	6.7	8.8		
1984	9079.7	6991.8	-564.3	6.2	8.1		13
1985	9476.3	7129.4	-561.3	5.9	7.9		12

SOURCES: Income, Wages, and Residence Adjustment from U.S. Bureau of Economic Analysis. Personal Income by Major Source and Earnings by Industry. Microfiche dated August 1986.

Alaska Department of Revenue, telephone conversation, 5/11/87, based on zipcode of filer.

Alaska Department of Labor, Non-Residents Working in Alaska in 1985, January 1987.

The reduction in aggregate demand from the tax depends upon how much consumer spending is reduced by a reduction of disposable personal income--a relationship economists call the "marginal propensity to consume." At issue are two factors: the proportion of marginal income that goes into saving and is, therefore, not spent, and the proportion of income that is spent on goods and services provided outside the Alaska economy. Both of these factors represent "leaks" out of the spending stream and reduce the impact from a change in disposable personal income. These factors in turn depend upon the structure of the economy and the income of the consumer.

Of the purchases of goods and services that a consumer makes, the local component will largely depend on what locally available choices are. Generally the smaller the market size the larger the proportion of goods and services purchased outside the market either through the direct importation of goods and services or by going outside the region for purchasing goods and services. This is partially determined by access to large markets due to income and proximity.

The marginal propensity to consume declines as consumer income increases. This means that at higher incomes, consumers will purchase more goods and services but that a disproportionate share of additions to income will be saved. Consequently, a reduction in the disposable personal income of a high-income individual will cause spending to decline by a smaller amount than if the reduction were from a low-income individual. Current savings would be reduced more by cutting the income of a high-income person than of a low-income person. This relationship is seen by referring to Table 2, which shows the relationship between income and consumer spending in 1981 for the U.S. population divided into five income categories. Spending as a percentage of income falls as income rises. At the lower end of the scale, spending considerably exceeds current income. Consumers in this low-income category are drawing down accumulated assets to maintain spending at a level in excess of current income. Consumers in the highest income category are accumulating assets through current saving.

The usual explanation of this behavior is the "life-cycle hypothesis" of consumption. The idea is that the consumption level of an individual is based upon his expected lifetime income rather than current income. Thus, the young and old will consume in excess of current income, which is low relative to lifetime earnings; and middle-aged consumers, who have income high in relation to lifetime earnings, will save.

Because the income tax is somewhat biased toward reduction of the income of higher-income individuals, one would expect the lost consumption from the tax to be somewhat less than the average for the population. Beyond this general statement, it is impossible to be specific quantitatively because a detailed analysis of Alaska consumer expenditure behavior has never been done.

TABLE 2. CONSUMER EXPENDITURE PATTERNS

	Income Range					Average of All Households
	Lowest 20% of Households	20-40	40-60	60-80	Highest 20% of Households	
Income	\$3,473	\$9,791	\$16,809	\$25,128	\$44,616	\$19,989
Taxes	125	590	1,668	3,356	6,768	2,505
Disposable Income	3,248	9,201	15,141	21,772	37,848	17,484
Expenditures	7,852	11,570	15,736	20,714	30,563	17,301
Average Propensity to Consume [Expenditures/ Disposable Income]	2.4	1.26	1.04	.95	.81	.99

SOURCE: U.S. Department of Labor, BLS Consumer Expenditure Survey: Interview Survey, 1980-81, Bulletin 2225, April 1985, Table 1.

The consumption lost because of the tax also depends upon the particular types of purchases made by those whose income is reduced. The issue here is whether consumers in different income groups allocate different proportions of their spending to local compared to nonlocal expenditures. There are two factors which are important in this determination--location of direct purchases and the input composition of local direct purchases.

A consumer can purchase goods and services within the community or from outside either through direct importing or through trips outside the community. Specific information about out-of-region purchases by income are not available from the recent consumer expenditure survey. It is logical that out-of-region trips would be a function of income, however, since tourism is clearly an income-related phenomenon.

Different consumption patterns may also imply different levels of locally purchased inputs even if the purchases are physically made within the region. The local economic impact of \$20 spent on a

haircut will be greater than that of \$20 spent on the purchase of a book, even though both are purchased locally. The haircut is a service with a high local value-added, or income producing, component with little of the purchase price used to pay for inputs purchased from outside the community. The book purchase is low in local value-added (unless the book was written and produced in the community) because the manufacture of the book took place outside of the region.

We are aware of no systematic analysis of the local component of purchases by consumers in different income categories. On the one hand, as income rises the opportunity cost of doing certain tasks like cleaning, accounting, etc. rises, and it becomes more likely that a person with a high income will purchase those types of services rather than provide them himself. On the other hand, as income rises the demand for goods and services which are not available within the local market would increase.

In the absence of actual data on this topic, it is not possible to generalize, so we assume that the local input component of local purchases is not functionally related to income. Because of the absence of specific data on marginal propensities to consume locally by income class, we assume no distinction between marginally taxed income and general income.

II.c. The Reduction in Purchasing Power from Permanent Fund Dividend Reduction

The reduction in consumption caused by a reduction or elimination of the Permanent Fund dividend can be analyzed in the same way as that of reimposing the income tax: first, by how much is Alaska personal income reduced and, second, by how much is Alaska spending out of that income reduced.

Dividend payments go only to residents, but a small portion, which we estimate at 1 percent, goes to "functional nonresidents" who are away at school or who leave the state after receipt of the dividend. The reduction in Federal income tax payments with a reduction of the dividend amount is the marginal federal tax rate multiplied by the dividend reduction. This federal tax leakage was estimated for 1982 by the Alaska Department of Revenue to be 20.2 percent, but because the estimate is based upon the federal income tax before the Tax Reform Act of 1986, it is no longer valid.⁴

⁴"1982 Federal Tax Leakage Associated with the Permanent Fund Dividend Program," Alaska Department of Revenue, July 1983.

The federal tax leakage associated with the dividend must be smaller than the federal "offset" of the income tax for three reasons. First, the dividend is received by some individuals who have no taxable income and thus have a marginal tax rate which is zero. Second, the distribution of the dividend is proportional over the entire population whereas the distribution of taxable income is not. Because the new federal tax code has two tax rates, a larger percentage of taxable income will be taxed at the higher rate than the percentage of dividend income which will be taxed at the higher rate. Third, for most children receiving dividends, the first \$500 will be nontaxable because they have no other unearned income.

We calculate the federal tax leakage associated with a reduction of the Permanent Fund dividend of the magnitude considered in this analysis to be 14 percent. This estimate is based on the following reasoning. We assume 29 percent of the dividends are paid to children, the percentage in 1982.⁸ We assume the marginal tax rate on that income to be 5 percent because, although the lower federal tax bracket in 1988 will be 15 percent, the standard deduction on unearned income of \$500 for children will shield most of this income from taxation. Of the 71 percent of dividends paid to adults, we assume two-thirds go to individuals who face the lower federal tax rate at the margin--15 percent--while one-third pay the higher tax rate--28 percent--at the margin. The higher marginal rate begins to become effective more frequently above a level of \$40 thousand adjusted gross income. About two-thirds of tax returns from Alaska will be below and one-third above this level. Different assumptions will give slightly different results, but the percentage will necessarily be below the federal tax "offset" for the three reasons given above.

The reduction in consumption associated with a dividend reduction is affected by the fact that the reduction occurs proportionally across the population. It falls more heavily on lower-income individuals than the income tax, and consequently the marginal propensity to consume out of dividend income will be higher than out of income lost to the income tax. With these factors in mind, we assume an economic multiplier of 1.35 for dividend income, compared to 1.3 for other income.⁹

⁸Ibid.

⁹This assumption was tested using sensitivity analyses to determine the magnitude of multiplier associated with the dividend which would yield a drop in disposable personal income (dpi) of the same amount as an income tax with a multiplier of 1.3. The result was 1.12. This means that if the "leaks" associated with the alternatives have been measured accurately, then the Dividend impact on dpi would be less than that of the tax only if the multiplier associated with the dividend was less than half that associated with the tax (1.12 vs. 1.3).

This assumption could be modified by two factors. First, part of the dividend is paid to children. Their consumption habits are not well-documented, although in many instances, particularly for younger children, the parents determine the disposition of the dividend. Allocation to savings out of this income would likely be related not to the income of the children, but rather to that of their parents. Second, to the extent that the dividend is perceived to be a one-time windfall rather than a permanent change in annual income, the portion of the dividend saved, or invested in a durable good, would be higher. This reasoning could be applied to the original distribution of \$1,000 but is less convincing for the subsequent distributions, except to the extent people anticipate that the dividend will be terminated in the near future.

Finally, the impact depends upon the marginal propensity of that income to be spent locally and the local component of the goods and services actually purchased in the region. As mentioned above, there is no convincing evidence that the marginal propensity to consume locally significantly declines at higher income levels.

II.d. The Increase In Purchasing Power Associated with Government Spending

Government spending puts money into the economy just as private spending does and differs from it only in the composition of purchases made and jobs created. Thus, the state might cause a reduction in expenditures on eating in restaurants by imposing an income tax and use the proceeds to purchase automobiles for the state troopers. In this example, demand is transferred from restaurants to automobiles by the fiscal actions of state government. Obviously, what government spends money on determines the size of its impact on the regional economy.

The state government spends a large part of its budget on personnel costs--wages and benefits of employees. In addition, large parts of the budget are transfer payments to local government and nonprofit organizations which spend most of their budgets on personnel costs. Thus, a large part of government purchasing power is personnel cost.

State government need pay no taxes to the federal government nor spend out of the state, so a dollar of appropriations for personnel expenditures can nearly all become income to Alaskans. For the purposes of this study, we assume wages remain constant, so personnel expenditure cuts occur through "across the board" layoffs.¹⁰ On average, about 78 percent of a personnel expenditure becomes personal income of Alaskans while the remaining 22 percent is

¹⁰A companion ISER study to this one is investigating the differential economic effects of wage reduction compared to layoffs.

allocated to benefits, of which retirement and medical insurance are the most important. A portion of benefits payments creates an economic impact because it represents the current purchase of goods and services within the region. Purchases for medical or dental services funded by insurance is the most obvious example. The administration of retirement and life insurance programs is another. The effect of retirement contributions on current spending is small, but this does represent a potential increase in local purchasing power in the future. The timing and location of the spending is impossible to estimate and so we ignore it. We estimate about 40 percent of benefits is spent locally when allocated.

The nonresident portion of wages and salaries paid in government is very small based upon the Department of Labor studies, and we choose to ignore it. The federal tax leak is substantial. It is a function of the average tax rate of the state employees.

Since the federal tax schedule is progressive and involves both exemptions and deductions which shield some income from taxation, the average tax rate for an individual will always be below the marginal tax rate. One of effects of the Tax Reform Act of 1986 has been to reduce the progressivity of the tax system, and as a consequence, the marginal and average tax rates are much closer to one another than previously. Still, it appears that the average tax rate will be less than half the marginal rate for broad categories of taxpayers--based on the pro forma analysis in Part IV of this report. For example, a family of four living in their own home and filing a joint return would pay an average rate less than half the marginal rate up to about \$60 thousand of adjusted gross income.

The average tax rate for government employees will be above the average tax rate for the community as a whole to the extent that the average wage in state government is above that of the total economy, to the extent government workers are in two-wage-earner families in excess of the community average, and to the extent that government workers have significant nonwage income. The average tax rate will be less to the extent that state employees are homeowners in excess of the community average for comparable income levels.

Some information is available on the household income characteristics of government employees from the U.S. Census. We present it in Table 3 as a source which shows the household income characteristics of full-time state employees. Based upon the table and the pro forma tax analysis of Part IV, we estimate an average federal tax rate for government employees of 15 percent.

The consumption of government employees depends upon what they do with their disposable personal income. Here we are concerned with the average propensity to consume because the analysis considers layoffs, the location of consumption, and the locally produced portion of items purchased locally. As Table 2 suggests, the average propensity to consume is larger than the marginal propensity

TABLE 3. SAMPLE OF ALASKA HOUSEHOLDS WITH STATE WORKERS

Family Households With at Least 1 State Worker								
Income (thousands of 1987\$)	1 Employed, 1 State Worker		More than 1 Full-Time Employed				Nonfamily Households With at Least 1 State Worker	
	No. of Families	Average Wage (1987\$)	1 State Worker		2 or More State Workers		No. of Households	Average Wage (1987\$)
			No. of Families	Average Wage (1987\$)	No. of Families	Average Wage (1987\$)		
0 to 10	5	9,017	0	0	0	0	18	6,242
10 to 20	17	15,200	9	11,354	1	8,258	29	14,129
20 to 30	36	19,667	6	12,732	2	12,383	49	25,713
30 to 40	29	27,522	20	21,098	4	17,106	29	34,380
40 to 50	48	36,483	21	21,812	5	20,762	21	41,195
50 to 60	40	44,549	36	29,126	4	25,973	15	54,761
60 to 70	21	43,112	29	28,157	12	32,471	5	53,795
70 to 80	19	49,833	33	39,671	8	33,093	2	67,200
80 to 90	7	63,044	17	47,285	12	41,471	0	0
90 to 100	2	65,198	14	39,236	5	33,983	0	0
100 and over	11	72,338	33	49,457	7	55,641	1	60,008
Number of State Workers	266	36,435	232	33,110	135	33,675	192	29,166

NOTE: Actual 1979 wage converted to 1987 using the Anchorage CPI.

SOURCE: 1980 U.S. Census for Alaska, Public Use Sample

to consume. Since government employee income is above the average, however, their average propensity to consume is below that of the population in general. We assume equality between the average propensity to consume of state workers and the marginal propensity to consume out of taxable income.

A final question is whether government employees have expenditure patterns significantly different from other consumers in similar income groups. There is no evidence that this is the case.¹¹

Government appropriations fund many different activities in addition to the hiring of employees. Each has a different impact on the economy in terms of disposable income created in the community as well as employment generated. Previous studies have discussed and calculated the impacts of different types of government expenditures.¹² Only some general comments are included here.

Transfers to local governments, transfers to nonprofit organizations which use most of their budgets for personnel expenditures, and the private contracting of service delivery have the same general types of impact as direct government hiring of people. A larger percentage of jobs created may be in the private sector, but the total amount will be about the same.

A common misconception exists that government capital expenditures generate larger amounts of economic activity than other types of spending. Using employment and income as indicators of activity, construction spending ranks well below personnel spending. The income which flows to residents from construction is a portion of the wages paid and portions of overhead and profits. Large portions of each dollar of construction money go directly outside the economy to pay for materials fabricated outside the state or to pay the salaries of nonresident workers. This money may appear as transactions of Alaska businesses, particularly through construction firms and wholesale firms, but it does not represent income of Alaskans which directly contributes to their well-being. After construction, these projects may stimulate additional income and employment in an economy, but whether that is, in fact, the case depends upon the characteristics of each individual project.

The purchase of goods by government produces Alaska income to the extent the purchases are made within the state and the value added associated with those in-state purchases is large. Income and

¹¹For a discussion of this point, see the companion ISER study referenced in footnote 10.

¹²Goldsmith, "How State Spending Reductions Affect Economic Activity," ISER Working Paper 86.2.

employment generation is primarily in the trade and transportation sectors since very few goods are manufactured in Alaska.

The repayment of debt does not impact personal income or employment even if the debt is held by Alaska residents. In the absence of Alaska state government debt, these individuals would be holding debt and receiving income from some other source.

The provision of income transfers, either directly or through loan subsidies, and of goods and services at below-market price is the other primary activity of state government in Alaska. The personal income per dollar of program cost which accrues to Alaska residents varies with each program. For example, a student loan which allows a student to travel outside the state to pursue his education can have an absolutely negative economic impact since it reduces the amount of income spent in Alaska. On the other hand, a student loan which provides extra income which is spent within the state has a positive economic impact on income. A transfer which allows an individual to remain in the state can have a very large economic impact if that individual has significant other income. This may be the case for some recipients of the longevity bonus program. Loan subsidies have two types of effect on the economy--one through a transfer of income to the subsidized loan recipient, and the other through the stimulation of new demand for the activity which is subsidized. The economic effects of these programs must also be analyzed individually.

For this analysis, we assume that on average Alaska disposable personal income of 25 cents is created for each dollar of government spending on nonpersonnel expenditures. Because of the wide range of impact among programs, this is a general estimate. Sensitivity analysis suggests that, although the size of the impact of these activities depends upon this assumption, the direction of change of disposable personal income and employment are not sensitive to this assumption.

II.e. Comparison of Income and Employment Effects of Alternatives

Reducing disposable personal incomes using a tax or by reducing the dividend does not directly eliminate private sector jobs. These policies eliminate private sector jobs when the reduction of purchasing power shrinks the support sector--trade and services. In contrast, government spending on personnel directly increases employment if the funds are used to hire employees--either government workers or private workers under contract. Private support jobs are created when these workers spend their income.

III. WHAT ARE THE "SUPPLY SIDE" CONSEQUENCES OF THE INCOME TAX

III.a. "Supply Side" Economics

In recent years, the idea of "supply side" economics has been central in discussions of tax policy, particularly at the federal level. It was a major rationale for the tax cuts during the first Reagan administration and was influential in the Tax Reform Act of 1986. The idea is that high tax rates on personal income are both a disincentive to work and also a disincentive to saving and investment. As a consequence, the economy is unable to utilize the full productive potential of its resources. The most ardent proponents of "supply side" economics argued that the general tax cut of 1982 would actually increase tax receipts because of the additional taxes which would be collected from the new jobs and investment created in the more favorable tax environment.

There is little evidence that the dramatic changes promised by the "supply siders" as a result of the the 1982 tax cut have occurred. The personal savings rate is at an all-time low. Private investment more often takes the form of buying existing competitors than investing in new productive capacity. The federal budget deficit is now larger than at any time in history. The huge federal deficit is in direct competition for investable funds with private industry. Only employment has shown robust growth, but this is primarily because the economy has been recovering from the 1982 recession since the tax cut, and employment always grows during an expansion.¹³

The poor results for the economy of the "supply side" federal personal income tax cut suggest that the issues of supply side economics are not as simple as some of its proponents argue. On the other hand, it is necessary to keep in mind that Alaska is a small open economy within a federal system. Thus, interregional shifting could occur in response to tax changes at the state level which would not be a consideration in calculating supply effects at the federal level.

