

Preliminary
Report & Supplement
Feb. 1987

Tax Policy Committee

Notes for Sund:

- Please inform members of change to Vol. I Table of Contents:
Item 3 - Revenue Projections by Tax Type will not be included.
(Hartle requested this from Dept. Revenue and it probably won't be ready on time.)
- Approve minutes of Dec. 4-5 mtg.

Hance
S
B
Hartle

Also, note change in membership on Senate side : Bennett Co-chair
Coghill
Duncan

- Welcome invited members of Senate Oil & Gas Comm. - Fahrenkamp
Coghill
Fischer

DRAFT TAX POLICY COMMITTEE REPORT
Volume I

Table of Contents:

1. Memo from Rep. John Sund, Co-Chair

2. Committee Report Draft

~~3. Revenue Projections by Tax Type~~

not to N/A

4. SCR 42

5. Membership List

6. Bibliography



Official Business

Alaska State Legislature

JOINT SPECIAL COMMITTEE ON TAX POLICY

Pouch V
State Capitol
Juneau, Alaska 99811

January 27, 1987

MEMORANDUM

TO: Members, Joint Special Committee on Tax Policy

FROM: Rep. John Sund, House Co-Chair

RE: Draft Committee Report

Attached please find a draft of the first report of the Joint Special Committee on Tax Policy. The report is limited in scope for three reasons: The committee took no votes and made no recommendations, the Senate Chairman resigned from the Legislature, and the House Chairmanship changed hands (from Rep. Grussendorf to Rep. Sund) at the final meeting, in December.

Please review the report and Table of Contents of materials to be attached to the final report and let me know any changes you might recommend.

A. Introduction

The purpose of this report is to outline briefly issues of Alaska tax policy considered by the Joint Special Committee on Tax Policy.

The Committee was created by the passage of Senate Concurrent Resolution 42, in May 1986. It is scheduled to dissolve on the 11th day of the second session of the Fifteenth Alaska Legislature, in January 1988.

Membership on the Committee includes three members from the House, three from the Senate, two from the Administration, and three public members.

*as stated
↑
SLR 42 to.*
The Committee has a comprehensive charge of examining all issues relating to tax policy in Alaska. *revised*

The Committee has met three times, in Anchorage (see minutes, attached).

B. Issues explored by the Tax Policy Committee

Before evaluating any specific taxes, it is important to establish criteria for evaluation. The Department of Revenue, in a memo given to the Committee on alternative means for increasing revenues, listed five criteria for evaluating tax policies.

The five are:

Economic Efficiency: What effect does the proposed tax law change have on incentives and economic decision-making which may alter consumption, production or resource allocation decisions?

Equity: Who bears the burden of the tax and how does that burden compare with ability to pay or benefits received? Is the tax progressive or regressive with respect to income and/or wealth?

Elasticity: What is the sensitivity of the tax revenue yield to changes in economic or demographic conditions? As income or population increase and decrease does tax revenue increase or decrease in greater, lesser or equal proportion?

Administrative Efficiency: How costly is the tax to administer in terms of resources devoted to administration and compliance relative to the revenue yield of the tax? Who bears the burden of administrative cost, the taxpayer, the State, or the tax collector if different from the state?

Political Feasibility: How acceptable is a proposed tax law change to the legislature and/or the electorate given the existing social, political, and economic conditions? Who benefits, who loses, and who has the most political power?

In addition to these, the Committee considered several other tax evaluation criteria:

Revenue raised for the state: How much revenue does the tax change raise for the State?

Employment Impact: What will be the impact on employment in the public and private sector?

Capital Impact: What will be the impact on investment capital availability in Alaska?

New Federal Tax Code: How does the proposed tax law change relate to the new Federal Tax Code?

For oil and gas taxes, the Committee looked at several additional evaluation criteria:

Impact on exploration, development and production.

Relative impacts on small and large fields.

Impact on secondary and tertiary recovery and recoverable reserves.

Possibility of premature shutdown of producing fields, and future oil and gas production loss.

Impact on Cook Inlet fields.

Impact on royalty income.

Impact on severance income.

Alaska Tax Policy

ELF

One
Much of the Committee's time has been spent on questions relating to the Alaska Severance Tax, in particular, the Economic Limit Factor (ELF). [The purpose of the ELF is to provide severance tax relief to marginal oil fields in order to keep them in production, retaining economic benefits for the state.] The ELF is calculated to be a number between zero and one and can be thought of as representing a percentage of the nominal severance tax rate (e.g. a field with an ELF of 0.6 means 60% of the nominal severance tax rate is applied to that field). The ELF is an issue at this time largely because an ELF provision that sets the ELF at 1.0 if the calculated ELF is greater than 0.7, expires after a field has been in production for ten years, and Prudhoe Bay will have been in production for ten years as of July 1987. When the ten-year exemption for Prudhoe Bay expires, and no changes are made to the law, the ELF for Prudhoe Bay will go to an estimated .82, reducing severance taxes by over \$100 million per year. The oil industry *is expected to* ~~opposes~~ any change to the ELF formula, saying that it will reduce producer revenues available for reinvestment in Alaska, reduce research and development in Alaska and may cause premature shutdown of producing fields.

Eight options were considered for the ELF:

1) Fix the per-barrel severance tax floor at \$.80 to which ELF does not apply.

	FY 88	FY 89	FY 88-2005
Revenue from this option:	30 M	20 M	210 M (50% case)
[Source: Dept. of Revenue]			30%

2) Same as #1, plus set 300 bbl/day PEL (Production Economic Limit) in statute (now a rebuttable presumption), and repeal the ELF exponent.

3) Set the per-barrel floor at \$1.50 and index it with inflation. The \$1.50 figure was selected based on applying a CPI inflator to the original \$.80 floor. This option was rejected by the Committee based mainly on the fact that it would have a severe negative impact on oil production in Cook Inlet.

4) Repeal the ELF entirely on all fields. ^{basic} This option was rejected as the Committee supported the policy ~~of~~ giving marginal oil fields a tax break as with the ELF.

5) Modify the exponent ^{in addition to} of the ELF formula and base the PEL on field production rather than per-well production. The modification of the ELF exponent would have the effect of giving additional tax relief to marginal fields while increasing the tax receipts from very large fields. The net result would be an increase in severance tax income over present law.