III. b. General Disincentive Effects of Taxes

When a tax is imposed on a commodity, the nominal incidence of the tax is said to fall on those individuals who buy that commodity. These individuals will naturally seek to avoid the tax by changing their behavior. They will try in this way to shift the burden of the tax to someone else who ultimately pays the tax and is said to bear

¹³Uwe Reinhardt, "Enjoy the Party--for Tomorrow Somebody Will Have to Pay," Princeton Alumni Weekly 87, February 25, 1987.

the real incidence of the tax. The shifting of the burden can be forward or backward.

For example, consider a firm faced with an excise tax on one of its inputs. The firm would try to pass this cost of doing business on to someone else. If the firm raised its prices to cover the cost of the tax and its volume of sales was not affected, then the firm would have successfully shifted the payment of the tax forward to consumers. If the firm reduced the wages of its employees by the cost of the tax and there was no change in the quality of work, then the firm would have successfully shifted the cost of the tax backward. On the other hand, if the cost could neither be passed on to consumers or back onto other inputs, then the firm would have to bear the cost in the form of reduced profits to the owners or shareholders.

In general, the real incidence of a tax will not correspond to its nominal incidence but will be shared as a result of partial forward and backward shifting. Thus, the firm may raise its price a little, reduce wage levels a little, and take a little less of a profit; and in this way, the actual payment of the tax will fall on all three groups in proportion to their sensitivity to price changes. For example, if a firm would lose all its customers if it raised its price, then it would not be able to shift any of the burden of the tax forward.

When taxpayers change their behavior in order to minimize the taxes they pay, a dead weight loss which economists call an excess burden is created. This is basically a measure of the loss in value to society over and above the actual amount of the tax paid. The extra loss arises because prices in the economy no longer reflect true costs. If the firm can totally pass the cost of its tax on to consumers in the form of a higher price for its product, some consumers will pay the tax, but others will shift to other products which they would not prefer if prices reflected the real cost of production.

For example, if a tax were placed on one brand of beer, raising its price from \$1 to \$2 a can (the tax is shifted forward to consumers), those who continue to consume the \$2 beer will bear the real incidence of the tax. There will be some people who preferred the beer at \$1 and would, in fact, be willing to pay \$1.50 for a can but at the higher price shift to an untaxed brand costing \$1. The \$.50 premium over the pretax price they would be willing to pay for the taxed brand of beer is the loss to society over and above the taxes actually paid.

A tax is neutral if it has no distorting effects caused by shifting for the purpose of avoidance. Since in practice there are no such taxes, the question of distortion is one of degree, and in choosing a tax, its distortions must be considered along with its other features, such as equity.

The notions of incidence and excess burden, in general, are greatly complicated by the fact that these calculations are always a "compared to what" analysis. That is, the shifting and excess burden depend upon the existing taxes, government expenditures, and whether the economy is at full employment when the new tax is put in place.

Analysis of the potential distortions or shifting of the personal income tax are further complicated by the fact that income is not a commodity such as we have been using in our example. The tax potentially distorts the allocation of time between work and leisure for individuals and the allocation of spending between savings (investment) and consumption. In addition, a regional distortion might be introduced into an economy from the introduction of taxes at a regional level. Resources might be allocated away from a region with higher taxes toward a region with lower taxes.

III.c. Labor Supply Effects

The nominal incidence of an income tax is primarily on wage and salary income which, in Alaska, is about 88 percent of adjusted gross income¹⁴. Three types of distortion can result from attempts by labor to shift the incidence of the tax--change in the amount of labor supplied by residents to the Alaska market, a shift of labor out of the Alaska market, and an increase in the price of labor to Alaska businesses. Of these possible distortions, the change in the amount of labor supplied by Alaska residents is potentially the most significant.

A reduction in the wage rate caused by an increase in the personal income tax will affect the behavior of workers in two opposite directions. First, the monetary return from working falls so that the "cost" associated with not working, or leisure, goes down. The effect of this is unequivocally to reduce the supply of labor. Second the income of the worker falls and, with it, his ability to consume all types of goods--including the good called leisure. As a consequence, his consumption of all goods including leisure will fall, and if leisure consumption falls, the amount of time spent working will rise. Thus, on net the change in the amount of labor supplied to the market when a tax is imposed on labor will depend on which of these two effects predominates.¹⁵

An example will clarify this. Consider a laborer who receives a raise. He now has both a higher income and a higher hourly wage rate than before. He must decide whether to work more or fewer hours than he did at the lower wage and income. His choice will

¹⁴Alaska Department of Revenue, Federal Income Taxpayer Profile: 1978, 1981, 1982, March 1985.

¹⁵Economists call these the substitution and income effects.

depend upon how he values leisure time relative to other goods. If he values leisure very highly, then he may choose to use some of his additional income to purchase more leisure time, and consequently he will work fewer hours. On the other hand, he may choose to take advantage of the higher hourly wage to work more hours than before. Total hours worked--the supply of labor--could decrease or increase. The answer depends upon the preference of the individual worker.

For a cut in the wage rate, the same reasoning would apply in the opposite direction. An employee might work fewer hours because of the lower hourly wage, or he might work more hours in order to recoup lost income. Again, the answer depends upon individual preference.

Economists who have studied labor market responses to changes in tax rates and other sources of income have not reached a general consensus as to the sensitivity of labor supply to taxes, but some general agreement has arisen out of the studies on a number of issues which make it possible to approximate the magnitude of effect of the state tax on the supply of labor by residents.¹⁶ These analyses have all been based upon the federal tax schedule, which has much higher average and marginal rates than the state tax, and consequently any effect observed from the federal tax would be proportionately less important for a proportionately smaller state tax.

First, there is agreement that, to the extent there is shifting, it is in the direction of a reduction in labor supply. Workers do not shift the burden of the tax forward onto business. There does not seem to be any evidence, for example, that wage rates fell when the state income tax was eliminated in the late 1970s.

Second, there is general agreement that the distortion varies by the component of the labor force. In particular, young people and married women who are employed part time as the second wage earner in a family are more sensitive to the rate at which income is taxed than are full-time employed married men who are the primary wage earner in the family.

¹⁶The range of disagreement about the direction and magnitude of distortion is relatively small, however, in comparison to the property tax and the corporate income tax, about which the opinion ranges from a complete forward shifting to a complete backward shifting. The issues surrounding this analysis are quite complex and involve such basic questions as what the labor supply is and how the social security tax is viewed by workers. For example, a lower wage might result in people working less hours in a year but postponing their retirement, or it might result in less investment in education to increase skills. If the social security tax is viewed as forced savings, then it will not be viewed as a tax by the individual and will not distort his behavior.

Third, there is general agreement that the distortion is a function of the marginal rather than the average tax rate. This potentially impacts very high- and very low-income wage earners. For high wage earners the marginal tax rate is very high compared to the average rate. A person in those circumstances is more likely to decrease his work effort if additional (marginal) income is taxed at a very high rate. For low-income individuals, various government transfer payments such as social security, unemployment insurance, and Medicare provide a safety net which is gradually removed when they begin to have income from employment. Because these programs reduce the income differential between working and not working at low levels of income, they in effect impose a high marginal tax rate on wage income. For example, if a person has a choice between collecting unemployment insurance at \$100 per week or working for a wage of \$200 per week, the marginal return from working even in the absence of a tax would only be 50 cents out of each \$1 because 50 cents would substitute for the unemployment insurance benefit.

Disagreement among economists arises as to the magnitude of the distortion. Initial studies found that there was no shifting of the tax due to a significant reduction in work effort. More recently, however, studies have found that the supply of labor is reduced because of the personal income tax. The results arise partly because of the increasing importance of part-time employment and partly because of increases in marginal tax rates and government transfers at lower income levels. In addition, more recent studies employ more sophisticated statistical analyses.

The study which reports the largest effect concluded that the combination of the federal and state income taxes and the payroll tax based on information in 1975 resulted in a reduction of labor supplied by 8 percent. An important additional finding of the study was that this was largely the result of the progressivity of the tax rates rather than the taxes themselves. Consequently, a proportional tax schedule was estimated to reduce the distortion in labor supply to 1 percent.¹⁷

¹⁷This result followed from the fact that the substitution and income effects were both found to be significant but largely offsetting under the existing tax rate schedule. A more proportional tax schedule would reduce the importance of the substitution effect relative to the income effect. In other words, if the tax were proportional, people would respond by increasing their work effort to regain lost income just about as much as they would reduce their work effort because of its lower return. (Jerry Hausman, "Labor Supply," in Henry J. Aaron and Joseph A. Pechman, ed., How Taxes Affect Economic Behavior, Washington, D.C.: The Brookings Institution, 1981.

If we were to estimate the maximum size of a potential labor supply distortion for an Alaska income tax on the basis of this study, we would need to recognize first that the federal income tax rate schedule has both declined and become less progressive since 1975. Second, the Alaska tax rate is a small increment to the federal tax. If the distortion of the new federal tax is as high as 4 percent, that of the Alaska tax would still be less than 1 percent, because the Alaska average and marginal tax rate is about one-sixth of the federal rate.

III.d. Savings-Investment Effects

The second potential distortion of the income tax involves a misallocation between saving (investment) and consumption. If there is a tax on income from saving, then there will be a disincentive to save because the return after taxes will be below the nominal return. Consequently, there will be more current consumption, the rate of accumulation of capital will be reduced, and economic growth will be reduced. However, like a tax on income from wages, there is a second effect which works in the opposite direction. This effect arises because investment undertaken for the purpose of saving is for future consumption. When the rate of return on personal savings falls because of a tax on earnings, the future income of the investor falls relative to current income. In response, a person may well decide to save more in the current period in order to spread his consumption more evenly between the present and the future.

For example, a young and old person might have opposite reactions to an increase in the rate of interest on savings. The young person might choose to defer current consumption by increasing his savings because, by doing so, his lifetime income could be greatly enhanced. For a person nearing retirement age, an increase in the rate of interest on savings might result in a reduction in savings and a corresponding increase in the rate of consumption. Such a decision might be based on a preference for enjoying a portion of his increased income in the present period.

Economists have investigated the relationship between the rate of interest and the rate of savings for a long time, and the general consensus is that the amount of total savings out of current income is not very sensitive to variations in the rate of interest. There are a number of possible explanations for this insensitivity, and clearly people with high incomes save more than people with low incomes, but for the economy in total, personal savings is not very sensitive to the interest rate. Thus, there is likely to be little distortion of the savings-consumption choice from a state income tax.

Even if a distortion could be identified, the economic effect is ambiguous. Alaskans can do two different things with that portion of their income which is not spent on consumption goods. They can

save it in the form of a financial asset like a savings account or a mutual fund, or they can invest it in a business venture. If they buy a financial asset, the effect on the Alaska economy will be small because the financial market is a national market. The purchase may occur through the services of a local broker, but the net savings will enter a national market and may be used for investment anywhere in the United States or anywhere in the world. On the other hand, if the investment is in an Alaskan business, there will be an impact via the multiplier on income and employment in the region. It is not obvious, however, whether the local economic impact from the investment expenditure is of a greater or lesser magnitude than an equivalent amount spent on consumption. It would be the case if the investment were a stimulus to further growth of the economy. Thus, even if a tax were to result in a reduction in the level of savings or investment and an increase in consumption, the economic effect could be positive on the economy in terms of employment and income.

The reduction in investment in the Alaska business sector from a personal income tax would be a function of the types of businesses in the community and, in particular, in their ability to shift any reduction in return on investment either forward to their customers in the form of higher prices or backward onto their factors of production. In general, businesses with a locational advantage will be able to shift the burden most successfully. For example, a barbershop would likely be able to raise its price for a haircut to offset the decline in the return on its investment. In contrast, a coal mine producing for export would not be able to pass on higher costs because of the competition it faced from other producers outside the region.

In Alaska, the vast majority of businesses are not in direct competition with firms outside the region through exports. Furthermore, a significant portion of the earnings of the firms involved in basic industries either are corporations or are not Alaska owned. Neither would be liable for the personal income tax.

III.e. Regional Distortion Effects

A final potential distortion arises because the income tax affects earnings within a limited region. People may try to avoid the tax by moving out of the region to a location with lower tax rates or may shift investments out of the region to avoid the tax.

The decision to move or relocate investments is based on the difference in expected income minus the costs of moving. Expected labor income will be determined by the average tax rate. For incomes below \$100 thousand, the average rate for a family would not exceed 3 percent and for a single person would not exceed

4 percent.¹⁸ This is in contrast to the federal average rate which rises to 20 percent for a family and 27 percent for an individual. Thus, the state tax rate is about 15 percent of the federal rate, a relatively small increment to tax liability.

Even so, there are individuals who, in the absence of the tax, are just indifferent to continuing to live in Alaska and moving to some other location. The addition of an income tax would reduce their income to the point where a move would be preferable. Based upon past experience with wage differentials between Alaska and the rest of the nation, this would not be a significant effect. For example, during the current business cycle in Alaska, the per capita income gap between Alaska and the rest of the nation has widened considerably due to a number of factors including the payment of the Permanent Fund dividend, the elimination of the personal income tax, and the increase in average wage rates. Table 4 shows the difference in the after-tax per capita income figures for Alaska and the United States. The real per capita income figures are also presented, correcting for the higher cost of living in Alaska. If the Alaska personal income level were in equilibrium with the rest of the nation, the real per capita income levels would be about the same. In fact, there is a significant real positive differential for Alaska, indicating that people have not moved into the state in sufficient numbers to eliminate the differential by bidding down wages and increasing the unemployment rate. The apparent insensitivity of population movements to this differential suggests there would be little response to the small changes which a state income tax would produce.

Finally, there would be no impact on Alaska investment from the tax. Alaska residents would be liable for the tax no matter where their investment income was earned. Nonresidents investing in the state would incur no liability.

III.f. Distortions Caused by the Dividend

The dividend is a pure income transfer and, as such, reduces the supply of labor and increases consumption. The size of the labor supply reduction effect is related to income and would be most important in low-income groups who are not labor supply constrained. Thus, children and residents of rural areas with few employment opportunities would not be affected. The dividend is a stimulus to in-migration just as the tax is a stimulus to out-migration and, as such, would increase the supply of labor. Thus, on net the supply of labor effect would be quite small.

¹⁸See the next section.

**TABLE 4. PER CAPITA DISPOSABLE PERSONAL INCOME
ALASKA AND UNITED STATES**

(dollars)

	Alaska	United States	Ratios		Alaska Cost of Living Adjustment
			Real Alaska	Nominal	
1969	\$3,767	\$3,234	.85	1.16	1.37
1970	4,251	3,484	.91	1.22	1.34
1971	4,526	3,731	.91	1.21	1.33
1972	4,727	3,988	.90	1.19	1.32
1973	5,568	4,465	.97	1.25	1.29
1974	6,369	4,841	1.02	1.32	1.29
1975	8,404	5,279	1.18	1.59	1.35
1976	9,546	5,736	1.21	1.66	1.37
1977	9,784	6,254	1.14	1.56	1.37
1978	10,079	6,960	1.06	1.45	1.37
1979	10,250	7,671	.99	1.34	1.35
1980	11,539	8,415	1.05	1.37	1.30
1981	12,569	9,232	1.07	1.36	1.27
1982	14,366	9,710	1.17	1.48	1.26
1983	15,067	10,345	1.19	1.46	1.23
1984	15,320	11,259	1.10	1.36	1.24
1985	15,419	11,834	1.06	1.30	1.23

SOURCES: DPI: Bureau of Economic Analysis. Table SA51. Disposable Personal Income for States and Regions. Microfiche, dated August 1986. Figures reflect results of 1985 revision of national estimates.

Cost of Living Adjustment: ISER database.

IV. HOW WOULD AN INCOME TAX AFFECT THE DISTRIBUTION OF INCOME

The proposed state income tax has only two rates--3 percent and 5.6 percent--and applies to a very broad definition of income. A standard deduction reduces taxable income, but in general there are no deductions from income before the tax is calculated. The effect is to make the tax very broad based and mildly progressive. This means that little income avoids the tax and that the proportion of income paid as tax increases with income.

The progressivity of the tax is less than might be expected because of the federal "offset" which increases in value and as a percentage of income as income increases. Thus, a family with two children with a gross income of \$100 thousand would likely pay less than 3 percent of their income in state taxes in spite of the broad base of the tax and the marginal rate of 5.6 percent on taxable income in excess of \$30 thousand.

In calculating the progressivity of the tax and its effect on the distribution of income, it is necessary to have an appropriate definition of income. Unfortunately, we are unable to develop a picture of the effect of the tax on the distribution of true income because we only have information on the distribution of adjusted gross income (AGI) but not on total personal income. The difference is quite large and is an indication that a large portion of personal income, even by the broad definition of taxable income adopted for the proposed income tax, misses a large portion of income. For example, in 1983 AGI reported to the IRS was only 69 percent as large as personal income earned in that year.¹⁹ The difference represents not only income that does not fall within the IRS definition of AGI, such as certain types of transfer payments, but also the income of people not required to file a return and tax evasion. It is not obvious what the distribution of income not included in AGI is, and so it is not possible to adjust the AGI figures for consistency with personal income by income level.

Potential tax liability has been calculated for several typical types of households--a family with two children, a family with no children, a single individual, and a child. The incidence of the tax as income increases is slightly different for each type of household. In addition, the relative value of the Permanent Fund dividend compared to the liability of the state personal income tax has been calculated based upon a dividend of \$700. The dividend plus the tax is preferable to the case of no dividend and no tax for lower-income households while the opposite is preferred by higher-income households. Here there is no attempt to make the comparison

¹⁹Thae Park, "Relationship Between Personal Income and Adjusted Gross Income: Revised Estimates, 1947-83," Survey of Current Business 66, May 1986.

revenue "neutral," which would be the case if the revenue generated by the income tax just equaled the revenue distributed as dividends. In fact, a dividend of \$700 distributed to 500 thousand Alaskans would require about \$350 million, compared to the \$268 million estimated to be collected by the state income tax.

For a four-person family living in their own home, the tax liability goes from \$0 for an income of \$10 thousand to \$256 at \$20 thousand, \$576 at \$30 thousand, \$762 at \$40 thousand, and \$1,020 at \$50 thousand. (See accompanying figures and tables.) The federal "offset" becomes effective in the \$30 thousand range and reduces the progressivity of the tax as income increases from that level. At \$50 thousand of household income, the household is only paying about 2 percent of income as taxes after the "offset" is calculated, and this rises to less than 3 percent at \$100 thousand of family income. As a proportion of combined federal and state income tax, the state tax falls slightly from about one-sixth to one-seventh of the total burden. The value of the Permanent Fund dividend falls as income rises because of the progressivity of the federal tax. For households with income over \$50 thousand, the after-tax value of two \$700 dividends is only \$930. Since at about that level of income the state tax liability is about \$900 to \$1,000, households at that income level would be indifferent to the loss of the dividend and the reimposition of the income tax except for the fact that their children also receive the dividend and, although children's dividends are now partially taxable under the new federal tax law, there is still a net gain for the family.