	FY 88	FY 89	FY 88-2005
Revenue from this option:	140 M	140 M	1,670 M (50% case)
[Source: Dept. of Revenue]			30%

6) Include the provisions of option 5 with the addition of a floor which is not affected by the ELF. This option was rejected by the Committee based on the negative effects on Cook Inlet oil fields stemming from the floor change.

7) Extend the ten-year Prudhoe Bay exemption to fifteen years.

8) No change in the law, i.e. allow the scheduled application of ELF to Prudhoe Bay.

Oil and Gas Income Tax

The major issues considered regarding the Oil and Gas Income Tax revolve around the question of separate accounting of oil and gas income in Alaska versus that of apportioning Alaska income by formula. Present law uses the 'modified apportionment' approach. Separate accounting was used in Alaska for the years 1978-1981, but was repealed because the State was exposed to the possibility of large tax refunds if the courts had ruled for the oil companies who brought suit. The State Supreme Court and the U.S. Supreme Court ruled in favor of the state, holding that separate accounting is within the prerogative of the legislature as a method of determining Alaska income for taxation.

by the State of Alaska
Separate accounting is ~~generally~~ considered to more accurately reflect oil and gas income earned in Alaska. Separate accounting has the disadvantage of being more volatile, that is state income closely follows the rise and fall of oil prices on the world

market. The oil and gas industry ^{has} vigorously ^{in previous testimony} opposed ^{before other legislative} the ^{Committee} imposition of separate accounting in Alaska ^{as} they feel that it can expose them to taxation on more than 100% of their earnings.

House Bill 353, which would have reinstated separate accounting was introduced in the Fourteenth Legislature, but did not pass either body.

According to the most recent (January, 1987) report of the Alaska Department of Revenue, at current oil prices separate accounting would result in lower revenues for the state.

They show a crossover point where separate accounting would result in more revenue for the state at \$14-16/barrel wellhead value.

Individual Income Tax

The State of Alaska is one of seven states without an individual income tax. The Committee requested a report from the Department of Revenue on the revenue potential and economic impacts of a personal income tax. The report was completed at the end of December, 1986, and is attached. The report examines three types of state income taxes and examines revenue potentials of each against two possible economic scenarios for the state's future. It is interesting to note that were the State to reimpose the individual income tax with the same rate structure as was in effect before it was repealed, the tax would yield between \$399 million (low economic scenario) and \$436 million (moderate economic scenario) for tax year 1988. These amounts exceed previous estimates by approximately \$100 million.

State Sales Tax

The State of Alaska is one of five states without a statewide sales tax. The Department of Revenue recently completed a study of the revenue potential of a statewide sales tax. The report concludes that in calendar year 1988, if sales of food are not exempted, a retail sales tax would yield \$38,355,000 per one percent tax. In addition, the service sector of the economy, could yield approximately \$14 million per one percent tax.

60-70M
yield w/o
exemption

Issues to be explored by Committee

There are a great many tax issues which could be productively explored by the Joint Special Committee on Tax Policy. An outline of some of these issues is provided below.

1. Corporate Income Tax
 - a) Rates
 - b) Worldwide Combination
 - c) Separate entity
 - d) Waters' edge
 - e) Changes to Apportionment formula
2. Severance Tax
 - a) Definition of a marginal field?
 - b) Definition of Field, Unit
3. Motor Fuel taxes
4. Special tax incentives and credits
 - a) Exploration Incentive
 - b) Mining License 3.5-year moratorium

- c) Special Industrial Tax Credit
- d) Credits included in adoption of IRS code
- e) Investment Tax Credit
- f) Non-Highway Use refund
- g) Oil Gravity Adjustment
- 5. Oil and Gas Property Tax (ad valorem)
 - a) Municipal uniformity → Decoupling
- 6. Disputed taxes
 - a) DOR need for auditors, etc.
 - b) Taxpayer Confidentiality
 - c) Outlook for settlements
- 7. Lottery
- 8. Oil & Gas Reserves Tax
- 9. Tobacco Tax
- 10. Alcohol Tax
- 11. Gross Receipts Tax
- 12. School Tax
- 13. Fisheries Taxes

Conclusion The Joint Special Committee on Tax Policy has attempted to establish policy guidelines to examine Alaska's tax structure. The Committee has developed information regarding impacts of some proposed tax schemes. Other than rejecting certain proposals relating to the ELF, the Committee has reached no conclusions or recommendations regarding any specific tax proposal.

Introduced: 4/23/86
Referred: State Affairs

1 IN THE SENATE

BY THE STATE AFFAIRS COMMITTEE

2 SENATE CONCURRENT RESOLUTION NO. 42

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 FOURTEENTH LEGISLATURE - SECOND SESSION

5 Relating to a legislative committee to
6 study the state's tax policy.

7 BE IT RESOLVED BY THE LEGISLATURE OF THE STATE OF ALASKA:

8 WHEREAS the State of Alaska has a tax structure that has not been
9 comprehensively reviewed for fairness and equity; and

10 WHEREAS it is in the state's best interest to have a long-term tax
11 policy that is broad, stable, and accountable; and

12 WHEREAS the State of Alaska lacks the necessary information to develop
13 a comprehensive approach to existing state taxes, tax credits, licenses and
14 user fees; and

15 WHEREAS an examination of the relationship between minimizing taxes
16 and fostering economic growth is critical to the understanding of the
17 state's tax structure;

18 BE IT RESOLVED by the Alaska State Legislature that under Uniform Rule
19 21 a joint special committee on tax policy is established consisting of
20 three members of the senate appointed by the president of the senate, three
21 members of the house of representatives appointed by the speaker of the
22 house, three ex-officio members from the private sector appointed by the
23 governor and one ex-officio representative each from the Office of Manage-
24 ment of Budget and the Department of Revenue to conduct research, hold
25 public hearings and take testimony and collect data on the state's tax
26 policy; and be it

• 27 FURTHER RESOLVED that before the committee dissolves on the 11th day
28 of the Second Session of the Fifteenth Legislature, it submit a written
29 report to the legislature that addresses the merits of and makes

- 1 recommendations concerning a long-term, broad-based and stable tax policy
- 2 to minimize taxes and foster economic growth.