For the children, if the dividend is their only source of non-earned income, a federal liability of \$30 would be incurred, so the family would still be \$1,340 better off by continuation of the dividend plus the income tax rather than eliminating the dividend and not imposing the tax. If the dividend of the children were taxable at the state level at the same rates as other income, the net gain would be reduced by about \$100. The income level at which the option of no dividend and no taxes were preferred for this type of family would be at about \$80 thousand of income. Above this level, the tax liability clearly exceeds the value of the dividends.

For a family without children, the pattern is similar, except that such a family would not benefit from exemptions for children and would not include children's dividends in their calculation of benefit. Consequently, their federal "offset" has slightly less value and they prefer the no tax/no dividend option at lower income levels than families with children.

Persons filing single returns generally have a higher liability at each income level, but they generally have lower incomes than family households. At an income level of \$10 thousand, the state tax is \$224. The liability rises to \$544 at \$20 thousand, \$864 at \$30 thousand, \$1,359 at \$40 thousand, and \$1,929 at \$50 thousand.

Unless the individual has substantial federal deductions, the value of the federal "offset" is negligible until about \$60 thousand of income. After that level, the tax is essentially proportional at about 4 percent of income. The value of the dividend falls rapidly as income increases for single individuals. At between \$20 and \$25 thousand, the individual would pay more in tax than he would receive back as a dividend.

In general, the incidence of the tax appears to fall more heavily on single individuals than on families even though most single returns report substantially lower income than joint returns. For example, at \$10 thousand a single return has a liability of \$224, which is 2.24 percent. A family of four filing a joint return does not pay at that rate until income reaches \$55 thousand. The federal tax schedule has the same bias although it is not as pronounced as the proposed state schedule.

*****JOINT RETURN**HOMEDOWNER**MC IRA**2 CHILDREN**PF DIV ON CHILDRENS' RETURN*****

		TAXES DUE				TAXES PAID/INCOME			COMBINED	AFTER TAX		FEDERAL	
		===STATE TAX===		*****STATE*****		STATE			MARGINAL	FEDERAL	PERMANENT	INCOME	OFFSET
		TAXPAYER	STATE	BEFORE	AFTER	PLUS		TAX	AVERAGE	FUND DIV	LOSS	PERCENT	
		FEDERAL	TOTAL	PAYS	COLLECTS	OFFSET	OFFSET	FEDERAL	RATE	RATE	VALUE	(DIV-TAX)	

INCOME													
0	0	0	0	0	0	ERR	ERR	ERR	0.00%	ERR	\$1,400	\$1,400	ERR
\$2,500	\$0	\$0	\$0	\$0	\$0	0.00%	0.00%	0.00%	0.00%	0.00%	\$1,400	\$1,400	ERR
\$5,000	\$0	\$0	\$0	\$0	\$0	0.00%	0.00%	0.00%	0.00%	0.00%	\$1,400	\$1,400	ERR
\$7,500	\$0	\$0	\$0	\$0	\$0	0.00%	0.00%	0.00%	0.00%	0.00%	\$1,400	\$1,400	ERR
\$10,000	\$0	\$0	\$0	\$0	\$0	0.00%	0.00%	0.00%	0.00%	0.00%	\$1,400	\$1,400	ERR
\$12,500	\$105	\$121	\$16	\$16	\$16	0.13%	0.13%	0.97%	18.20%	0.84%	\$1,145	\$1,129	0.00%
\$15,000	\$480	\$576	\$96	\$96	\$96	0.64%	0.64%	3.84%	18.20%	3.20%	\$1,145	\$1,049	0.00%
\$17,500	\$855	\$1,031	\$176	\$176	\$176	1.01%	1.01%	5.89%	18.20%	4.89%	\$1,145	\$969	0.00%
\$20,000	\$1,230	\$1,486	\$256	\$256	\$256	1.28%	1.28%	7.43%	18.20%	6.15%	\$1,145	\$889	0.00%
\$22,500	\$1,605	\$1,941	\$336	\$336	\$336	1.49%	1.49%	8.63%	18.20%	7.13%	\$1,145	\$809	0.00%
\$25,000	\$1,980	\$2,396	\$416	\$416	\$416	1.66%	1.66%	9.58%	18.20%	7.92%	\$1,145	\$729	0.00%
\$27,500	\$2,355	\$2,851	\$496	\$496	\$496	1.80%	1.80%	10.37%	18.20%	8.56%	\$1,145	\$649	0.00%
\$30,000	\$2,730	\$3,306	\$576	\$576	\$576	1.92%	1.92%	11.02%	18.20%	9.10%	\$1,145	\$569	0.00%
\$32,500	\$2,858	\$3,415	\$558	\$656	\$656	2.02%	1.72%	10.51%	18.20%	8.79%	\$1,145	\$588	15.00%
\$35,000	\$3,195	\$3,821	\$626	\$736	\$736	2.10%	1.79%	10.92%	18.20%	9.13%	\$1,145	\$520	15.00%
\$37,500	\$3,533	\$4,226	\$694	\$816	\$816	2.18%	1.85%	11.27%	18.20%	9.42%	\$1,145	\$452	15.00%
\$40,000	\$3,870	\$4,632	\$762	\$896	\$896	2.24%	1.90%	11.58%	18.20%	9.68%	\$1,145	\$384	15.00%
\$42,500	\$4,208	\$5,048	\$840	\$989	\$989	2.33%	1.98%	11.88%	20.60%	9.90%	\$1,112	\$271	15.00%
\$45,000	\$4,545	\$5,506	\$961	\$1,131	\$1,131	2.51%	2.14%	12.24%	20.60%	10.10%	\$1,112	\$150	15.00%
\$47,500	\$5,214	\$6,131	\$917	\$1,274	\$1,274	2.68%	1.93%	12.91%	33.60%	10.98%	\$930	\$13	28.00%
\$50,000	\$5,844	\$6,864	\$1,020	\$1,416	\$1,416	2.83%	2.04%	13.73%	33.60%	11.69%	\$930	(\$90)	28.00%
\$52,500	\$6,474	\$7,596	\$1,122	\$1,559	\$1,559	2.97%	2.14%	14.47%	33.60%	12.33%	\$930	(\$193)	28.00%
\$55,000	\$7,104	\$8,329	\$1,225	\$1,701	\$1,701	3.09%	2.23%	15.14%	33.60%	12.92%	\$930	(\$295)	28.00%
\$57,500	\$7,734	\$9,061	\$1,327	\$1,844	\$1,844	3.21%	2.31%	15.76%	33.60%	13.45%	\$930	(\$398)	28.00%
\$60,000	\$8,364	\$9,794	\$1,430	\$1,986	\$1,986	3.31%	2.38%	16.32%	33.60%	13.94%	\$930	(\$500)	28.00%
\$62,500	\$8,994	\$10,527	\$1,532	\$2,129	\$2,129	3.41%	2.45%	16.84%	33.60%	14.39%	\$930	(\$603)	28.00%
\$65,000	\$9,624	\$11,259	\$1,635	\$2,271	\$2,271	3.49%	2.52%	17.32%	33.60%	14.81%	\$930	(\$706)	28.00%
\$67,500	\$10,254	\$11,992	\$1,738	\$2,414	\$2,414	3.58%	2.57%	17.77%	33.60%	15.19%	\$930	(\$808)	28.00%
\$70,000	\$10,884	\$12,724	\$1,840	\$2,556	\$2,556	3.65%	2.63%	18.18%	33.60%	15.55%	\$930	(\$911)	28.00%
\$72,500	\$11,514	\$13,457	\$1,943	\$2,699	\$2,699	3.72%	2.68%	18.56%	33.60%	15.88%	\$930	(\$1,013)	28.00%
\$75,000	\$12,144	\$14,190	\$2,046	\$2,841	\$2,841	3.79%	2.73%	18.92%	33.60%	16.19%	\$930	(\$1,116)	28.00%
\$77,500	\$12,774	\$14,922	\$2,148	\$2,984	\$2,984	3.85%	2.77%	19.25%	33.60%	16.48%	\$930	(\$1,219)	28.00%
\$80,000	\$13,404	\$15,655	\$2,251	\$3,126	\$3,126	3.91%	2.81%	19.57%	33.60%	16.76%	\$930	(\$1,321)	28.00%
\$82,500	\$14,034	\$16,387	\$2,353	\$3,269	\$3,269	3.96%	2.85%	19.86%	33.60%	17.01%	\$930	(\$1,424)	28.00%
\$85,000	\$14,664	\$17,120	\$2,456	\$3,411	\$3,411	4.01%	2.89%	20.14%	33.60%	17.25%	\$930	(\$1,526)	28.00%
\$87,500	\$15,294	\$17,853	\$2,559	\$3,554	\$3,554	4.06%	2.92%	20.40%	33.60%	17.48%	\$930	(\$1,629)	28.00%
\$90,000	\$15,924	\$18,585	\$2,661	\$3,696	\$3,696	4.11%	2.96%	20.65%	33.60%	17.69%	\$930	(\$1,732)	28.00%
\$92,500	\$16,554	\$19,318	\$2,764	\$3,839	\$3,839	4.15%	2.99%	20.88%	33.60%	17.90%	\$930	(\$1,834)	28.00%
\$95,000	\$17,184	\$20,050	\$2,866	\$3,981	\$3,981	4.19%	3.02%	21.11%	33.60%	18.09%	\$930	(\$1,937)	28.00%
\$97,500	\$18,042	\$20,804	\$2,763	\$4,124	\$4,124	4.23%	2.83%	21.34%	38.60%	18.50%	\$860	(\$1,903)	33.00%
\$100,000	\$18,784	\$21,642	\$2,858	\$4,266	\$4,266	4.27%	2.86%	21.64%	38.60%	18.78%	\$860	(\$1,999)	33.00%

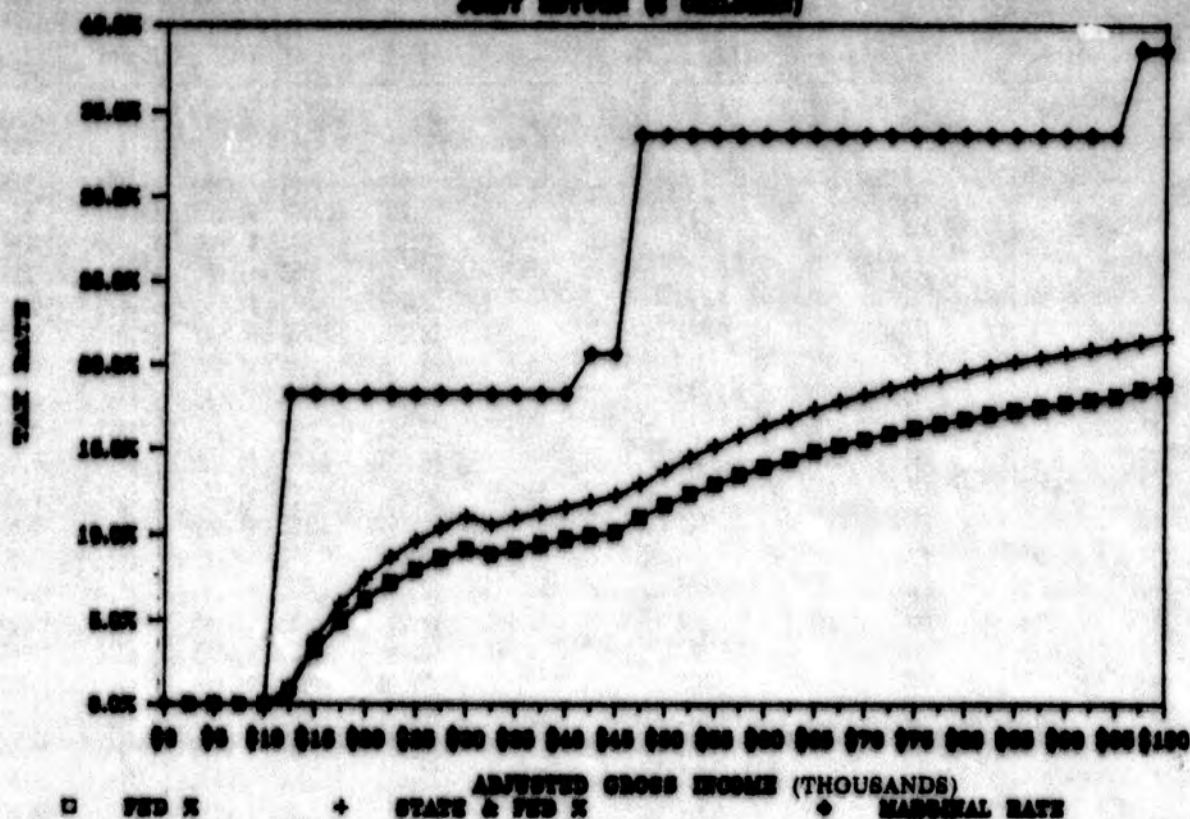
NOTE: THE INCOME LOSS MEASURE IN THE LAST COLUMN IS THE DIFFERENCE IN DISPOSABLE INCOME BETWEEN THE FOLLOWING:
1. IMPOSE INCOME TAX AND PAY DIVIDEND, AND 2. NEITHER IMPOSE TAX NOR PAY DIVIDEND.

PF DIVIDEND	\$700	LOW TAX RATE TO	FEDERAL \$30,000	STATE \$30,000
STANDARD DEDUCTION	\$3,800	HIGHEST RATE AFTER	FEDERAL \$73,000	
EXEMPTIONS	4	EXEMPTION	FEDERAL \$2,000	STATE \$3,000

FEDERAL TAX REFORM ACT OF 1986, HB-154 AND SB-148

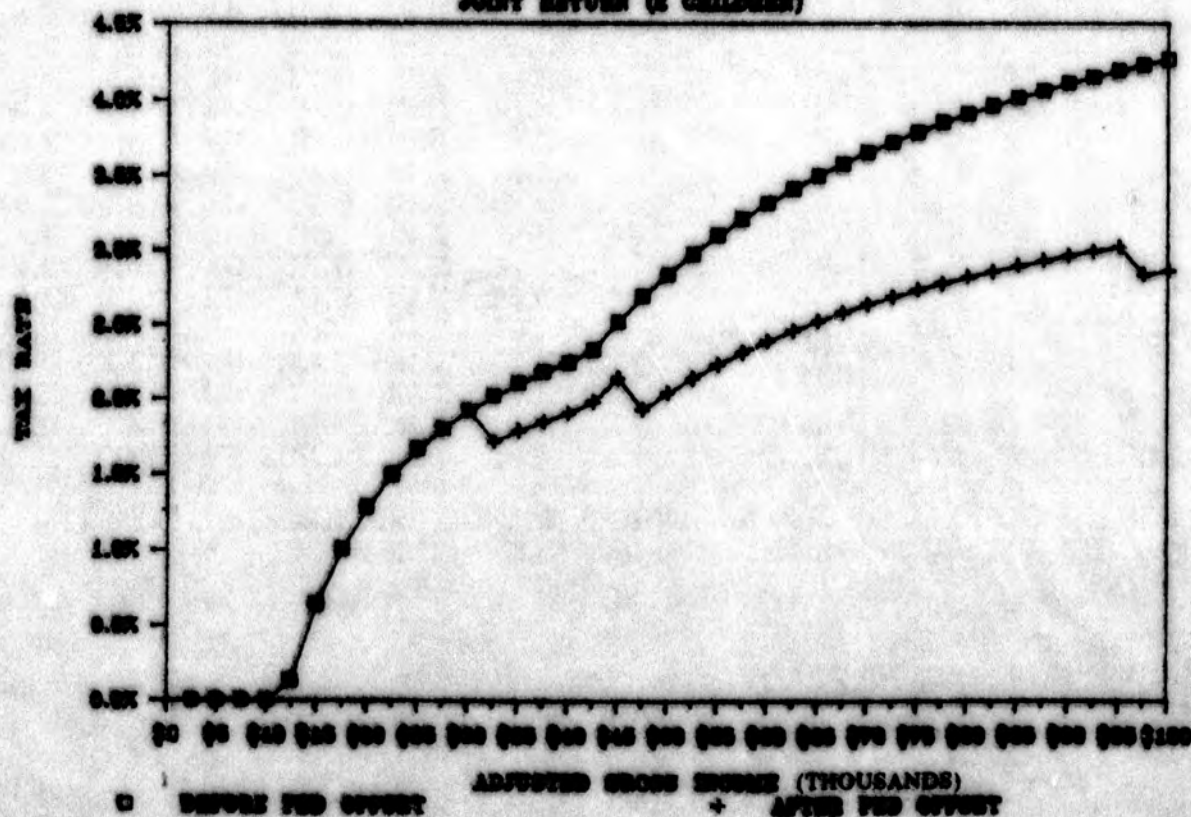
TOTAL TAXES AS PERCENTAGE OF INCOME

JOINT RETURN (2 CHILDREN)



STATE TAXES AS PERCENTAGE OF INCOME

JOINT RETURN (2 CHILDREN)



*****CHILD'S SINGLE RETURN (UNEARNED INCOME LESS THAN \$1000)

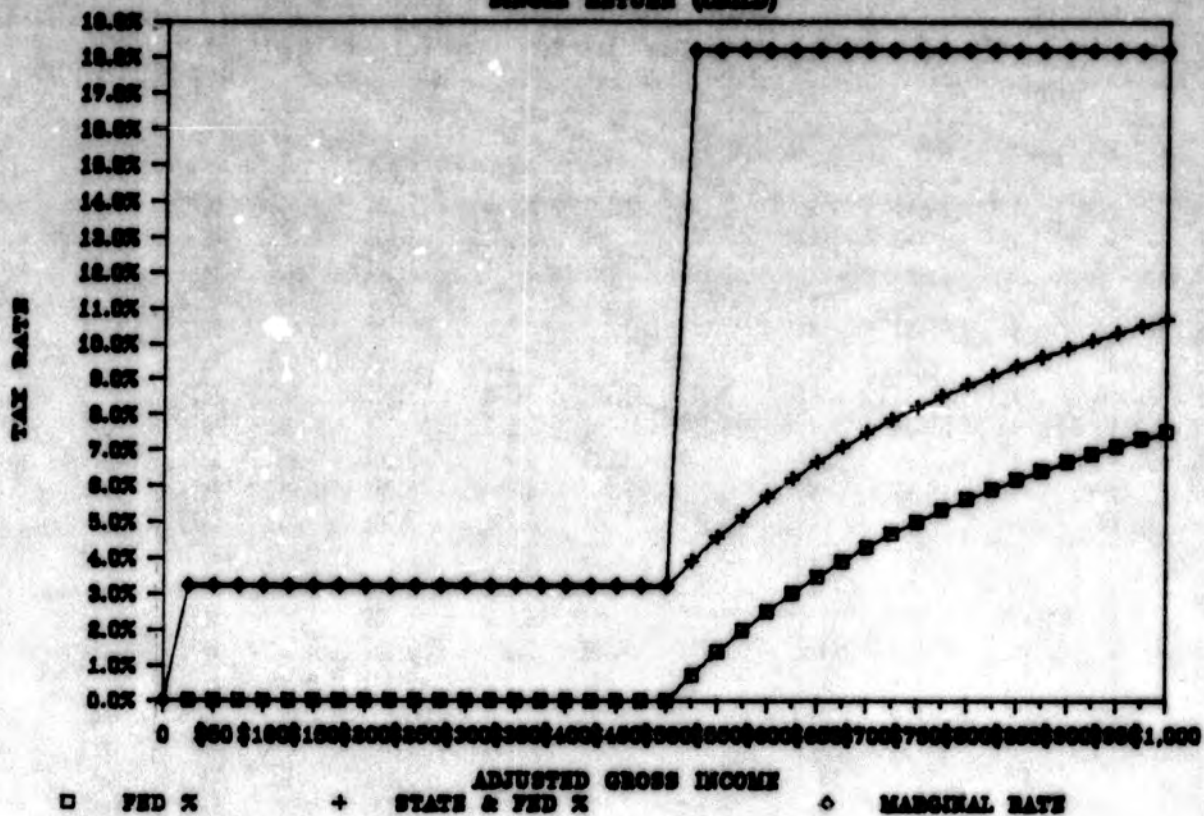
					TAXES PAID/INCOME			COMBINED MARGINAL TAX RATE	AFTER TAX			FEDERAL OFFSET PERCENT
TAXES DUE		STATE TAX		STATE		STATE			FEDERAL	PERMANENT	INCOME	
UNEARNED	FEDERAL	TOTAL	TAXPAYER	STATE	BEFORE	AFTER	PLUS		AVERAGE	FUND DIV	LOSS	
INCOME			PAYS	COLLECTS	OFFSET	OFFSET	FEDERAL		RATE	VALUE	(DIV-TAX)	
0	0	0	0	0	ERR	ERR	ERR	0.00%	ERR	\$700	\$700	ERR
\$25	\$0	\$1	\$1	\$1	3.20%	3.20%	3.20%	3.20%	0.00%	\$678	\$677	0.00%
\$50	\$0	\$2	\$2	\$2	3.20%	3.20%	3.20%	3.20%	0.00%	\$678	\$676	0.00%
\$75	\$0	\$2	\$2	\$2	3.20%	3.20%	3.20%	3.20%	0.00%	\$678	\$675	0.00%
\$100	\$0	\$3	\$3	\$3	3.20%	3.20%	3.20%	3.20%	0.00%	\$678	\$674	0.00%
\$125	\$0	\$4	\$4	\$4	3.20%	3.20%	3.20%	3.20%	0.00%	\$678	\$674	0.00%
\$150	\$0	\$5	\$5	\$5	3.20%	3.20%	3.20%	3.20%	0.00%	\$678	\$673	0.00%
\$175	\$0	\$6	\$6	\$6	3.20%	3.20%	3.20%	3.20%	0.00%	\$678	\$672	0.00%
\$200	\$0	\$6	\$6	\$6	3.20%	3.20%	3.20%	3.20%	0.00%	\$678	\$671	0.00%
\$225	\$0	\$7	\$7	\$7	3.20%	3.20%	3.20%	3.20%	0.00%	\$678	\$670	0.00%
\$250	\$0	\$8	\$8	\$8	3.20%	3.20%	3.20%	3.20%	0.00%	\$678	\$670	0.00%
\$275	\$0	\$9	\$9	\$9	3.20%	3.20%	3.20%	3.20%	0.00%	\$678	\$669	0.00%
\$300	\$0	\$10	\$10	\$10	3.20%	3.20%	3.20%	3.20%	0.00%	\$678	\$668	0.00%
\$325	\$0	\$10	\$10	\$10	3.20%	3.20%	3.20%	3.20%	0.00%	\$678	\$667	0.00%
\$350	\$0	\$11	\$11	\$11	3.20%	3.20%	3.20%	3.20%	0.00%	\$678	\$666	0.00%
\$375	\$0	\$12	\$12	\$12	3.20%	3.20%	3.20%	3.20%	0.00%	\$678	\$666	0.00%
\$400	\$0	\$13	\$13	\$13	3.20%	3.20%	3.20%	3.20%	0.00%	\$678	\$665	0.00%
\$425	\$0	\$14	\$14	\$14	3.20%	3.20%	3.20%	3.20%	0.00%	\$678	\$664	0.00%
\$450	\$0	\$14	\$14	\$14	3.20%	3.20%	3.20%	3.20%	0.00%	\$678	\$663	0.00%
\$475	\$0	\$15	\$15	\$15	3.20%	3.20%	3.20%	3.20%	0.00%	\$678	\$662	0.00%
\$500	\$0	\$16	\$16	\$16	3.20%	3.20%	3.20%	3.20%	0.00%	\$678	\$662	0.00%
\$525	\$4	\$21	\$17	\$17	3.20%	3.20%	3.91%	18.20%	0.71%	\$573	\$556	0.00%
\$550	\$8	\$25	\$18	\$18	3.20%	3.20%	4.56%	18.20%	1.36%	\$573	\$555	0.00%
\$575	\$11	\$30	\$18	\$18	3.20%	3.20%	5.16%	18.20%	1.96%	\$573	\$554	0.00%
\$600	\$15	\$34	\$19	\$19	3.20%	3.20%	5.70%	18.20%	2.50%	\$573	\$553	0.00%
\$625	\$19	\$39	\$20	\$20	3.20%	3.20%	6.20%	18.20%	3.00%	\$573	\$553	0.00%
\$650	\$23	\$43	\$21	\$21	3.20%	3.20%	6.66%	18.20%	3.46%	\$573	\$552	0.00%
\$675	\$26	\$48	\$22	\$22	3.20%	3.20%	7.09%	18.20%	3.89%	\$573	\$551	0.00%
\$700	\$30	\$52	\$22	\$22	3.20%	3.20%	7.49%	18.20%	4.29%	\$573	\$550	0.00%
\$725	\$34	\$57	\$23	\$23	3.20%	3.20%	7.86%	18.20%	4.66%	\$573	\$549	0.00%
\$750	\$38	\$62	\$24	\$24	3.20%	3.20%	8.20%	18.20%	5.00%	\$573	\$549	0.00%
\$775	\$41	\$66	\$25	\$25	3.20%	3.20%	8.52%	18.20%	5.32%	\$573	\$548	0.00%
\$800	\$45	\$71	\$26	\$26	3.20%	3.20%	8.83%	18.20%	5.63%	\$573	\$547	0.00%
\$825	\$49	\$75	\$26	\$26	3.20%	3.20%	9.11%	18.20%	5.91%	\$573	\$546	0.00%
\$850	\$53	\$80	\$27	\$27	3.20%	3.20%	9.38%	18.20%	6.18%	\$573	\$545	0.00%
\$875	\$56	\$84	\$28	\$28	3.20%	3.20%	9.63%	18.20%	6.43%	\$573	\$545	0.00%
\$900	\$60	\$89	\$29	\$29	3.20%	3.20%	9.87%	18.20%	6.67%	\$573	\$544	0.00%
\$925	\$64	\$93	\$30	\$30	3.20%	3.20%	10.09%	18.20%	6.89%	\$573	\$543	0.00%
\$950	\$68	\$98	\$30	\$30	3.20%	3.20%	10.31%	18.20%	7.11%	\$573	\$542	0.00%
\$975	\$71	\$102	\$31	\$31	3.20%	3.20%	10.51%	18.20%	7.31%	\$573	\$541	0.00%
\$1,000	\$75	\$107	\$32	\$32	3.20%	3.20%	10.70%	18.20%	7.50%	\$573	\$541	0.00%

NOTE: THE INCOME LOSS MEASURE IN THE LAST COLUMN IS THE DIFFERENCE IN DISPOSABLE INCOME BETWEEN THE FOLLOWING:
1. IMPOSE INCOME TAX AND PAY DIVIDEND, AND 2. NEITHER IMPOSE TAX NOR PAY DIVIDEND.

			FEDERAL	STATE
PF DIVIDEND	\$700	LOW TAX RATE TO	\$17,900	\$30,000
STANDARD DEDUCTION	\$2,600	HIGHEST RATE AFTER	\$43,200	
EXEMPTIONS	0	EXEMPTION	\$2,000	\$3,000
FEDERAL TAX REFORM ACT OF 1986, HB-154 AND SB-148				

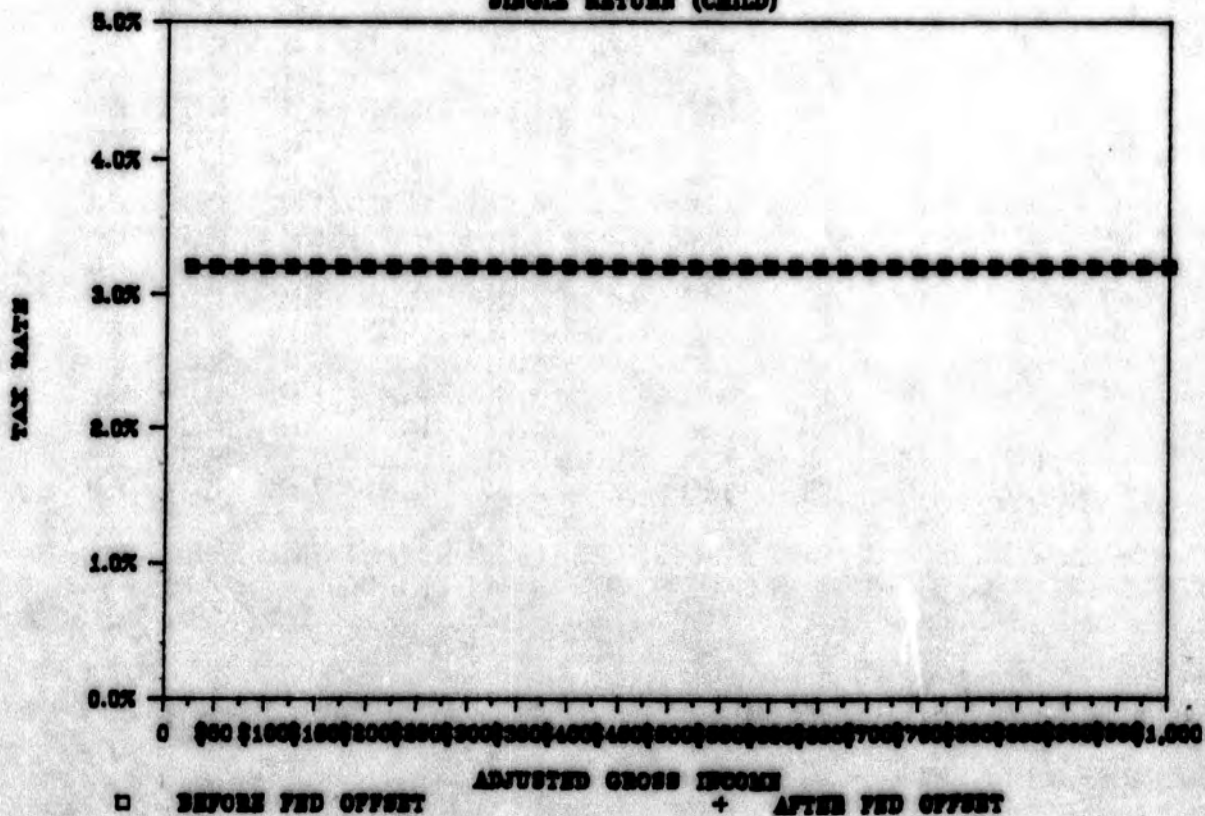
TOTAL TAXES AS PERCENTAGE OF INCOME

SINGLE RETURN (CHILD)



STATE TAXES AS PERCENTAGE OF INCOME

SINGLE RETURN (CHILD)



*****JOINT RETURN*****HOMEOOWNER**ND IRA*****

INCOME	TAXES DUE		===STATE TAX===		TAXES PAID/INCOME			COMBINED MARGINAL TAX RATE	AFTER TAX			FEDERAL OFFSET PERCENT
	FEDERAL TOTAL	TAXPAYER PAYS	STATE COLLECTS	*****STATE*****		STATE PLUS FEDERAL	FEDERAL AVERAGE RATE		PERMANENT FUND DIV VALUE	INCOME LOSS (DIV-TAX)		
				BEFORE OFFSET	AFTER OFFSET							
0	0	0	0	0	ERR	ERR	ERR	0.00Z	ERR	\$1,400	\$1,400	ERR
\$2,500	\$0	\$0	\$0	\$0	0.00Z	0.00Z	0.00Z	0.00Z	0.00Z	\$1,400	\$1,400	ERR
\$5,000	\$0	\$0	\$0	\$0	0.00Z	0.00Z	0.00Z	0.00Z	0.00Z	\$1,400	\$1,400	ERR
\$7,500	\$0	\$48	\$48	\$48	0.64Z	0.64Z	0.64Z	3.20Z	0.00Z	\$1,355	\$1,307	0.00Z
\$10,000	\$330	\$458	\$128	\$128	1.28Z	1.28Z	4.58Z	18.20Z	3.30Z	\$1,145	\$1,017	0.00Z
\$12,500	\$705	\$913	\$208	\$208	1.66Z	1.66Z	7.30Z	18.20Z	5.64Z	\$1,145	\$937	0.00Z
\$15,000	\$1,080	\$1,368	\$288	\$288	1.92Z	1.92Z	9.12Z	18.20Z	7.20Z	\$1,145	\$857	0.00Z
\$17,500	\$1,455	\$1,823	\$368	\$368	2.10Z	2.10Z	10.42Z	18.20Z	8.31Z	\$1,145	\$777	0.00Z
\$20,000	\$1,830	\$2,278	\$448	\$448	2.24Z	2.24Z	11.39Z	18.20Z	9.15Z	\$1,145	\$697	0.00Z
\$22,500	\$2,205	\$2,733	\$528	\$528	2.35Z	2.35Z	12.15Z	18.20Z	9.80Z	\$1,145	\$617	0.00Z
\$25,000	\$2,580	\$3,188	\$608	\$608	2.43Z	2.43Z	12.75Z	18.20Z	10.32Z	\$1,145	\$537	0.00Z
\$27,500	\$2,955	\$3,643	\$688	\$688	2.50Z	2.50Z	13.25Z	18.20Z	10.75Z	\$1,145	\$457	0.00Z
\$30,000	\$3,330	\$4,098	\$768	\$768	2.56Z	2.56Z	13.66Z	18.20Z	11.10Z	\$1,145	\$377	0.00Z
\$32,500	\$3,458	\$4,178	\$721	\$848	2.61Z	2.22Z	12.86Z	18.20Z	10.64Z	\$1,145	\$424	15.00Z
\$35,000	\$3,795	\$4,584	\$789	\$928	2.65Z	2.25Z	13.10Z	18.20Z	10.84Z	\$1,145	\$356	15.00Z
\$37,500	\$4,133	\$5,021	\$889	\$1,046	2.79Z	2.37Z	13.39Z	20.60Z	11.02Z	\$1,112	\$223	15.00Z
\$40,000	\$4,470	\$5,480	\$1,010	\$1,188	2.97Z	2.52Z	13.70Z	20.60Z	11.18Z	\$1,112	\$102	15.00Z
\$42,500	\$5,074	\$6,032	\$958	\$1,331	3.13Z	2.25Z	14.19Z	33.60Z	11.94Z	\$930	(\$28)	28.00Z
\$45,000	\$5,704	\$6,765	\$1,061	\$1,473	3.27Z	2.36Z	15.03Z	33.60Z	12.68Z	\$930	(\$131)	28.00Z
\$47,500	\$6,334	\$7,497	\$1,163	\$1,616	3.40Z	2.45Z	15.78Z	33.60Z	13.33Z	\$930	(\$234)	28.00Z
\$50,000	\$6,964	\$8,230	\$1,266	\$1,758	3.52Z	2.53Z	16.46Z	33.60Z	13.93Z	\$930	(\$336)	28.00Z
\$52,500	\$7,594	\$8,962	\$1,368	\$1,901	3.62Z	2.61Z	17.07Z	33.60Z	14.46Z	\$930	(\$439)	28.00Z
\$55,000	\$8,224	\$9,695	\$1,471	\$2,043	3.71Z	2.67Z	17.63Z	33.60Z	14.95Z	\$930	(\$541)	28.00Z
\$57,500	\$8,854	\$10,428	\$1,574	\$2,186	3.80Z	2.74Z	18.13Z	33.60Z	15.40Z	\$930	(\$644)	28.00Z
\$60,000	\$9,484	\$11,160	\$1,676	\$2,328	3.88Z	2.79Z	18.60Z	33.60Z	15.81Z	\$930	(\$747)	28.00Z
\$62,500	\$10,114	\$11,893	\$1,779	\$2,471	3.95Z	2.85Z	19.03Z	33.60Z	16.18Z	\$930	(\$849)	28.00Z
\$65,000	\$10,744	\$12,625	\$1,881	\$2,613	4.02Z	2.89Z	19.42Z	33.60Z	16.53Z	\$930	(\$952)	28.00Z
\$67,500	\$11,374	\$13,358	\$1,984	\$2,756	4.08Z	2.94Z	19.79Z	33.60Z	16.85Z	\$930	(\$1,054)	28.00Z
\$70,000	\$12,004	\$14,091	\$2,087	\$2,898	4.14Z	2.98Z	20.13Z	33.60Z	17.15Z	\$930	(\$1,157)	28.00Z
\$72,500	\$12,634	\$14,823	\$2,189	\$3,041	4.19Z	3.02Z	20.45Z	33.60Z	17.43Z	\$930	(\$1,260)	28.00Z
\$75,000	\$13,264	\$15,556	\$2,292	\$3,183	4.24Z	3.06Z	20.74Z	33.60Z	17.69Z	\$930	(\$1,362)	28.00Z
\$77,500	\$13,894	\$16,288	\$2,394	\$3,326	4.29Z	3.09Z	21.02Z	33.60Z	17.93Z	\$930	(\$1,465)	28.00Z
\$80,000	\$14,524	\$17,021	\$2,497	\$3,468	4.34Z	3.12Z	21.28Z	33.60Z	18.16Z	\$930	(\$1,567)	28.00Z
\$82,500	\$15,154	\$17,754	\$2,600	\$3,611	4.38Z	3.15Z	21.52Z	33.60Z	18.37Z	\$930	(\$1,670)	28.00Z
\$85,000	\$15,784	\$18,486	\$2,702	\$3,753	4.42Z	3.18Z	21.75Z	33.60Z	18.57Z	\$930	(\$1,773)	28.00Z
\$87,500	\$16,414	\$19,219	\$2,805	\$3,896	4.45Z	3.21Z	21.96Z	33.60Z	18.76Z	\$930	(\$1,875)	28.00Z
\$90,000	\$17,044	\$19,951	\$2,907	\$4,038	4.49Z	3.23Z	22.17Z	33.60Z	18.94Z	\$930	(\$1,978)	28.00Z
\$92,500	\$17,674	\$20,684	\$3,010	\$4,181	4.52Z	3.25Z	22.36Z	33.60Z	19.11Z	\$930	(\$2,080)	28.00Z
\$95,000	\$18,619	\$21,515	\$2,896	\$4,323	4.55Z	3.05Z	22.65Z	38.60Z	19.60Z	\$860	(\$2,037)	33.00Z
\$97,500	\$19,362	\$22,353	\$2,992	\$4,466	4.58Z	3.07Z	22.93Z	38.60Z	19.86Z	\$860	(\$2,132)	33.00Z
\$100,000	\$20,104	\$23,191	\$3,087	\$4,608	4.61Z	3.09Z	23.19Z	38.60Z	20.10Z	\$860	(\$2,228)	33.00Z