JOINT SPECIAL COMMITTEE ON TAX POLICY

List of Members

- Not Appointed

Itch Abood

Richard Eliason

ative John Sund, Co-Chair

ative Kay Brown

ative Terry Martin

Officio

r
ive Programs
of Alaska

ey
on of Operating Engineers, Local 302

son
laska Production Company

tion Ex-Officio

er Hugh Malone
of Revenue

tan
Management and Budget

BIBLIOGRAPHY OF MATERIALS
JOINT SPECIAL COMMITTEE ON TAX POLICY
January, 1987

The following is a bibliography of research papers collected by the Joint Special Committee on Tax Policy as of January, 1987. A set of the materials is on file in the Office of Rep. John Sund, House Chair. (Rm 118, Capitol. 465-4919).

A. Individual Income Tax

1. Individual Income Tax Report, Mary Ellen Frank, Economist, et. al. State of Alaska, Department of Revenue, memo to Vince Wright, Chief of Research, State of Alaska, Department of Revenue, December 1986
2. Commuter Taxes as They Relate to Resident Hire, Memo to Rep. Mike Davis from Mary Jennings, Legislative Analyst, State of Alaska, House Research Agency, April 1986

B. State Sales Tax

1. Revenue Potential of a General Sales Tax, Vince Wright, Chief of Research, State of Alaska, Department of Revenue, December 1986

C. Oil Taxes - General

1. The Taxation of the Petroleum Industry Under Alaska's Corporate Income Tax: A Report Prepared for the Alaska Legislature and the Alaska Department of Revenue, Jerome Zeifman and Kenneth Ainsworth, January 1977
2. Alaska's Oil and Gas Tax Structure: A Study with Recommendations for Improvement. Alaska Department of Revenue, February 1977
3. Impact of Increased Taxation on Oil Exploration and Development in Alaska: A Report to the Alaska State Legislature, Tanzer Economic Associates, March, 1977
4. Recommended Changes in Alaska's Oil and Gas Production Tax Rates, A Report to Governor Jay Hammond, By the Alaska Department of Revenue, 1978
5. The History of Oil and Gas Taxation in Alaska, Thomas K. Williams, Commissioner of the Alaska Department of Revenue, 1978
6. Prudhoe Bay Field and Trans-Alaska Pipeline System: Comparative State Tax Burden Study, Arthur Anderson & Co. for the Alaska Oil and Gas Association, February, 1979
7. Historical Review of Alaska Petroleum Taxes, 1955-1978, Mike Bradner for the Alaska State Legislature, April 1979
8. Alaska Oil and Gas Income Taxation, John Messinger, Gregg Erickson, and Lawrence Eppenbach for the Alaska State Legislature Joint Gas Pipeline Committee, April 1981
9. A Sound Strategy for Protecting Alaska's Oil and Gas Revenues: an Analysis of the Backstop Tax Legislation, Preston Thorgrimson, Ellis & Holman (John Messenger) for the

Alaska State Legislature Joint Gas Pipeline Committee

10. Legislative History Materials, 1981 Corporate Income Tax Amendments, Volumes I & II
11. Alaska Petroleum Revenues: The Influence of Federal Policy, University of Alaska, Institute of Social and Economic Research, for the State of Alaska, Office of the Governor October 1984
12. Impact of Tax Simplification Proposals on Oil and Gas Production and the Economy - Alaska, Interstate Oil Compact Commission, February 1985
13. State, Federal and Industry Shares of Alaska Resource Income, Fiscal Years 1982-1985, State of Alaska, Office of the Governor, Office of Management and Budget, Tom Chester, April 1986

D. Severance Tax

1. Policy Considerations Behind the Severance Tax, Jon Tillinghast, Assistant Attorney General, State of Alaska, Attached to Memo to the Joint Special Committee on Tax Policy from Richard Monkman, Deputy Commissioner, Taxation, Department of Revenue, September 1986
2. History of Oil and Gas Tax Law, State of Alaska, Department of Revenue, September 1986

E. ELF

1. Transcript of Presentation on ELF given by Gregg Erickson State of Alaska, Office of the Governor, Office of Management and Budget, for the Tax Policy Committee Meeting, September 1986
2. Memorandum on Proposed Changes to the Severance Tax ELF, Memo from G.J. Abraham to George Nelson, Standard Alaska Production, October 1986
3. Analysis of ELF Alternatives, Charles Logsdon, Petroleum Economist, State of Alaska, Department of Revenue, December 1986
4. Alternative ELF, Thomas Chester, State of Alaska, Office of the Governor, Office of Management and Budget, 1986
5. Low (Oil) Prices and the ELF, Memo from Charles Logsdon, Petroleum Economist, State of Alaska, Department of Revenue to Vincent Wright, Chief of Research, April 1986
6. Letter from John R. Kemp, Division Manager, Conoco, Inc. to Senator Frank Ferguson, Senate Chair, Joint Special Committee on Tax Policy, September 1986
7. The Economic Limit Factor in Alaska's Oil and Gas Properties Production Tax, Thomas K. Williams for Standard Alaska Production Company, September 1986

F. Separate Accounting

1. Affidavit of Edward B. Deakin, CPA, Ph.D. In the Superior Court, State of Alaska, in ARCO v. State of Alaska, November 1981
2. Interim Report of the House Finance Subcommittee on Oil and Gas, Louann Cutler and Sharman Piper, Alaska State Legislature, January 1986
3. Analysis of HB 353, Alaska Department of Revenue, Memo from Vince Wright, Director of Research to Commissioner Mary Nordale, October 1985
4. Sensitivity Analysis of House Bill 353, Memo from John Larson, Economist, et. al. State of Alaska, Department of Revenue, to Vince Wright, Chief of Research, State of Alaska, Department of Revenue, December 1986
5. Overview of Issues Involved in Consideration of HB 353, Memo from Louann Cutler, Special Assistant to Rep. Al Adams, Chair, House Finance Committee, State of Alaska, Alaska State Legislature, October 1985
6. White Paper Report to the Alaska State Legislature on Alaska Oil and Gas Resources, Alaska State AFL-CIO and Alaska Teamsters, Local 959, January 1986
7. The Effects of State Income Tax Policy on the Development of Marginal Oil Fields: An Analysis of the Impact of House Bill 353, House Research Agency, Alaska State Legislature, January 1986
8. Revenue from Separate Accounting, Memo to Mary Halloran, Office of the Speaker, State of Alaska, Alaska State Legislature, Gregg Erickson, Senior Economist, State of Alaska, Office of the Governor, Office of Management and Budget, December 1986
9. Overview and Sectional Analysis of House Bill 353, Deborah Vogt, Assistant Attorney General, State of Alaska,