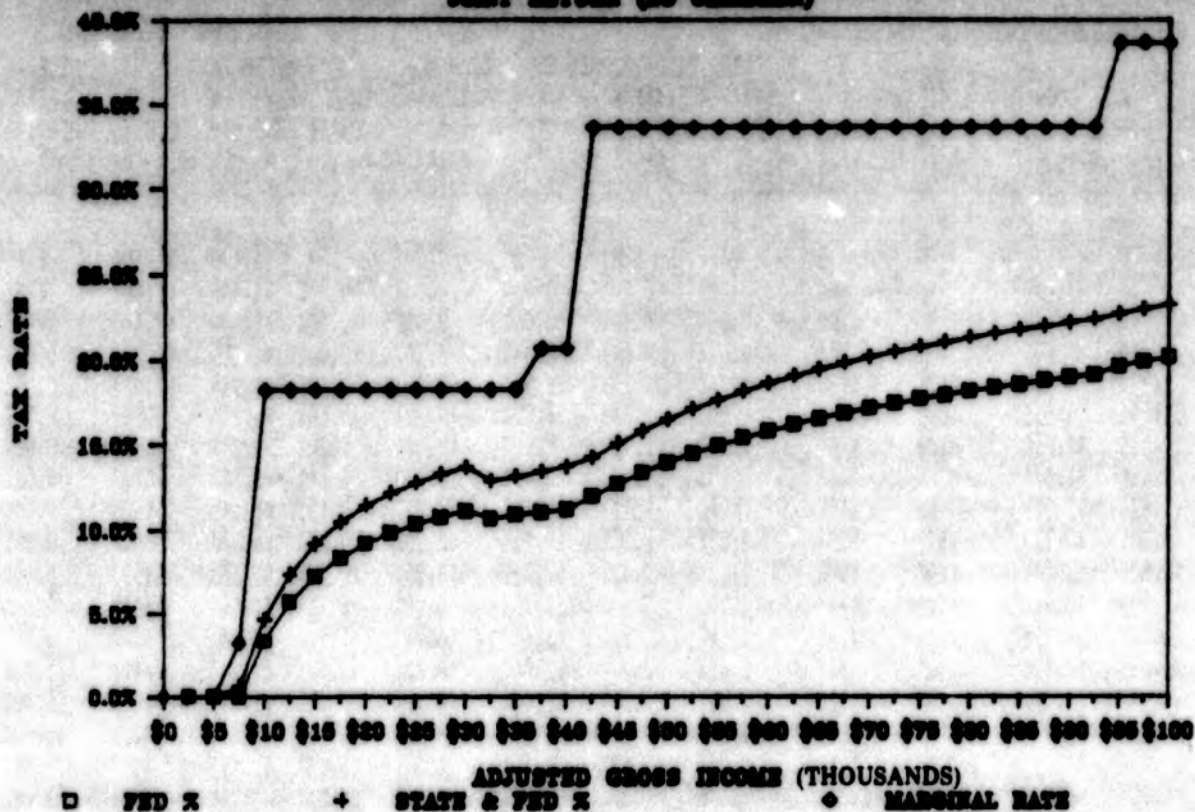
NOTE: THE INCOME LOSS MEASURE IN THE LAST COLUMN IS THE DIFFERENCE IN DISPOSABLE INCOME BETWEEN THE FOLLOWING:
1. IMPOSE INCOME TAX AND PAY DIVIDEND, AND 2. NEITHER IMPOSE TAX NOR PAY DIVIDEND.

			FEDERAL	STATE
PF DIVIDEND	\$700	LOW TAX RATE TO	\$30,000	\$30,000
STANDARD DEDUCTION	\$3,800	HIGHEST RATE AFTER	\$73,000	
EXEMPTIONS	2	EXEMPTION	\$2,000	\$3,000

FEDERAL TAX REFORM ACT OF 1986, HB-154 AND SB-148

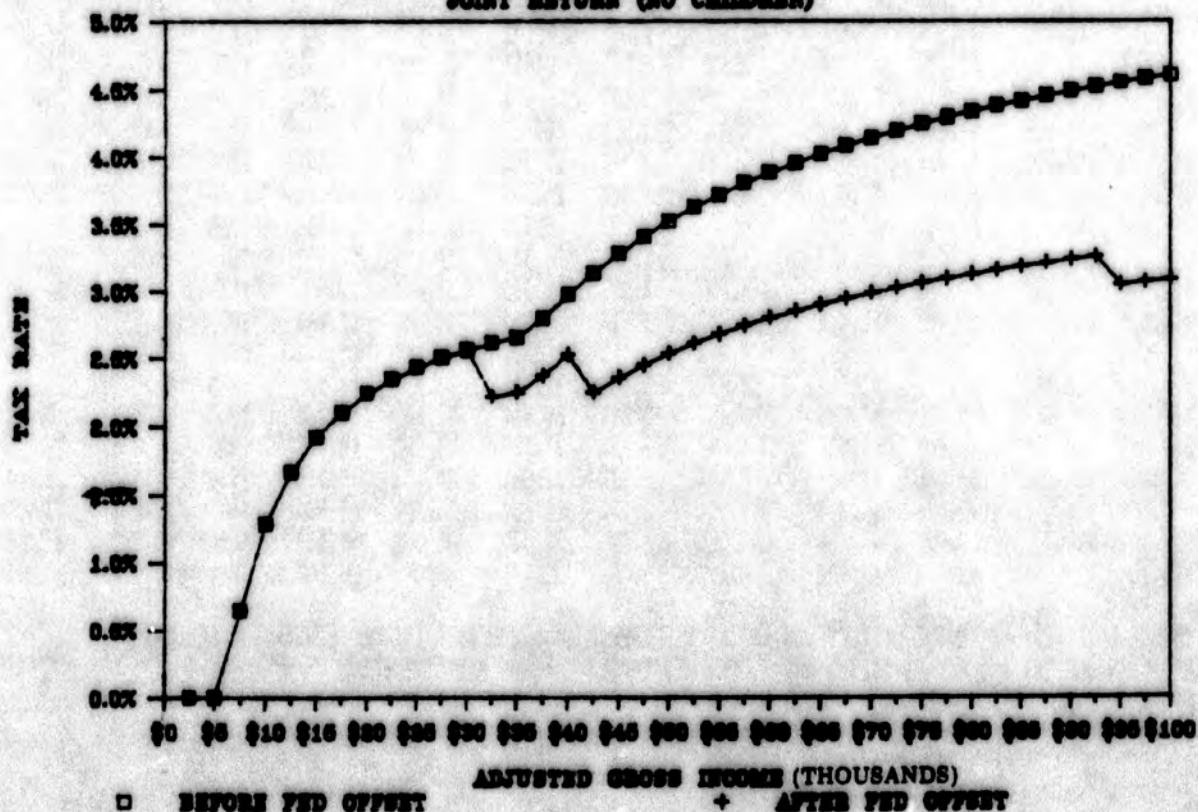
TOTAL TAXES AS PERCENTAGE OF INCOME

JOINT RETURN (NO CHILDREN)



STATE TAXES AS PERCENTAGE OF INCOME

JOINT RETURN (NO CHILDREN)



SINGLE RETURN (NOT A CHILD CLAIMED ON RETURN OF PARENT)RENTER*NO IRA***

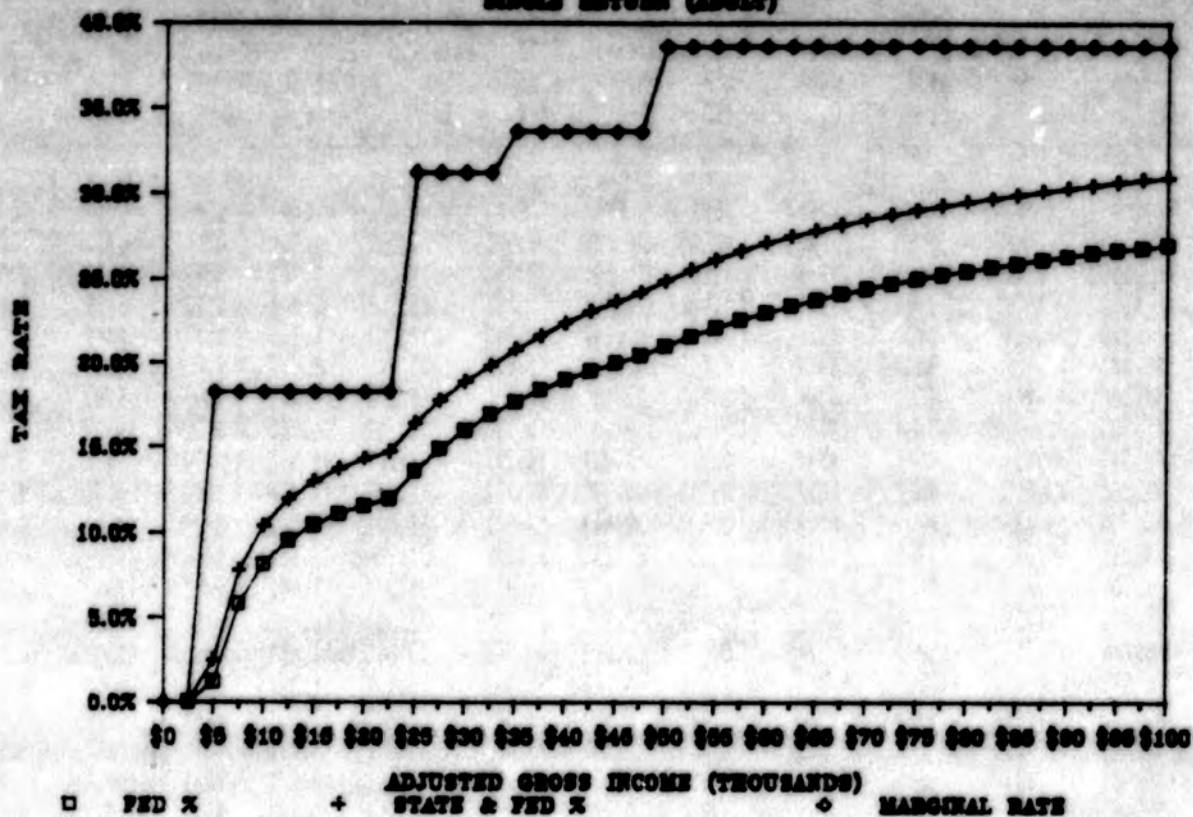
INCOME	TAXES DUE		***STATE TAX***		****TAXES PAID/INCOME****			COMBINED	FEDERAL AVERAGE RATE	AFTER TAX		FEDERAL OFFSET PERCENT
	FEDERAL TOTAL		TAXPAYER PAYS	STATE COLLECTS	*****STATE***** BEFORE OFFSET	AFTER OFFSET	STATE PLUS FEDERAL	MARGINAL TAX RATE		FUND DIV VALUE	INCOME LOSS (DIV-TAX)	
80	80	80	80	80	ERR	ERR	ERR	0.00%	ERR	\$700	\$700	ERR
82,500	80	80	80	80	0.00%	0.00%	0.00%	0.00%	0.00%	\$700	\$700	ERR
85,000	860	\$124	864	864	1.28%	1.28%	2.48%	18.20%	1.20%	\$573	\$509	0.00%
87,500	8435	\$579	\$144	\$144	1.92%	1.92%	7.72%	18.20%	5.80%	\$573	\$429	0.00%
90,000	8810	\$1,034	\$224	\$224	2.24%	2.24%	10.34%	18.20%	8.10%	\$573	\$349	0.00%
92,500	\$1,185	\$1,489	\$304	\$304	2.43%	2.43%	11.91%	18.20%	9.48%	\$573	\$269	0.00%
95,000	\$1,560	\$1,944	\$384	\$384	2.56%	2.56%	12.96%	18.20%	10.40%	\$573	\$189	0.00%
97,500	\$1,935	\$2,399	\$464	\$464	2.65%	2.65%	13.71%	18.20%	11.06%	\$573	\$109	0.00%
100,000	\$2,310	\$2,854	\$544	\$544	2.72%	2.72%	14.27%	18.20%	11.55%	\$573	\$29	0.00%
102,500	\$2,685	\$3,309	\$624	\$624	2.77%	2.77%	14.71%	18.20%	11.93%	\$573	(\$51)	0.00%
105,000	\$3,060	\$3,764	\$704	\$704	2.82%	2.82%	15.36%	31.20%	13.54%	\$482	(\$222)	0.00%
107,500	\$3,435	\$4,219	\$784	\$784	2.85%	2.85%	16.01%	31.20%	14.85%	\$482	(\$302)	0.00%
110,000	\$3,810	\$4,674	\$864	\$864	2.88%	2.88%	16.67%	31.20%	15.95%	\$482	(\$382)	0.00%
112,500	\$4,185	\$5,129	\$944	\$944	2.90%	2.90%	17.34%	31.20%	16.88%	\$482	(\$462)	0.00%
115,000	\$4,560	\$5,584	\$1,024	\$1,024	3.07%	3.07%	18.02%	33.60%	17.67%	\$465	(\$609)	0.00%
117,500	\$4,935	\$6,039	\$1,104	\$1,104	3.24%	3.24%	18.71%	33.60%	18.36%	\$465	(\$752)	0.00%
120,000	\$5,310	\$6,494	\$1,184	\$1,184	3.40%	3.40%	19.42%	33.60%	18.96%	\$465	(\$894)	0.00%
122,500	\$5,685	\$6,949	\$1,264	\$1,264	3.53%	3.53%	20.15%	33.60%	19.49%	\$465	(\$1,037)	0.00%
125,000	\$6,060	\$7,404	\$1,344	\$1,344	3.65%	3.65%	20.90%	33.60%	19.97%	\$465	(\$1,179)	0.00%
127,500	\$6,435	\$7,859	\$1,424	\$1,424	3.76%	3.76%	21.67%	33.60%	20.39%	\$465	(\$1,322)	0.00%
130,000	\$6,810	\$8,314	\$1,504	\$1,504	3.86%	3.86%	22.46%	38.60%	20.99%	\$430	(\$1,499)	0.00%
132,500	\$7,185	\$8,769	\$1,584	\$1,584	3.95%	3.95%	23.27%	38.60%	21.56%	\$430	(\$1,642)	0.00%
135,000	\$7,560	\$9,224	\$1,664	\$1,664	4.03%	4.03%	24.10%	38.60%	22.08%	\$430	(\$1,784)	0.00%
137,500	\$7,935	\$9,679	\$1,744	\$1,744	4.10%	4.10%	24.95%	38.60%	22.56%	\$430	(\$1,927)	0.00%
140,000	\$8,310	\$10,134	\$1,824	\$1,824	4.17%	4.11%	25.82%	38.60%	22.99%	\$430	(\$2,070)	1.31%
142,500	\$8,685	\$10,589	\$1,904	\$1,904	4.23%	4.10%	26.71%	38.60%	23.39%	\$430	(\$2,213)	3.02%
145,000	\$9,060	\$11,044	\$1,984	\$1,984	4.28%	4.09%	27.62%	38.60%	23.76%	\$430	(\$2,356)	4.55%
147,500	\$9,435	\$11,499	\$2,064	\$2,064	4.34%	4.08%	28.55%	38.60%	24.10%	\$430	(\$2,500)	5.94%
150,000	\$9,810	\$11,954	\$2,144	\$2,144	4.38%	4.07%	29.50%	38.60%	24.42%	\$430	(\$2,644)	7.19%
152,500	\$10,185	\$12,409	\$2,224	\$2,224	4.43%	4.06%	30.47%	38.60%	24.72%	\$430	(\$2,788)	8.34%
155,000	\$10,560	\$12,864	\$2,304	\$2,304	4.47%	4.05%	31.46%	38.60%	24.99%	\$430	(\$2,932)	9.39%
157,500	\$10,935	\$13,319	\$2,384	\$2,384	4.51%	4.04%	32.47%	38.60%	25.25%	\$430	(\$3,076)	10.35%
160,000	\$11,310	\$13,774	\$2,464	\$2,464	4.55%	4.04%	33.50%	38.60%	25.49%	\$430	(\$3,220)	11.24%
162,500	\$11,685	\$14,229	\$2,544	\$2,544	4.58%	4.03%	34.55%	38.60%	25.72%	\$430	(\$3,364)	12.06%
165,000	\$12,060	\$14,684	\$2,624	\$2,624	4.62%	4.02%	35.62%	38.60%	25.94%	\$430	(\$3,508)	12.82%
167,500	\$12,435	\$15,139	\$2,704	\$2,704	4.65%	4.02%	36.71%	38.60%	26.14%	\$430	(\$3,652)	13.52%
170,000	\$12,810	\$15,594	\$2,784	\$2,784	4.68%	4.01%	37.82%	38.60%	26.33%	\$430	(\$3,796)	14.18%
172,500	\$13,185	\$16,049	\$2,864	\$2,864	4.70%	4.01%	38.95%	38.60%	26.51%	\$430	(\$3,940)	14.80%
175,000	\$13,560	\$16,504	\$2,944	\$2,944	4.73%	4.00%	40.10%	38.60%	26.68%	\$430	(\$4,084)	15.38%
177,500	\$13,935	\$16,959	\$3,024	\$3,024	4.76%	4.00%	41.27%	38.60%	26.84%	\$430	(\$4,228)	15.92%
180,000	\$14,310	\$17,414	\$3,104	\$3,104	4.78%	3.99%	42.46%	38.60%	27.00%	\$430	(\$4,372)	16.43%

NOTE: THE INCOME LOSS MEASURE IN THE LAST COLUMN IS THE DIFFERENCE IN DISPOSABLE INCOME BETWEEN THE FOLLOWING:
1. IMPOSE INCOME TAX AND PAY DIVIDEND, AND 2. NEITHER IMPOSE TAX NOR PAY DIVIDEND.