G. Oil and Gas Conservation Tax

1. Memo to Governor Bill Sheffield and attached Proposed Legislation on the Oil and Gas Conservation Tax, Harold M. Brown, Attorney General, State of Alaska, November 1986

H. Corporate Income Tax

1. Sujong v. State of Alaska, Department of Revenue Court Decision, Alaska, 622 P.2d 967
2. Income Tax in Alaska, Deborah Vogt, Assistant Attorney General, State of Alaska, July 1986
3. Research Regarding Other States' Corporate Income Taxes Memo to Deborah Vogt, Assistant Attorney General, State of Alaska, from Michael D. Lowe and Jeffrey Blattner, Rogovin, Hugs & Lenzer, November 1985

4. Container Corporation of America v. Franchise Tax Board, U. S. Supreme Court Decision, June 1983

I. Tax Credits, Exemptions, and Deductions

1. "Special" Tax Credits, Exemptions, Deductions, Refunds provided by (Alaska) State Statutes, State of Alaska, Department of Revenue, September 1986

J. Misc. Taxes

1. Alternative Means of Increasing Revenues, Alaska Department of Revenue, Memo from Mary Ellen Frank, et. al. to Vince Wright, Director of Research, January 1986
2. Revenue Alternatives - Excise Taxes, Fisheries Taxes, Licenses and Permits, Vince Wright, Chief of Research, State of Alaska, Department of Revenue, December 1986
3. Alaska Mineral Taxation Compared to Taxes on Mines in Eleven States, Whitney & Whitney, Inc. for State of Alaska, Department of Commerce and Economic Development, Office of Mineral Development, January 1982

K. Disputed Taxes

1. Expedited Collections of Disputed Taxes, Memo to Rep. Al Adams, Chairman, House Finance Committee, State of Alaska, Department of Revenue, January 1986
2. Prepayment of Disputed Taxes, Memo to Rep. Al Adams, Chairman, House Finance Committee, State of Alaska, Department of Law, January 1986
3. Department of Revenue Accounts Receivable, Richard Monkman, Deputy Commissioner, Taxation, State of Alaska, Department of Revenue, July 1986
4. The Appeals Process and Disputed Tax Dollars, Memo to the JSPTP, Division of Audit, State of Alaska, Department of Revenue, September 1986
5. Memo to Rep. Ben Grussendorf on Cases in Appeal Status, Martin Richard, Division of Audit, State of Alaska, Department of Revenue, October 1986

February 3, 1986

G.N. NELSON COMMENTS ON DRAFT COMMITTEE REPORT

The following proposed changes are presented for consideration by the Committee.

1. Page 3, fourth full paragraph:

adopted.
The Committee's comprehensive charge is to submit a report to the Legislature "that addresses the merits of and makes recommendations concerning a long-term, broad based and stable tax policy to minimize taxes and foster economic growth."

2. Page 6, first full paragraph, insert following first sentence:

→
Testimony was limited to only representatives of the Department of Revenue, the Office of Management and Budget, and the Department of Law. The primary focus was on revenue raised by various proposals balanced with the various negative effects on exploration and production. Time did not permit testimony comparing Alaskan production taxes with the production taxes of other states, although such a comparison was noted as useful information.

3. Page 6, first full paragraph, replace the second sentence:

As noted in the attached paper by T.K. Williams at page 9,
"The ELF operates to reduce the effective rate of the
Production Tax as an oil and gas property nears its economic
limit; i.e., the point where the income (gross value) from
producing a barrel or Mcf of production from that property
is just enough to cover the costs of producing that barrel
or Mcf."

4. Page 6, first full paragraph, last sentence:

The Oil Industry is expected to oppose any changes to the
ELF formula, saying that it will reduce producer revenues
available for reinvestment in Alaska, reduce research and
development in Alaska and may cause premature shutdown of
producing fields.

5. Page 7, option 3):

Delete "in Cook Inlet"

6. Page 7, option 4, replace the second sentence:

This option was rejected as the Committee supported the
basic policy of the ELF.

7. Page 7, option 5), insert after the second sentence:

However, the modification ~~would~~ discourage full development
within large fields. *may*

8. Page 8, bottom paragraph, first sentence:

Separate accounting is considered by the State of Alaska to more accurately reflect oil and gas income earned in Alaska.

9. Page 9, first full sentence:

The oil and gas industry has opposed the imposition of separate accounting in Alaska in previous testimony before other legislative committees.

10. Page 9, first partial paragraph, last sentence:

". . . . \$14-16/barrel well head value (\$21-23/bbl delivered).

11. Pages 10 and 11 numbered items, add:

14. Personal Income Tax

15. State Income Tax

JOHN SUND, REPRESENTATIVE

2505 2nd Avenue
Ketchikan, Alaska 99901
(907) 225-5552

While in Juneau
P. O. Box V
Juneau, Alaska 99811
(907) 465-4919

MEMORANDUM

2/3/87

TO: Members, Joint Special Committee on Tax Policy

FROM: Rep. John Sund, House Co-Chair
Joint Special Committee on Tax Policy

RE: Suggested changes to tax report

We have circulated the draft of the preliminary report of the Joint Special Committee on Tax Policy and are starting to get back comments and suggested changes.

The report, or course, should be viewed as attempting to briefly outline issues the Committee has considered. The actual Committee Report is due next year.

Based on comments received to date, I am suggesting the following changes:

- 1) Page 7, numbered paragraph 5: substitute "in addition to" for "rather than." This indicates that in an ELF proposal studied by OMB, field productivity would be used in addition to well productivity in calculating the ELF.
- 2) Page 7, where revenue estimates are used, use the 30% case instead of the 50% case.
- 3) On page 9 of the draft, first paragraph, delete the last two sentences and replace with:

"According to a January 1987 report from the Department of Revenue, substituting separate accounting for modified apportionment would increase FY 1988 revenues by almost \$100 million, assuming current oil prices [Graph II-9-1, page 95]. Little or no additional revenue would be gained, however, if the change to separate accounting were accompanied by the severance tax reduction called for under HB 353, again assuming no change in oil prices [Graph II-9-3, page 95].

The DOR study suggests that the crossover point, above which separate accounting by itself would produce more FY 1988 revenue for the state, is between \$5/barrel and \$7/barrel wellhead value. The current wellhead value is about \$8.75/barrel. The crossover point tends to increase in later years, as does the DOR forecast of wellhead value."

STATE OF ALASKA



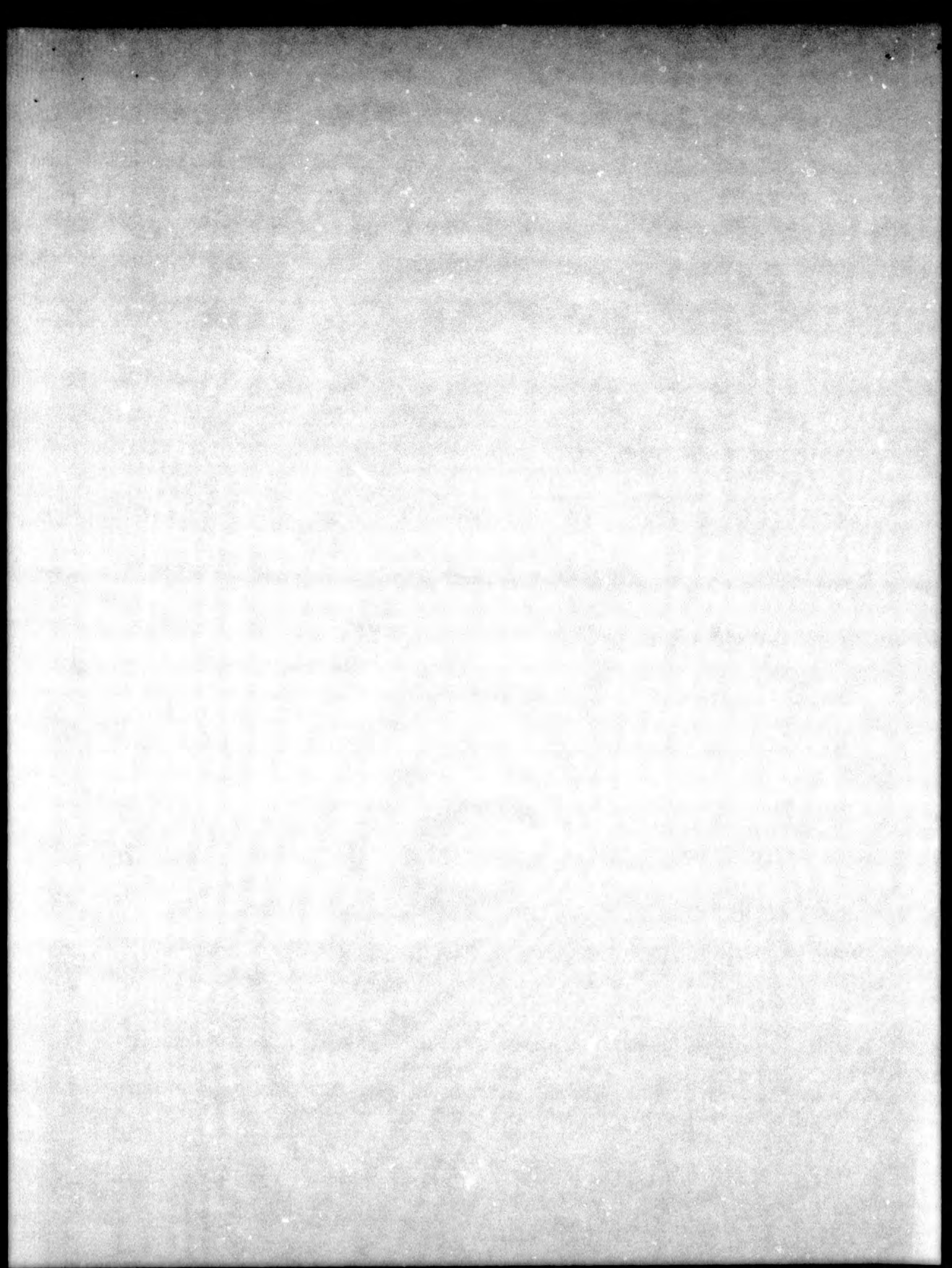
JOINT SPECIAL COMMITTEE

ON

TAX POLICY

PRELIMINARY REPORT

February 1987



STATE OF ALASKA
JOINT SPECIAL COMMITTEE ON TAX POLICY
PRELIMINARY REPORT
FEBRUARY 1987

JOINT SPECIAL COMMITTEE ON TAX POLICY

Senate Chairman	Senator Don Bennett
House Chairman	Representative John Sund
Senate Member	Senator Jack Coghill
Senate Member	Senator Jim Duncan
House Member	Representative Kay Brown
House Member	Representative Terry Martin
Administration Member	Commissioner Hugh Malone, DOR
Administration Member	Mary Halloran, OMB
Public Member	Bart Garber
Public Member	George Nelson
Public Member	David Rasley

TAX POLICY COMMITTEE PRELIMINARY REPORT

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Alaska State Legislature



P. O. Box V
State Capitol
Juneau, Alaska 99811
(907) 465-4990

JOINT SPECIAL COMMITTEE ON TAX POLICY

February 13, 1987

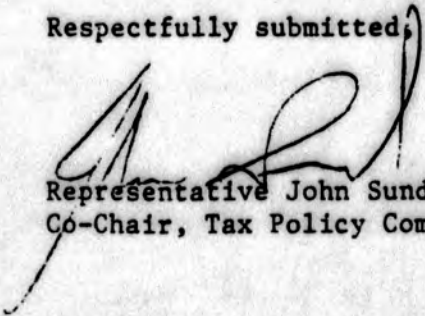
Members of the Alaska State Legislature

Fellow Members:

The following is a preliminary report of the Joint Special Committee on Tax Policy. Tax policy issues which have been considered by the committee and are the subject of this report include criteria for evaluating tax policy, the Economic Limit Factor (ELF), oil and gas income tax, individual income tax, and state sales tax. Detailed reports and papers on these particular issues are included in the Supplement volume to this report.