	FEDERAL	STATE
PF DIVIDEND	\$700	LOW TAX RATE TO \$17,900
STANDARD DEDUCTION	\$2,600	HIGHEST RATE AFTER \$43,200
EXEMPTIONS	1 EXEMPTION	\$2,000
FEDERAL TAX REFORM ACT OF 1986, HB-154 AND SB-148		\$3,000

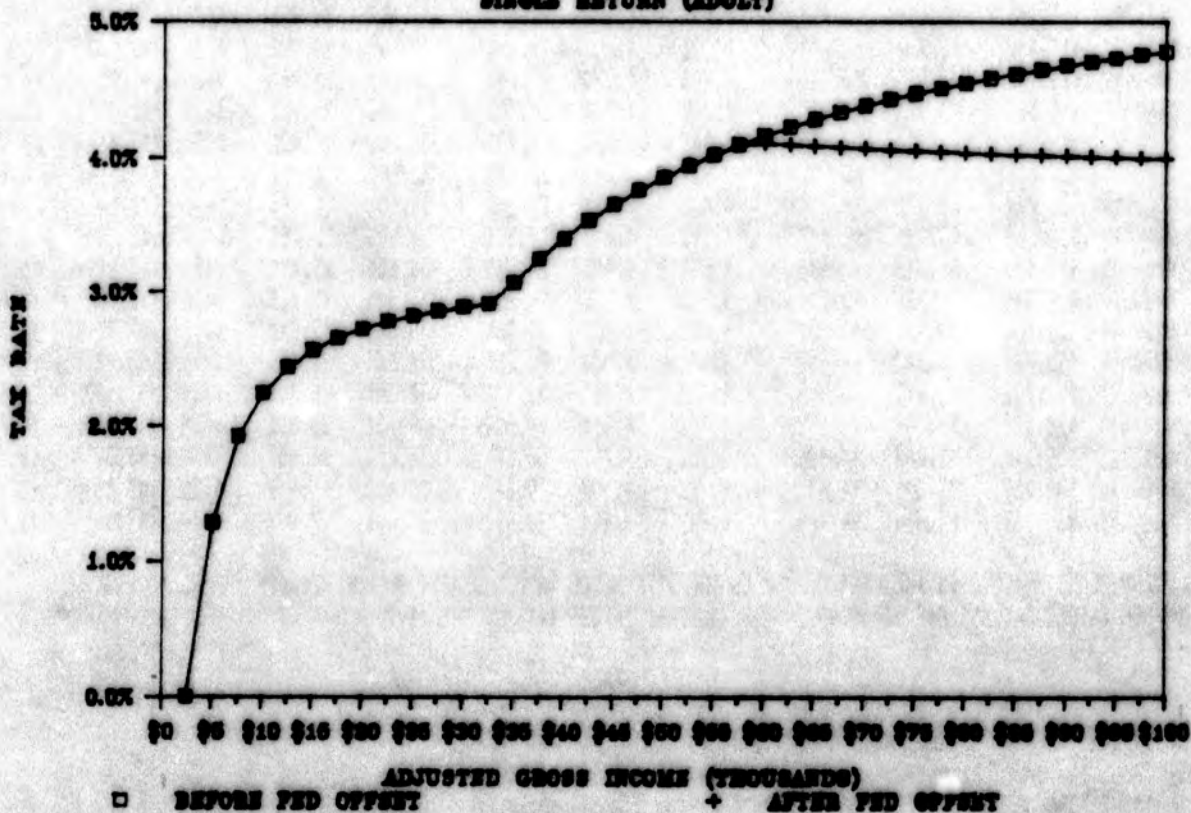
TOTAL TAXES AS PERCENTAGE OF INCOME

SINGLE RETURN (ADULT)



STATE TAXES AS PERCENTAGE OF INCOME

SINGLE RETURN (ADULT)



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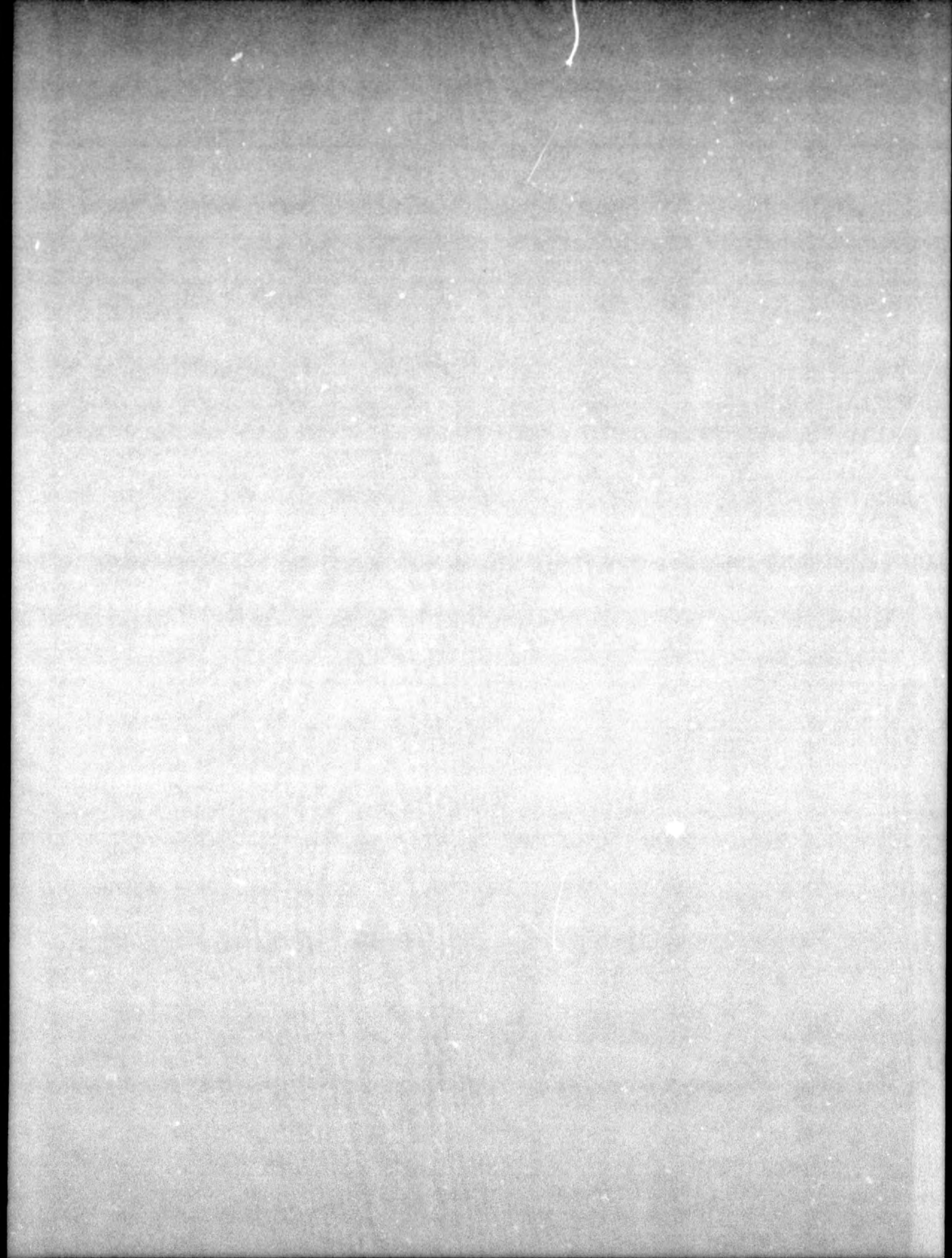
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**INCOME AND INVESTMENT FLOWS FROM ALASKA
OIL AND GAS PRODUCING ACTIVITIES**

Report for the State of Alaska

by

Edward B. Deakin

May 28, 1987

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SUMMARY

This report is an analysis of the levels of income flows from oil and gas producing activities in the State of Alaska. Alternative data sources are used to estimate the shares of Alaska oil and gas income received by the State and Federal governments and by the producers. The other data sources include company financial reports and data prepared by the U. S. Bureau of the Census and the American Petroleum Institute. A comparison of the alternatives indicates consistency in estimated income shares.

Company financial reports, U.S. Bureau of Census and American Petroleum Institute data are used to estimate the investments made in oil and gas production and in the Trans-Alaska Pipeline system. A schedule of these cash flows indicates that company net investment (after-tax) peaked at \$10.8 billion in 1977 and that after-tax payoff occurred in 1981.

A mathematical model was developed to project income shares for different prices of North Slope crude oil. The results indicate a close correlation between industry, federal and state shares as crude prices change.

ANALYSIS OF INCOME FLOWS

Estimates of income flows and the shares of income from the Alaska oil and gas industry were prepared using three major data sources: the Alaska Office of Management and Budget (OMB), the financial statements of the major oil and gas producers on the North Slope, the American Petroleum Institute, and the U. S. Bureau of the Census Current Industrial Surveys. Each of these sources contain similar information, although the purposes for which the data are assembled differ. The Office of Management and Budget (OMB) analysis was prepared for the same purpose as this study. The OMB analysis is included with one modification. Data included in the other two reports required several modifications to adapt them for this analysis. Estimated income and the state, federal and industry shares derived from the data in each source is discussed in turn.

Office of Management and Budget Analysis

An April 11, 1986 OMB memorandum contained a summary of state, federal and industry shares of Alaska oil resource income for the fiscal years 1982 - 1985. This report was based on data contained in a memorandum from Vincent Wright, chief of research, to Mary Nordale, Commissioner of Revenue and dated October 31, 1985. The data are also reproduced in House Research Agency Report 86-C, dated January 1986. The April memorandum is included at the end of this report.

In summary, the April, 1986, memorandum reported the following shares of oil income (all dollars in millions):

	<u>Industry</u>	<u>Federal</u>	<u>State</u>
1982	\$ 5,421	\$ 4,116	\$ 4,079
1983	5,671	3,158	3,485
1984	5,384	2,654	3,425
1985	5,627	2,413	3,345

The federal income tax rate used for the OMB analysis was 27.9% based on a production-weighted average tax rate as cited in R. McIntire and R. Folen, "Corporate Income Taxes in the Reagan Years". A substantial portion of the income earned by the oil industry in Alaska comes from North Slope production. Given the timing of North Slope investments and the incentives for investment which existed in the tax code at that time, a tax rate that is more specific to this investment may better reflect the returns from Alaska oil company operations. This report includes such an alternate Federal income tax measure.

Admittedly, estimating tax liabilities is a difficult task since tax return data for corporations is generally not publicly available. Additionally, the tax code contains

provisions for tax deferrals and offsets against the statutory tax liability. Special provisions exist in the tax law for the oil and gas industry which makes analysis of these companies rate even more difficult. For these reasons, the statutory rate applied to actual income tax is unlikely to reflect alternative tax payments or actual tax liability. An income tax rate as before divide or actual tax currently payable by reported income to derive a proxy for the income tax rate used on the basis that is available to question, it is generally more nearly reflects the cash subject to currently payable taxes than does the income tax expense required for income taxes.

This approach was used for the major North Slope producers: Arco, Exxon and Sohio. Using this method, tax rates were calculated as follows for the North Slope producers:

Year	Arco	Exxon	Sohio
1978	6.34%	38.28%	1.34%
1979	12.30	35.29	11.22
1980	16.16	33.35	39.37
1981	16.23	23.93	36.41
1982	17.08	25.38	39.06
1983	19.68	33.81	31.60
1984	33.22	29.16	26.56
1985	40.94	23.18	41.53
1986	(55.49)	n.a.	(52.44)

Details of these computations are included as Appendix 1. In 1986 of these current income taxes for Sohio and Arco were negative. This reflects the well write-offs which those companies took that year as the effects of the decline in crude oil prices. An effective tax rate of zero was used in the 1986 analysis.

As may be observed from these data, the tax rates early in the years of North Slope production are quite low. This reflects the deferrals and production offsets claimed as investments are made. Later offsets in the life of an investment, such as Prudhoe, tax rates rise as the benefits of deferrals are reversed. Sohio's rates closely follow the behavior expected for the North Slope investment, so they are employed in this analysis.

Changes in federal income tax rates affect the division of income between the federal government and industry. They do not affect the income attributed to the State.

CORRECTION

**THIS DOCUMENT
HAS BEEN REPHOTOGRAPHED
TO ASSURE LEGIBILITY**

ANALYSIS OF INCOME FLOWS

Estimates of income flows and the shares of income from the Alaska oil and gas industry were prepared using three major data sources: the Alaska Office of Management and Budget (OMB), the financial statements of the major oil and gas producers on the North Slope, the American Petroleum Institute, and the U. S. Bureau of the Census Current Industrial Surveys. Each of these sources contain similar information, although the purposes for which the data are assembled differ. The Office of Management and Budget (OMB) analysis was prepared for the same purpose as this study. The OMB analysis is included with one modification. Data included in the other two reports required several modifications to adapt them for this analysis. Estimated income and the state, federal and industry shares derived from the data in each source is discussed in turn.

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Admittedly, estimating tax liabilities is a difficult task since tax return data for corporations is generally not publicly available. Additionally, the tax code contains

provisions for tax deferrals and offsets against the statutory tax liability. Special provisions exist in the tax law for the oil and gas industry which makes analysis of these companies even more difficult. For these reasons, the statutory rate applied to financial accounting income is unlikely to reflect actual tax payments or actual tax liability. An alternative is to divide income taxes currently payable by reported income before tax to derive a proxy for the income tax rate as related to publicly available income numbers. Although this method is also subject to question, it is generally used on the basis that taxes currently payable more nearly reflects the cash required for income taxes than does the income tax expense item.

This approach was used for the major North Slope producers: Arco, Exxon and Sohio. Using this method, tax rates were calculated as follows for the North Slope producers:

<u>Year</u>	<u>Arco</u>	<u>Exxon</u>	<u>Sohio</u>
1978	6.34%	38.28%	1.34%
1979	12.30	35.29	11.22
1980	16.16	33.35	39.37
1981	16.23	23.93	36.41
1982	17.08	25.38	39.06
1983	19.68	33.81	31.60
1984	33.22	29.16	26.56
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Details of these computations are included as Appendix 1. In 1986 current income taxes for Sohio and Arco were negative. This reflects the write-offs which those companies took that year as well as the effects of the decline in crude oil prices. An effective tax rate of zero was used in the 1986 analysis.

As may be observed from these data, the tax rates early in the years of North Slope production are quite low. This reflects the deferrals and offsets which are claimed as investments are made. Later in the productive life of an investment, such as Prudhoe, tax rates rise as the benefits of deferrals are reversed. Sohio's rates closely follow the behavior expected for the North Slope investment, so they are employed in this analysis.

Changes in federal income tax rates affect the division of income between the federal government and industry. They do not affect the income attributed to the State.

Recasting the OMB report using the Sohio estimated tax rates yields the following shares of income:

	<u>Industry</u>	<u>Federal</u>	<u>State</u>
1982	\$ 4,581	\$ 4,954	\$ 4,080
1983	5,343	3,487	3,484
1984	5,601	2,437	3,425
1985	4,660	3,380	3,345

This indicates slightly lower industry shares and slightly higher Federal shares during the post-investment periods. It is consistent with the behavior expected from the provisions of the tax code.

Financial Report Data

Corporate financial reports usually contain highly aggregated data about a company and its operations. However, when a particular activity is of major significance to a company, detailed data about that activity may be provided. Since North Slope production activities are of such major significance to Sohio, that company's corporate reports contain relatively specific information about Alaska oil and gas producing activities. Moreover, the three major North Slope producers have pipeline subsidiaries which hold their TAPS assets. TAPS is the predominant income source for all three pipeline subsidiaries. In addition, the gross book value of TAPS assets comprises between 80% and 90% of the gross book value of all long term assets for these subsidiaries. Because of the overwhelming significance of TAPS for these pipeline companies, their financial reports provide the detailed information necessary to evaluate TAPS income and investments.

Details of the income computations based on the data in the producers' accounting reports appear in Appendix 3. Alaska oil and gas production income was estimated primarily by extrapolating from the Sohio corporate reports. Arco and Exxon reported information was used to supplement and confirm the Sohio data.

Production income and cost data were factored to reflect an estimate of 100% of the North Slope production income and costs. The factor was a fraction, the numerator of which was the average daily production from the North Slope in a given year and the denominator was Sohio's average daily ANS production. For example, if Sohio owned one half of the production in a given year, Sohio's income and cost data for its Alaskan production operations were multiplied by two to provide an estimate of the total Alaska income and costs for that year.

Since data in the financial reports are presented somewhat differently from that required here, it was necessary to supplement the financial report data with other information. The types of additional information required included such items as detailed tax and royalty data.

Likewise Sohio Pipeline Company's data were used as the primary source of information for estimating income and costs from operation of TAPS. Since Sohio holds a 33.34% interest in TAPS, the reported data were multiplied by one over .3334 to provide an estimate of total TAPS income. This estimate was compared to estimates derived from Arco Pipeline Co. and Exxon Pipeline Co. data. Since the results were similar, the Sohio Pipeline Co. data were used because that company holds the larger share in TAPS and because Sohio Pipeline Co. has fewer non-TAPS revenues and assets.

The shares of income suggested by this method are as follows:

<u>Year</u>	<u>Industry</u>	<u>Federal</u>	<u>State</u>
1978	\$ 1,418	\$ 16	\$ 611
1979	3,875	406	1,364
1980	4,876	3,101	2,694
1981	5,701	5,279	4,221
1982	5,685	3,976	4,190
1983	5,771	2,425	3,494
1984	6,639	2,093	3,398
1985	5,083	2,686	3,211
1986	3,452	(992)	1,561

The substantial increase in the Federal share during the 1980 to 1982 period arose primarily from the Windfall Profit Tax. The significant decrease in 1986 arose from the crude oil price decline that year. Most of the producers reported tax losses that year which results in the negative Federal share.

U. S. Census Data-based Estimates

From 1973 to 1982, the United States Bureau of the Census published a survey of exploration and production data for the petroleum industry. Their report included certain data for Alaska separately from other states. These data were used as a basis for estimating Alaska oil income and its distribution.

Details of this analysis are presented in Appendix 4. In summary, the Census data include lease revenues, expenditures for exploration, development and production as well as aggregate indirect expenses. Severance and windfall profit taxes were also given. It was necessary to use other data to estimate Federal and State income taxes and depreciation. Because the Census report includes only

exploration and production activities, the results were combined with the TAPS income estimates derived from company financial report data to obtain an estimate for total oil and gas industry activities in Alaska.

The Census-data based analysis indicates the following distribution of income shares:

<u>Year</u>	<u>Industry</u>	<u>Federal</u>	<u>State</u>
1978	\$ 1,530	\$ 21	\$ 801
1979	3,683	465	1,447
1980	3,817	3,531	2,824
1981	4,592	5,644	4,294
1982	4,657	4,377	4,199

API-data Based Estimates

In 1983, the American Petroleum Institute took over the industry data reporting which had previously been conducted by the U.S. Bureau of the Census. The 1983 report is no longer available and the 1985 report was not published as of the date of this report. The analysis based on these data is, therefore, limited to 1984.

Since the API data are similar to the Census data, the same methodology was applied to develop estimated income and income shares. The resulting income shares are as follows:

<u>Industry</u>	<u>Federal</u>	<u>State</u>
\$ 6,492	\$ 2,565	\$ 3,526

The analysis is reported in Table 9. These results are included in the comparative tables in the "Census-data based" columns.

Summary

Estimated total net revenues and the State share of net revenues under all three methods are summarized in Table 10. This comparison indicates that the State's share of net revenues is relatively consistently estimated using the three different analytical methods. Office of Management and Budget estimates appear to fall between the two alternate estimates while the company-based data tend to show a lower State share and the Census estimates a higher share. A comparison of the underlying data suggests that this phenomenon is due to differences in the data collection methods and the reporting thereof. Some of the differences between the reports are:

- (1) Census data include expenditures regardless of whether they are capitalized or expensed while financial report data include only costs expensed.
- (2) There appear to be differences in the timing

of revenue recognition across methods. This gives different revenue amounts in different years and, further, alters the related state royalties and severance taxes.

- (3) Overhead estimated in the state analysis is greater than that implied in the Census data. The company reports do not provide overhead separately for Alaska operations.

Even with these indicated sources of differences, the variations in the different estimates are small. For 1982, the difference between the largest and smallest estimates of total income was \$617 million or 4.7%. In 1984, the other year for which all three data sources were available, the difference is \$1,120 million or 10%. Maximum differences in State share estimates for the two years are 2.2% and 3.8% respectively.

CAPITAL INVESTMENT FLOWS

Development of a schedule of the capital investment flows for the Alaska oil and gas industry required separate consideration of the investment in TAPS and in drilling and other field development activities.

Information on each of the three major TAPS investors interest in TAPS is available in their respective pipeline subsidiaries' annual reports. Arco, Exxon and Sohio together accounted for 74.3% of the TAPS investment. The book value of the TAPS investments for these three companies were summed. This sum was presumed to equal 74.3% of the total TAPS investment. The sum was factored up to obtain an estimate of 100% investment. The impact of federal income tax credits and deferrals was included on the assumption that these credits and deferrals would affect other company income at the margin.

During the construction period, interest on the amount invested was capitalized as reported in the pipeline subsidiary reports. The after-tax investment schedule resulting from this analysis is reported in Appendix 6.

The amount spent in 1970 is the lease bonuses as reported by the Alaska Department of Revenue.

Estimated expenditures for exploration and development for 1973 through 1982 are based on the U.S. Bureau of Census Current Industrial Reports. The reported changes in gross book value of leases and buildings were used as estimates of investment in field development. Estimates of the division between tangible and intangible costs were based on reports of the average U.S. split between those categories. From this, an assumed intangible drilling cost deduction for federal income taxes was derived. An estimate of the investment tax credit was based on the tangible portion of these expenditures. The estimated net outlay is based on the book value changes less the estimated marginal tax benefits.

For 1983 through 1986, data from the Sohio corporate annual report were used to estimate the gross added investment. Although sufficient detail is not available to relate the Sohio outlays precisely to total outlays, it appears from the discussions of various Alaska projects in the corporate reports of Atlantic Richfield and Sohio that Sohio's outlays account for approximately one-half of the total. Therefore, the Sohio data were multiplied by two to arrive at an estimate of the total investment in those years. This method was cross-checked by comparing pre-1982 Sohio reported investments with the related Census data. The two series were found to be consistent.

From 1977 on, investment is reduced by the estimated cash flows received net of marginal federal income tax. The cash flows are based on the company's share of net revenues plus any tax benefits from the depreciation deduction and minus the estimated marginal tax liability on the company's share of income.

Computations are reported in further detail in Appendix 6 for TAPS and Appendix 7 for field investments. A schedule of the estimated annual net cash flows and the producers' net investment position from 1973 through 1985 is as follows:

<u>Year</u>	<u>Net Cash Flow</u>	<u>Investment Position</u>
1970	\$ (900)	\$ (900)
1973	(328)	(1,228)
1974	(1,472)	(2,699)
1975	(3,307)	(6,006)
1976	(3,412)	(9,419)
1977	(1,347)	(10,766)
1978	643	(10,123)
1979	2,695	(7,428)
1980	4,054	(3,374)
1981	3,652	278
1982	3,473	3,751
1983	3,756	7,507
1984	5,001	12,508
1985	4,511	17,019
1986	1,604	18,623

These cash flows do not distinguish between investments financed with equity and those financed with debt. However, as noted above, the reported pipeline investments include interest on debt incurred to construct the pipeline during the period prior to start of operation.

The results indicate that the ANS investment attained payoff during 1981. Aggregate after-tax investment peaked at \$10.8 billion in 1977. The later cash flows have reduced the net investment balance.

The after-tax cash flow schedule for 1970 through 1986 was used to compute an after-tax internal rate of return. The rate derived for the period is 16.85%. Assuming that the cash flows achieved in 1986 continue through 2005 yields an internal rate of return of 18.99%.¹

¹ To test the sensitivity of this result to the computations in the income estimates, the internal rates of return were computed assuming expenses were 25% greater than reported here. The result suggests internal rates of return of 14.79% and 16.88% respectively.

INCOME SHARES AND FUTURE PRICE SCENARIOS

The Sohio financial report data were used to construct a schedule of income from North Slope oil and gas production for the years 1978 through 1986. The data are presented in Table 12. During this period, net company interest production ranged from 956,255 to 1,390,278 barrels per day. To eliminate the effect of changes in volume on income, all of the computed net revenue amounts were scaled to a common volume. A given year's income was multiplied by a fraction, the numerator of which was 1,390,278 and the denominator was the average daily production for the year. The result is an estimate of net revenue for each year computed as if volume of production were constant.

A plot of net revenues to crude prices (Figure 1) indicates a close linear trend. A regression model was computed using these data. The model indicates that if revenues were zero, there would be a \$1,842 million loss. Each dollar of crude oil price increases net revenues by \$576 million. The correlation between net revenues and crude oil prices is extremely high using this model. Except for 1978 when prices were \$4.56 per barrel and 1986 when prices were \$7.38 per barrel, the model predictions are at most 11% different from actual net revenues. The unusual circumstances in 1978 (start-up) and 1986 (major write-offs) account for the differences in estimates those years.

Regression models were also used to estimate the relationship between gross revenues from crude oil and the severance tax and property tax. The severance tax model was:

$$\text{Severance Tax} = -103.78 + .126431 \text{ Revenue}$$

and the property tax model was:

$$\text{Property Tax} = 87.01 + .005038 \text{ Revenue.}$$

Both models fit the data closely, thus suggesting they were reasonable bases for projecting income shares.

The Alaska income tax rate was estimated by taking the Alaska income taxes for 1982 through 1986 and dividing by the estimated Alaska taxable income for that period. The rate was multiplied by the computed company Alaska taxable income at each crude oil price amount.

A 31% rate was used for Federal income taxes since that appears to be the rate experienced in the most recent years.

Income flows and taxes for TAPS were based on the 1985 and 1986 results.

The schedule of income share projections is given in Table 13. The industry, state and federal shares are graphed in Figure 2.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Fiscal	Total	State	Sever.	Total	Total	Total	Total	Windfall
year	Revenue	Royalty	Conser.	Prop.	Oper.	Deprec.	Acquis.	Profits
			tax	tax	Costs		Costs	Tax
1982	\$16,456	\$1,553	\$1,581	\$276	\$940	\$602	\$1	\$2,018
1983	\$15,470	\$1,448	\$1,494	\$307	\$1,101	\$780	\$1	\$1,018
1984	\$14,955	\$1,409	\$1,393	\$358	\$1,259	\$998	\$1	\$412
1985	\$15,136	\$1,390	\$1,389	\$397	\$1,449	\$1,093	\$1	\$70

	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Fiscal	Uncap.	Explore.	Admin.	Other	Total	State	Corp.	Federal
Year	Interest	Costs	Costs	Deductions	Deductions	Taxable	Petrol	Taxable
	Expense					Net	Income	Income
1982	\$721	\$191	\$236	\$149	\$8,268	\$8,188	\$669	\$7,519
1983	\$676	\$204	\$252	\$142	\$7,423	\$8,047	\$236	\$7,811
1984	\$614	\$219	\$265	\$136	\$7,064	\$7,891	\$265	\$7,626
1985	\$566	\$234	\$278	\$130	\$6,997	\$8,139	\$169	\$7,970

	(17)	(18)	(19)	(20)	(21)	(22)	(23)
Fiscal	Federal	Oil	Total	Total	---Share of Oil Income---		
Year	Corp.	Industry	Federal	State	State	Federal	Industry
	Income	Alaska	Tax	Tax &			
	Tax	Profits		Royalty			
1982	\$2,098	\$5,421	\$4,116	\$4,079	30%	30%	40%
1983	\$2,140	\$5,671	\$3,158	\$3,485	28%	26%	46%
1984	\$2,242	\$5,384	\$2,654	\$3,425	30%	23%	47%
1985	\$2,343	\$5,627	\$2,413	\$3,345	29%	21%	49%

SOURCES AND FORMULAS --

Column [1]: Vincent Wright, chief of research, to Mary Nordale, Commissioner of Revenue, Memorandum of October 31, 1985, Table 3.

Columns [2] & [3]: January 1986 DOR Revenue Sources, p. 39.

Columns [4] to [12]: Vincent Wright, loc. cit.

Column [13]: sum of columns [2] through [12]

Column [14]: column [1] - column [13]

Column [15]: Revenue Sources, p. 39.

Column [16]: column [14] - column [15].

Column [17]: column [16] * (production-weighted average tax rate -- 1982 = .279; 1983 = .274; 1984 = .294; 1985 = .294). Company effective rates for '82-84 from R. McIntire and R. Folen, "Corporate Income Taxes in the Reagan Years," Oct. 1984, pp. 32-36; '85 estimated by OMB.

Column [18]: column [16] - column [17].

Column [19]: column [8] + column [17].

Column [20]: sum of columns [2], [3], [4], and [15].

Column [21]: (column [18]) / (sum of columns [18], [19], and [20]).

Column [22]: (column [19]) / (sum of columns [18], [19], and [20]).

Column [23]: (column [20]) / (sum of columns [18], [19], and [20]).

Office of Management and Budget
Division of Strategic Planning
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APPENDIX 1
Current Tax Analysis

A. Standard Oil Company (Sohio):

Sohio's income and related Federal income taxes are scheduled in Table 1A. The financial statements provide the item "Net income before interest, taxes and other items." It was necessary to deduct net interest expense from this amount to arrive at net income before taxes. Furthermore, since we are interested in U.S. Federal income taxes, foreign income is also deducted. The result is labelled "Net domestic income".

Federal income taxes currently payable was obtained from the footnotes to the financial statements. This amount is presumed to represent a company's actual tax liability for a given year (although there is some disagreement on this). The currently payable amount excludes any provision for taxes which may become due as a result of differences in the treatment of an item for financial accounting purposes from the treatment for Federal tax purposes. The amount should be net of investment tax credits.

In 1985 and 1986 the unusual charges reported by Sohio were added back to the reported income and the income taxes on those unusual charges were also added back. The result is an estimate of the federal income taxes on operating income. In 1986 current taxes were negative which reflected the tax loss reported that year.

Federal income taxes currently payable is divided by Net domestic income to obtain the effective tax rate given in Table 1A. Estimated current federal income taxes for the nine year period averaged 30.86%.

B. Sohio Pipeline Company

The Sohio Pipeline Company financial statements provided somewhat different information than that given for Standard Oil. Income before income tax was presented as shown in Table 1B. For 1978 to 1980, taxes currently payable was computed by deducting deferred taxes from the reported total tax expense. From 1981 on, current taxes were presented separately. Dividing taxes currently payable by income before tax resulted in the percentages given in the last column of Table 1B.

The Federal tax code contains incentives for capital investment. During the construction period for TAPS, these incentives included the investment tax credit and the ability to deduct interest on work in progress from the

TABLE 1
Federal Income Tax Rate Analysis

A. Standard Oil Company

Year	Net Income Before Int. Taxes etc.	Net Interest	Foreign Income	Net Domestic Income	Current Federal Taxes	Curr. Fed. taxes as a % of Net
1978	\$1,130	\$458		\$672	\$9	1.34%
1979	2,434	357		2,077	233	11.22
1980	3,868	22		3,846	1,514	39.37
1981	4,068	36		4,032	1,468	36.41
1982	3,697	300		3,397	1,327	39.06
1983	3,046	254	\$1	2,791	882	31.60
1984	3,038	242	44	2,752	731	26.56
1985	2,874	299	71	2,504	1,040	41.53
1986	471				(247)	-52.44

Average Rate

30.86%

B. Sohio Pipeline Co.

Year	Income Bef. Tax	----Federal Income Tax----			As a % of Net Income
		Total	Deferred	Current	
1978	\$191	\$92	\$27	\$65	34.03%
1979	397	183	66	117	29.47
1980	547	252	108	144	26.33
1981	592			265	44.76
1982	679			58	8.54
1983	705			116	16.45
1984	763			316	41.42
1985	665	269	60	209	31.47
1986	605	320	23	298	49.17

Average Rate

30.87%

Note: 1985 and 1986 include state income taxes

current year's taxable income. The discussion in the footnotes to the company's reports indicated that there were tax benefit carryforwards as late as the end of 1981. This would suggest that the investment tax credits and deductions from pipeline construction were greater than the other taxable income of the company. This implies that no Federal income tax payments were made during the construction period. Such an implication is at odds with the method of analysis and, absent the ability to view the tax returns, cannot be confirmed.

The overall estimated current federal tax rate for Sohio Pipeline Co. for the period covered was 30.78%.

C. Atlantic Richfield Co. and Arco Pipeline

Both of these companies presented data in the same format so the analysis was similar. Results for Atlantic Richfield are presented in Table 2A and Arco Pipeline in Table 2B. In both cases, current Federal income taxes are divided by the respective net incomes before taxes to derive the implied tax rate.

For Atlantic Richfield Co., U.S. income and U.S. Federal taxes were used. These data were obtained from the reconciliation of reported tax expense to "theoretical taxes" in the footnotes to the financial reports.

In 1984 and 1985 Atlantic Richfield reported several extraordinary transactions. The amount of the transaction and the related taxes were presented in the notes to the financial statements. In both years, the transaction amount before tax was added back to reported net income and the related tax benefits were added back to the current tax amount. The resulting tax rates should be more representative of the tax liability from ongoing operations. In 1986, Arco's current taxes were also negative.

The overall average current tax rate for Atlantic Richfield was 16.35% and was 26.36% for Arco Pipeline.

D. Exxon Corp. and Exxon Pipeline

Tax rate computations for Exxon Corp. are presented in Table 3A. The amounts reflect Exxon's U.S. Federal income taxes currently payable divided by Exxon's U.S. income before taxes as reported in the footnotes to the financial reports. Any U.S. tax on foreign earnings was excluded.

In their 1978 annual report, Exxon presented a total for income taxes currently payable which included both state and Federal income taxes. The 1978 tax rate shown in Table 3A is, therefore, an overstatement of the 1978 Federal tax rate.

TABLE 2
Federal Income Tax Rate Analysis

A. Atlantic Richfield Co.

Year	Net Income Bef. Taxes	Current Fed. Income Tax	As a % of Net Income
1978	\$1,119	\$71	6.34%
1979	1,976	243	12.30
1980	2,691	435	16.16
1981	2,613	424	16.23
1982	2,512	429	17.08
1983	2,576	507	19.68
1984	2,505	832	33.22
1985	2,480	1,015	40.94
1986	1,303	(723)	-55.49

Average Rate 16.35%

a. 1984 and 1985 include an add back of unusual items and an add back of the estimated related taxes.

B. Arco Pipeline

Year	Net Income Bef. Taxes	Current Fed. Income Tax	As a % of Net Income
1978	\$224	\$0	0.00%
1979	338	15	4.56
1980	462	50	10.84
1981	501	143	28.56
1982	547	201	36.77
1983	597	223	37.38
1984	607	231	38.01
1985	607	n.a.	
1986	570	n.a.	

Average Rate (through 1984) 26.36%

TABLE 3
Federal Income Tax Rate Analysis

A. Exxon Corp.

Year	Net Income Bef. Taxes	Current Fed. Income Tax	As a % of Net Income
1978	\$2,406	\$921	38.28%
1979	2,499	882	35.29
1980	3,691	1,231	33.35
1981	3,473	831	23.93
1982	2,821	716	25.38
1983	3,046	1,030	33.81
1984	3,402	992	29.16
1985	2,627	609	23.18

Average Rate 30.09%

NOTE: 1978 current tax includes state income taxes.