Should you have any questions regarding any of the information contained in this report, please feel free to contact our offices.

Respectfully submitted,


Representative John Sund
Co-Chair, Tax Policy Committee


Senator Don Bennett
Co-Chair, Tax Policy Committee

Introduction

The purpose of this report is to outline issues of Alaska tax policy considered by the Joint Special Committee on Tax Policy.

The Committee was created in May 1986 by the passage of Senate Concurrent Resolution 42. It is scheduled to make a final report and dissolve on the 11th day of the second session of the Fifteenth Alaska Legislature, in January 1988.

Membership on the Committee includes three members from the House, three from the Senate, two from the Administration, and three public members.

The Committee's comprehensive charge, as stated in SCR 42, is to submit a final report to the Legislature "that addresses the merits of and makes recommendations concerning a long-term, broad-based, and stable tax policy to minimize taxes and foster economic growth."

The Committee has met four times; minutes are available from the office of Rep. John Sund, Capitol Building, Room 120. (P.O. Box V, Juneau, Alaska 99811. Phone 465-4990).

Other than rejecting certain options considered for modifying the Economic Limit Factor in the state Severance Tax, the Committee made no recommendations as to tax policy at this time.

Issues Explored by the Tax Policy Committee

Before evaluating any specific taxes, it is important to establish criteria for tax policy evaluation. The Department of Revenue (DOR), in a memo given to the Committee on alternative means for increasing revenues (See Supplement, Section 4), listed five criteria for evaluating tax policies. The five are:

Economic Efficiency: What effect does the proposed tax law change have on incentives and economic decision-making which may alter consumption,

production or resource allocation decisions?

Equity: Who bears the burden of the tax and how does that burden compare with ability to pay or benefits received? Is the tax progressive or regressive with respect to income and/or wealth?

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In addition to these, the Committee considered several other tax evaluation criteria:

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Employment Impact: What will be the impact on employment in the public and private sector?

Capital Impact: What will be the impact on investment capital availability in Alaska?

New Federal Tax Code: How does the proposed tax law change relate to the new Federal Tax Code?

For oil and gas taxes, the Committee looked at several additional evaluation criteria:

Impact on exploration, development and production.

Relative impacts on small and large fields.

Impact on secondary and tertiary recovery and recoverable reserves.

Possibility of premature shutdown of producing fields, and future oil and gas production loss.

Impact on Cook Inlet fields, royalty and severance income.

Alaska Tax Policy

Economic Limit Factor (ELF)

Much of the Committee's time has been spent on questions relating to the Alaska Severance Tax, in particular, the Economic Limit Factor (ELF). Testimony was limited to representatives of the Department of Revenue, the Office of Management and Budget, and the Department of Law. The primary focus was on revenue raised by the various proposals balanced with the various negative effects on exploration and production. Time did not permit testimony comparing Alaska production taxes with the production taxes of other states, although such a comparison was noted as useful information.

One purpose of the ELF is to provide severance tax relief to marginal oil fields in order to keep them in production. In addition, as noted in the attached paper by T.K. Williams, (See Supplement, Section 3), "The ELF operates to reduce the effective rate of the Production Tax as an oil and gas property nears its economic limit; i.e., the point where the income (gross value) from producing a barrel or Mcf of production from that property is just enough to cover the costs of producing that barrel or Mcf."

The ELF is calculated to be a number between zero and one and can be thought of as representing a percentage of the nominal severance tax rate (e.g. a field with an ELF of 0.6 means 60% of the nominal severance tax rate is applied to that field). The ELF is an issue at this time largely

because an ELF provision that sets the ELF at 1.0 if the calculated ELF is greater than 0.7, expires after a field has been in production for ten years, and Prudhoe Bay will have been in production for ten years as of July 1987. When the ten-year exemption for Prudhoe Bay expires, and if no changes are made to the law, the ELF for Prudhoe Bay will go to an estimated .82, reducing severance taxes by over \$100 million per year. The oil industry is expected to oppose any change to the ELF formula, saying that it will reduce producer revenues available for reinvestment in Alaska, reduce research and development in Alaska and may cause premature shutdown of producing fields.

Eight options were considered for the ELF:

1) Eliminate the application of the ELF to the current \$.80 per barrel tax floor.

Increased Severance tax revenue from this option:

<u>FY 88</u>	<u>FY 89</u>	<u>FY 88-2005</u>
20.18 M	13.83 M	135.42 M

The DOR estimates that average expected production on the North Slope would be reduced by 19.16 million barrels during the period 1987-2005, if this change in the ELF were enacted.

[Source: DOR ELF alternatives analysis, 12/4/86. North Slope fields, mean case. See Supplement, Section 3]

2) Same as Option 1, and, in addition, set the 300 barrel per day Production Economic Limit, (PEL), now a rebuttable presumption, into statute, and repeal the ELF exponent.

3) Set the per-barrel floor at \$1.50 and index it with inflation. The \$1.50 figure was selected based on applying a CPI inflator to the original \$.80 floor. The Committee rejected this option because it would have a severe negative impact on oil production.

4) Repeal the ELF entirely on all fields. This option was rejected as the Committee supported the basic policy of

the ELF.

5) Modify the exponent of the ELF formula and base the PEL on field production in addition to per-well production. The modification of the ELF exponent would have the effect of giving additional tax relief to marginal fields while increasing the tax receipts from very large fields. However, the modification may discourage full development within large fields. The net result would be an increase in severance tax income over present law.

Increased severance tax revenue from this option:

<u>FY 88</u>	<u>FY 89</u>	<u>FY 88-2005</u>
123.61 M	149.86 M	2270.5 M

The DOR estimates that average expected production on the North Slope would be reduced by 28.41 million barrels during the period 1987-2005, if this change in the ELF were enacted.

[Source: DOR ELF alternatives analysis, 12/4/86 North Slope fields, 45,000,000 constant, mean case. See Supplement, Section 3]

6) Include the provisions of Option 5 with the addition of a floor which is not affected by the ELF. The Committee rejected this option based on the negative effects on Cook Inlet oil fields stemming from the change in the per-barrel severance tax floor.

7) Extend the ten-year Prudhoe Bay exemption to fifteen years.

Increased severance tax revenue from this option:

<u>FY 88</u>	<u>FY 89</u>	<u>FY 90</u>	<u>FY 91</u>	<u>FY 92</u>
100.4 M	114.8 M	125.2 M	129.2 M	134.9 M

The DOR estimates that average expected production on the North Slope would be reduced by 4.43 million barrels during the period 1987-2005, if this change in the ELF were enacted.

[Source: DOR ELF alternatives analysis, 12/4/86 North Slope fields, mean case. See Supplement, Section 3]

8) No change in the law, i.e. allow the scheduled application of ELF to Prudhoe Bay.

Oil and Gas Income Tax

The major issues considered regarding the Oil and Gas Income Tax revolve around the question of separate accounting of oil and gas income in Alaska versus that of apportioning Alaska income by formula. Present law uses the 'modified apportionment' approach. Separate accounting was used in Alaska for the years 1978-1981, but was repealed because the State was exposed to the possibility of large tax refunds had the courts ruled for the oil companies who brought suit. The Alaska Supreme Court and the U.S. Supreme Court ruled in favor of the State, holding that separate accounting is within the prerogative of the legislature as a method of determining Alaska income for taxation.

Separate accounting is generally considered by the State of Alaska to more accurately reflect oil and gas income earned in Alaska. Separate accounting has the disadvantage of being more volatile, since under separate accounting state income closely follows the rise and fall of oil prices on the world market. The oil and gas industry has opposed the imposition of separate accounting in Alaska in previous testimony before other legislative committees. House Bill 353, which would have reinstated separate accounting and lowered the severance tax rate, was introduced in the Fourteenth Legislature, but did not pass either body.

Individual Income Tax

The State of Alaska is one of seven states without an individual income tax. The Committee requested a report from the Department of Revenue on the revenue potential and economic impacts of a personal income tax. The report was completed at the end of December, 1986, and is included in the Supplement. The report examines three types of state

income taxes and examines revenue potentials of each against two possible economic scenarios for the state's future. It is interesting to note that were the State to reimpose the individual income tax with the same rate structure as was in effect before it was repealed, the tax would yield between \$399 million (low economic scenario) and \$436 million (moderate economic scenario) for tax year 1988. These amounts exceed previous estimates by approximately \$100 million.

State Sales Tax

The State of Alaska is one of five states without a statewide sales tax. The Department of Revenue recently completed a study of the revenue potential of a statewide sales tax. The report concludes that in calendar year 1988, if sales of food are not exempted, a retail sales tax would yield \$38,355,000 per one percent tax. In addition, a state sales tax on the service sector of the economy could yield approximately \$14 million, and sales taxes on electric utilities could yield \$2 million per one percent tax.

Issues to be explored by Committee

There are a great many tax issues which could be productively explored by the Joint Special Committee on Tax Policy. An outline of some of these issues is provided below.

1. Corporate Income Tax
 - a) Rates
 - b) Worldwide Combination
 - c) Separate entity
 - d) Waters' edge
 - e) Changes to Apportionment formula
2. Severance Tax
 - a) Definition of a marginal field
 - b) Definition of Field, Unit
3. Motor Fuel Tax
4. Tax Incentives and Credits
 - a) Exploration Incentive
 - b) Mining License 3.5-year moratorium

- c) Special Industrial Tax Credit
- d) Credits included in adoption of IRS code
- e) Investment Tax Credit
- f) Non-Highway Use refund
- g) Oil Gravity Adjustment
- 5. Oil and Gas Property Tax (ad valorem)
 - a) Municipal uniformity
 - b) Decoupling state and municipal property taxes
- 6. Disputed Taxes
 - a) DOR need for auditors, etc.
 - b) Taxpayer Confidentiality
 - c) Outlook for settlements
- 7. Lottery
- 8. Oil & Gas Reserves Tax
- 9. Tobacco Tax
- 10. Alcohol Tax
- 11. Gross Receipts Tax
- 12. School Tax
- 13. Fisheries Taxes
- 14. Individual Income Tax
- 15. State Sales Tax

Conclusion

The Joint Special Committee on Tax Policy has attempted to establish policy guidelines to examine Alaska's tax structure. The Committee has developed information regarding impacts of some proposed tax schemes. Other than rejecting certain proposals relating to the ELF, the Committee has reached no conclusions or recommendations regarding any specific tax proposal.

Introduced: 4/23/86
Referred: State Affairs

1 IN THE SENATE

BY THE STATE AFFAIRS COMMITTEE

2

SENATE CONCURRENT RESOLUTION NO. 42

3

IN THE LEGISLATURE OF THE STATE OF ALASKA

4

FOURTEENTH LEGISLATURE - SECOND SESSION

5

Relating to a legislative committee to

6

study the state's tax policy.

7 BE IT RESOLVED BY THE LEGISLATURE OF THE STATE OF ALASKA:

8

WHEREAS the State of Alaska has a tax structure that has not been

9

comprehensively reviewed for fairness and equity; and

10

WHEREAS it is in the state's best interest to have a long-term tax

11

policy that is broad, stable, and accountable; and

12

WHEREAS the State of Alaska lacks the necessary information to develop

13

a comprehensive approach to existing state taxes, tax credits, licenses and

14

user fees; and

15

WHEREAS an examination of the relationship between minimizing taxes

16

and fostering economic growth is critical to the understanding of the

17

state's tax structure;

18

BE IT RESOLVED by the Alaska State Legislature that under Uniform Rule

19

21 a joint special committee on tax policy is established consisting of

20

three members of the senate appointed by the president of the senate, three

21

members of the house of representatives appointed by the speaker of the

22

house, three ex-officio members from the private sector appointed by the

23

governor and one ex-officio representative each from the Office of Manage-

24

ment of Budget and the Department of Revenue to conduct research, hold

25

public hearings and take testimony and collect data on the state's tax

26

policy; and be it

• 27

FURTHER RESOLVED that before the committee dissolves on the 11th day

28

of the Second Session of the Fifteenth Legislature, it submit a written

29

report to the legislature that addresses the merits of and makes

- 1 recommendations concerning a long-term, broad-based and stable tax policy
- 2 to minimize taxes and foster economic growth.