B. Exxon Pipeline Corp.

Year	Net Income Bef. Taxes	Current Fed. Income Tax	As a % of Net Income
1978	\$259	\$71	27.31%
1979	382	128	33.66
1980	511	178	34.83
1981	566	212	37.52
1982	511	178	34.85
1983	n.a.		

Average Rate 34.44%

Data for Exxon Pipeline were not available subsequent to 1982.

The overall estimated average Federal income tax rate (including the 1978 state taxes) was 30.09% for Exxon Corp. and 27.31% for Exxon pipeline.

APPENDIX 2

Income Estimates Based on Alaska Data

A detailed schedule of revenues, costs and income shares for the Alaska oil industry based on data available from the State of Alaska is provided in Table 4. The 1982 to 1985 data are adapted from the Office of Management and Budget memorandum reproduced as Exhibit 1 in this report.

The estimated Federal income taxes differ in this analysis as discussed in the text. In brief, we used the Standard Oil Co. current tax rates as derived in Appendix 2. Since the 1986 rate was negative, we used a value of zero for that year.

Net revenues subject to sharing are defined as the gross revenues from the properties, including royalties, less operating expenses, depreciation, related overhead and other "third-party" costs. Third-party in this context is defined as parties other than the companies and the state and federal governments.

Alaska's share of net revenue includes royalty payments, severance and property taxes as well as the state income tax. The federal share is comprised of federal income taxes and, for the 1980 - 1985 period, the windfall profit tax. The company share equals net revenues minus the state and federal shares.

The data for this analysis are in Table 4.

TABLE 4
Revised OMB Income Estimates

Year	Gross Revenues	Operating Costs	Exploration Costs	Lease Acquisition	UnCap Interest	Admin. Costs
1982	16,456	940	191	1	721	236
1983	15,470	1,101	204	1	676	252
1984	14,955	1,259	219	1	614	265
1985	15,136	1,449	234	1	566	278

Year	Other Deductions	Financial Deprec.	Net Revenue	Windfall Prof. Tax	State Txbl. Rev.	State Royalty
1982	149	603	13,615	2,018	8,157	1,553
1983	142	780	12,314	1,018	7,993	1,447
1984	136	998	11,463	412	7,869	1,409
1985	130	1,093	11,385	70	8,119	1,390

Year	State Cons. Tax	State Prop. Tax	State Inc. Tax	Total State Share	Federal Net Income	Federal Inc. Tax
1982	1,582	276	669	4,080	7,517	2,936
1983	1,494	307	236	3,484	7,812	2,469
1984	1,393	358	265	3,425	7,626	2,025
1985	1,389	397	169	3,345	7,970	3,310

Year	Industry Share	Federal Share
1982	4,581	4,954
1983	5,343	3,487
1984	5,601	2,437
1985	4,660	3,380

APPENDIX 3

Financial Report-Based Alaska Income Estimates

Corporate financial reports are issued to inform investors and creditors about a reporting company. These reports typically include highly aggregated information about a company's operations. There is, however, a requirement that more detail be provided on items which are highly significant to a company's operations. This requirement and the magnitude of Alaska's North Slope oil operations result in more detailed disclosures about this activity than would normally be obtained.

Because ANS production comprises over 90% of Standard Oil Company's production, that company reports investment, revenue and cost data separately for its Alaska activities. Table 5 contains Sohio's reported revenues, production costs, depreciation, and exploration expense in Alaska. These data form the basis for estimates of total Alaskan oil company production activities as summarized in Table 7.

To transform the Standard Oil Co. data into an estimate for all of Alaska, we multiplied the Sohio corporate data by a fraction, the denominator of which was Sohio's average daily equivalent oil production in Alaska for a given year and the numerator was total average daily ANS oil production that year. The results were used as the estimate of company production revenues, production costs, and depreciation and exploration expense.

Under generally accepted accounting principles, revenues from oil production are reported at the wellhead and net of royalty interests. The royalty interests were estimated as one-seventh of the company revenues. This is the equivalent of a one-eighth royalty on gross production. The amounts were compared to the Alaska Department of Revenue reported royalty income. Except for 1981, the amounts are very close.

The production costs reported include field operating costs and related taxes. For the purpose of this analysis, it was necessary to separate the taxes from field operating costs. The "production costs" column in Table 7 is based on the Sohio-based projection. Conservation and property taxes were taken from the Alaska Department of Revenue report of revenue sources. The windfall profit tax was taken from the U. S. Treasury Statistics of Income Bulletins for the years 1980 through 1985. The amount used was that reported for Prudhoe Bay production. The three taxes were deducted from total production costs to arrive at the amount in the net production cost column.

TABLE 5
Sohio Corporate Annual Report Alaska Income Summary

Year	Gross Revenues	Production	Deprec- iation	Exploration Expense	Net Revenue
1978	\$845	\$261	\$131	\$20	\$433
1979	2,320	457	168	35	1,660
1980	4,315	1,181	270	38	2,826
1981	6,116	2,550	272	46	3,248
1982	5,139	1,685	275	57	3,122
1983	4,013	1,021	247	409	2,336
1984	4,146	1,113	304	54	2,675
1985	4,433	1,216	389	257	2,571
1986	1,805	727	560	144	374

Depreciation and exploration expenses were projected from the sum of these two columns in Table 5.

A similar approach was followed to estimate TAPS income and expense. Each of the three major ANS producers has a pipeline subsidiary which holds their TAPS assets. These subsidiaries file annual reports with the Federal Energy Regulatory Commission as well as reports with the U.S. Securities and Exchange Commission. Of the three, Alaskan operations form the largest portion of total activities for Sohio Pipeline Co. Therefore, we used this company's data as the foundation for analysis. The results were compared with the other two and found to be relatively consistent.

The data used from Sohio Pipeline Company's annual reports is given in Table 6. The amounts were factored on the assumption that since Sohio Pipeline holds a 33.34% interest in TAPS, total TAPS income and expense would be approximately three times the amounts reported for Sohio. The reported amounts include "Other taxes". This represents taxes paid by the pipeline company other than taxes on income. A review of the company's activities indicates that this amount is almost entirely comprised of property taxes. Thus, when the amounts from Table 6 were factored and transferred to Table 7, the "Other taxes" were listed as "Property taxes". This amount together with the property taxes on oil field values in Table 7 reconciles to the property tax total reported in the OMB analysis.

Table 7 combines production and pipeline revenue and expense projections. Total company revenue is the sum of company production and pipeline revenues. Company costs are based on totals of net production costs, depreciation and exploration, pipeline operating and administrative costs, pipeline depreciation and net interest costs. "Net revenues" is the result of adding company revenues and state royalties less company costs.

The state share of net revenue is the sum of the conservation tax, production and pipeline property taxes and the Alaska income tax. This latter amount was taken from the Alaska Department of Revenue report of revenue sources.

The federal share of net revenue is the sum of the windfall profit tax and the federal income tax. Federal income tax was estimated by applying the Sohio current tax rates to estimated federal taxable income. Federal taxable income was computed by taking company revenues and deducting company costs, state taxes and the windfall profit tax.

Dollar shares were converted to percentage shares by dividing each party's dollar share in a given year by the total net revenues for that year.

TABLE 6
Sohio Pipeline FERC Annual Report Income Summary

Year	Gross Revenues	Operating Expense	Admin. Expense	Depreciation	Other Taxes	Interest	Net Revenue
1978	\$798	\$87	\$40	\$139	\$58	\$282	\$192
1979	988	79	31	165	58	257	398
1980	1,185	110	35	197	56	240	547
1981	1,202	117	41	169	57	227	591
1982	1,299	124	42	183	56	216	678
1983	1,300	122	39	186	55	193	705
1984	1,309	88	41	169	57	190	764
1985	1,193	48	34	121	56	137	797
1986	1,027	72	42	121	55	147	590

TABLE 7
Alaska Income Projected from Sohio Data

Year	Company Revenues			State Royalty	Company Costs	Net Revenues	State Share	Federal Share	Company Share
	Production	Pipeline	Total						
1978	\$1,690	\$2,394	\$4,084	\$241	\$2,280	\$2,045	\$611	\$16	\$1,418
1979	4,640	2,964	7,604	663	2,622	5,645	1,364	406	3,875
1980	9,294	3,555	12,849	1,328	3,506	10,671	2,694	3,101	4,876
1981	13,140	3,606	16,746	1,877	3,421	15,201	4,221	5,279	5,701
1982	11,393	3,897	15,290	1,628	3,067	13,850	4,190	3,976	5,685
1983	10,120	3,900	14,020	1,446	3,776	11,690	3,494	2,425	5,771
1984	10,065	3,927	13,992	1,438	3,300	12,130	3,398	2,093	6,639
1985	9,499	3,579	13,078	1,357	3,455	10,980	3,211	2,686	5,083
1986	3,978	3,080	7,058	568	3,605	4,021	1,561	(992)	3,452

Year	Production Costs	Conserv. Tax	Windfall Profit Tax	Property Tax	Net Production Costs	Deprec. & Explor.	Operating & Admin.	Deprec.	Pipeline Property Tax
1978	\$522	\$108	\$0	\$80	\$334	\$302	\$381	\$417	\$174
1979	914	174	0	120	620	406	330	495	174
1980	2,544	507	797	143	1,097	663	435	591	168
1981	5,478	1,170	3,089	143	1,076	683	474	507	171
1982	3,736	1,582	1,375	143	636	736	498	549	168
1983	2,575	1,494	426	153	502	1,654	483	558	165
1984	2,702	1,393	211	131	967	869	387	507	171
1985	2,606	1,399	39	128	1,050	1,384	247	363	168
1986	1,602	582	0	114	907	1,551	343	364	164

Year	Net Interest	Alaska Income Tax	Federal Taxable Income	Federal Tax Rate	Federal Income Tax	Percentage Shares		
						Company	Federal	State
1978	\$846	\$8	\$1,193	1.34%	\$16	69.33%	0.78%	29.89%
1979	771	233	3,618	11.22	406	68.65	7.19	24.16
1980	720	548	5,852	39.37	2,304	45.70	29.06	25.24
1981	681	860	6,014	36.41	2,190	37.51	34.73	27.77
1982	648	669	6,659	39.06	2,601	41.05	28.70	30.25
1983	579	236	6,324	31.60	1,999	49.37	20.74	29.89
1984	570	265	7,083	26.56	1,881	54.74	17.25	28.01
1985	411	169	6,373	41.53	2,647	46.30	24.46	29.24
1986	440	134	1,892	-52.44	(992)	85.85	-24.67	38.82

APPENDIX 4

Census and API Data-Based Alaska Income Estimates

The U. S. Bureau of Census publishes a series of Current Industrial Surveys for different industries. From 1973 to 1982, the Bureau published surveys for the oil and gas industry. Among the information in the survey was a report of revenue and expenditure data for Alaska separated from the other states. The information in these reports was used as a basis for preparing estimates of the division of income from Alaska oil and gas operations.

The Census reports only cover exploration and production activities. Therefore, the Census data were supplemented with data about TAPS as reported in Appendix 3. In addition, the Census data is based on expenditures, not on accrual accounting. Therefore, we reclassified certain expenditures to conform to accrual accounting concepts. For the same reason, we supplemented the Census data with the depreciation expense reported for production activities. The resulting estimated Alaska oil industry income and its distribution is presented in Table 8.

Lease revenue was obtained from the Census report as were exploration expenses, lease operating costs and production taxes. Exploration costs included in this column are those that would be expensed for financial reporting purposes. They include all of the Census reported costs except productive exploratory wells. Acquisition costs, which are capitalized for financial reporting purposes are not included. Production and exploration overhead was estimated for each year by taking the ratio of total U.S. production and exploration overhead and dividing by reported total production and exploration costs respectively. The windfall profit tax was also included in the Census reports. Company costs represent the sum of exploration costs, lease operating costs and computed overheads. The company costs in this column are those based on Census data.

The Census reports also include a line item for production taxes. The reported amount was presumed to represent the state oil and gas severance tax.

These data were supplemented with data from Table 7. Depreciation expense used in the Sohio estimates were included here. Net revenue from TAPS was based on the amounts in Table 7. That is, gross revenues less operating and administrative costs, depreciation and interest. The pipeline property tax was also derived from the Sohio reports.

Table 8
Alaska Income Estimated From Census Data

Year	Lease Revenues	Exploration Expenses	Lease Operating	Production Taxes	Production Overhead	Exploration Overhead	WPT	Company Costs
1978	\$2,180	\$274	\$248	\$340	\$59	\$14		\$595
1979	4,682	174	294	587	97	7		572
1980	8,483	176	352	1,047	64	8	\$1,053	600
1981	12,428	419	402	1,617	67	15	3,015	902
1982	11,167	647	448	1,666	95	33	1,392	1,223

Year	Deprec.	Est. Prop. Taxes	Co. Production Costs	Production Net Revenue	Net	Pipeline Prop. Tax	Net Revenue	Net Revenue Excl. Royalty
1978	\$262	\$80	\$777	\$1,403	\$576	\$174	\$750	\$2,153
1979	336	120	788	3,894	1,194	174	1,368	5,262
1980	582	143	1,038	7,445	1,641	168	1,809	9,254
1981	584	143	1,344	11,084	1,773	171	1,944	13,028
1982	610	143	1,690	9,477	2,034	168	2,202	11,679

Year	State of Alaska					Federal		
	Royalty	Prop. Tax	Cons. Tax	Inc. Tax	Total	Txbl. Income	Inc. Tax	Total
1978	\$199	\$254	\$340	\$8	\$801	\$1,551	\$21	\$21
1979	332	294	587	233	1,447	4,148	465	465
1980	918	311	1,047	548	2,824	6,295	2,478	3,531
1981	1,503	314	1,617	860	4,294	7,222	2,629	5,644
1982	1,553	311	1,666	669	4,199	7,642	2,985	4,377

Year	Net Revenue Inc. Royalty	Company Share	Percentages		
			Company	Federal	State
1978	\$2,353	\$1,530	65.05%	0.88%	34.06%
1979	5,594	3,683	65.83	8.32	25.86
1980	10,172	3,817	37.52	34.72	27.76
1981	14,530	4,592	31.60	38.84	29.55
1982	13,233	4,657	35.19	33.08	31.73

Net revenues excluding royalty is the sum of lease revenues and pipeline net revenue less company production costs. With the exception of depreciation and property taxes, these amounts are reported by Census. Production taxes were obtained from the Alaska Department of Revenue as were the state royalties and state income tax.

Federal taxable income was the net revenue excluding royalty minus state taxes and minus the windfall profit tax. The Sohio federal tax rates were applied to this estimate of taxable income. The result was the estimated Federal income tax expense. The federal share of Alaska oil industry income was the sum of the reported windfall profit tax and the computed federal income tax.

A similar process was followed to estimate net income and income shares using data supplied by the American Petroleum Institute. The API prepares an annual Survey on Oil and Gas Expenditures which is very similar to the Census report. There is normally a two year delay between the date of the expenditures and the date of the report. Hence, the report is only available through 1984. The 1984 estimate based on these data is presented in Table 9.

Table 9
Estimated Income Using API Data
1984

Lease Revenues			\$9,955
Deductions:			
Exploration Dry Holes	n.a.		
Geological & Geophysical	\$213		
Lease Rents	24		
Test Hole Contributions	21		
Estimated Exploration Overhead	46		
Direct Operating Costs	518		
Estimated Property Taxes	(131)		
General & Administrative Overhead	419		
Other Indirect Production Costs	147		
Total Deductions			1,257
Net Revenue Excluding Royalty			\$8,698
Estimated State Royalty			1,422
Production Net Revenue			\$10,120
Pipeline Net Revenue			2,463
Total Net Revenue			\$12,583
State Share:			
Property Taxes	\$302		
State Royalty	1,422		
State Income Tax	265		
Conservation Tax	1,537		
Total State Share			3,526
Federal Share:			
Windfall Profit Tax	\$217		
Federal Taxable Income	\$8,840		
Tax Rate	26.56%		
Federal Income Tax	2,348		
Total Federal Share			2,565
Company Share			6,492

TABLE 10

Comparative State Income Share Estimates

Year	-----Census-Based-----		-----OMB Data-----		-----Company Data-----	
	Net Revenue	State Share	Net Revenue	State Share	Net Revenue	State Share
1978	\$2,353	\$801			\$2,045	\$611
1979	5,594	1,447			5,645	1,364
1980	10,172	2,824			10,671	2,694
1981	14,530	4,294			15,201	4,221
1982	13,233	4,199	\$13,615	\$4,109	13,850	4,190
1983			12,314	3,539	11,690	3,494
1984			11,463	3,447	12,130	3,398
1985			11,385	3,365	10,980	3,211
1986					4,021	1,561

APPENDIX 5

Investment Cash Flows

A schedule of estimated investment outflows for the ANS oil and gas industry is given in Table 11. This schedule is shows the after-tax investments in TAPS, the after-tax investment in North Slope leases and production facilities as well as the combined investments net of after-tax cash flows from the project.

The first group of data in the schedule is the pipeline investments. The primary data source is the Form P and, later, FERC Form 6 annual reports of the pipeline subsidiaries for Atlantic Richfield Co., Exxon and Sohio. These reports are required to be filed with the Federal Energy Regulatory Commission and cover aggregate pipeline activities for these companies. TAPS accounts for between 80% and 95% of the investments and income for these subsidiaries. Hence, more detail is provided on this project than usually found in financial reports. All three companies provide separate disclosure of their investment in TAPS. Recently, Sohio Pipeline Co. began separate disclosure of income and expenses for TAPS.

The drawback to the use of this data source is the difficulty of obtaining the information. Although some of the reports are available in the Disclosure Inc. data files, reports prior to 1975 and subsequent to 1984 were not. The Exxon reports were not available after 1982. Arco disclosed some information on its pipeline subsidiary in its 1986 corporate annual report. Also, we obtained a copy of Sohio Pipeline's 1986 annual report through a source in Washington, D.C. We also received information on Arco Pipeline Co. for 1973. It would be necessary to obtain the missing reports from Washington. However, the information available should be sufficient to obtain reasonable estimates of the investment cash flows.

The schedule of pipeline investments was based on a projection from the information reported for the three companies. The amounts shown in the columns headed Arco, Sohio and Exxon represent the increase in work in progress during the period 1973 through 1976 or the increase in the account titled "TAPS Investment" for the period 1976 through 1986, whichever item of data was available. The amounts reported for the three companies were combined and entered in the "Total" column. Since the three companies account for 74.7% of the investment in TAPS, the total was multiplied by one over .747 to arrive at the projected total investment for all investors in TAPS. For years when data for all three companies were not available, the projection