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January, 1987

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tax policy
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Feb. 87

STATE OF ALASKA



JOINT SPECIAL COMMITTEE

ON

TAX POLICY

SUPPLEMENT

TO

PRELIMINARY REPORT

February 1987

STATE OF ALASKA
JOINT SPECIAL COMMITTEE ON TAX POLICY

SUPPLEMENT

TO

PRELIMINARY REPORT

FEBRUARY 1987

JOINT SPECIAL COMMITTEE ON TAX POLICY

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SECTION I

INDIVIDUAL INCOME TAX REPORT

SUPPLEMENT
PRELIMINARY TAX POLICY COMMITTEE REPORT

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Section IV	Revenue Alternatives Reports <u>Alternative Means of Increasing Revenues</u> Department of Revenue, January 1986 <u>Revenue Alternatives - Excise Taxes, Fisheries Taxes, Licenses and Permits</u> Department of Revenue, December 1986

MEMORANDUM

State of Alaska

TO: Vincent D. Wright
Chief of Research
Department of Revenue

DATE: December 31, 1986

FILE NO.:

THRU:

TELEPHONE NO.: 465-2173

SUBJECT: Individual Income Tax
Report

FROM: Mary Ellen Frank, Economist *MEF*
David Tonkovich, Economist *DT*
Al Zangri, Economist *AZ*

The enclosed report contains an analysis of three differently structured individual income taxes based on two possible economic scenarios that might occur in the State.

The first tax structure is based on the old state law, including tax rate tables, that existed in 1978-1979 but incorporates federal law changes that have occurred since that time. The state law was "piggybacked" to Federal law. The second tax structure is more closely akin to the Federal tax structure and adopts tax rate tables similar to the latest Federal law. The third tax structure is flat in nature and largely independent of the existing Federal system. The latter two approaches are constructed to generate roughly the same amount of revenue as the first, in the first year only, and are thus revenue neutral. For succeeding years beyond FY88 the taxes are not revenue neutral. The significant aspect of these three approaches and what one should focus on is the differing internal structures i.e. consideration of inclusions, exclusions, deductions, and exemptions.

The model that we designed can be modified to change these tax structures as well as apply different tax tables. We do not recommend any particular tax structure but simply lay out three possible alternatives that the decision makers may wish to consider.

MEF:DT:AZ:mkw

Enclosure

REVENUE ALTERNATIVES

Individual Income Tax

Prepared by

**Alaska Department of Revenue
Research Section
Vincent D. Wright**

**Mary Ellen Frank, Economist
Dave Tonkovich, Economist
Al Zangri, Economist**

EXECUTIVE SUMMARY

The purpose of this study was to develop a model allowing us to evaluate the revenue potential and burden of individual income tax proposals presented by Legislative and Executive policy makers. We have presented three alternative structures here primarily for illustrative purposes, and in no way wish to suggest these are proposals of this Department or section. The value of these alternatives is comparative, illustrating the way different structural elements in a tax can be altered to obtain various results, and to show what scope of information it is possible to generate in response to a proposal. We have evaluated the advantages and disadvantages, as well as preliminary estimates of fiscal impact, for each of our three illustrative individual income tax alternatives in order to suggest what kinds of questions could be asked about various proposals.

It should be noted at the outset, that it will be practically impossible to replace petroleum revenues with taxes on individuals or other industrial sectors given the present structure of the Alaskan economy. In fiscal year 1984 the gross wellhead value of North Slope oil production was approximately \$10.6 billion⁽²⁾ while the estimated gross production of all other nongovernmental industrial sectors was only \$8.7 billion and total disposable personal income was \$6.8 billion. In addition, oil production has been a high profit sector and thus supported much higher levels of taxation than other more marginal industrial sectors. Also, many other industries are currently supported, directly and indirectly through state government spending of oil revenues.

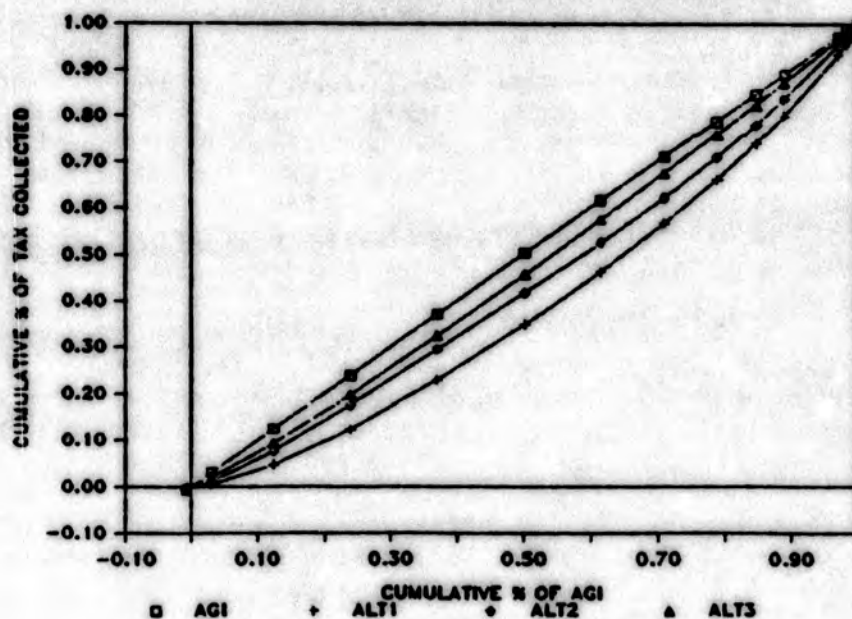
In a study of the tax capacity of the 50 states, the Advisory Commission on Intergovernmental Relations concludes that Alaska has a relatively low tax effort index (high additional tax capacity) for three tax types, personal income tax, general sales tax, and estate and gift tax.

<u>Tax</u>	<u>State-Local Tax Collections as % of U.S. Total</u>	<u>Alaska Effort Index 1982</u>
General Sales	23.5%	29.1
Selected Sales	11.7%	102.0
License Taxes	3.5%	118.0
Individual Income	19.7%	.7
Corporate Income	5.6%	95.0
Property	31.8%	105.0
Estate and Gift	.9%	22.9
Severance	3.4%	278.8

It should be noted that the three tax alternatives examined are revenue neutral in nature for the first year only (1988), i. e. they were designed to generate approximately the same amount of revenue. For each succeeding year, they are not necessarily revenue neutral. What is important is to focus on differences in inclusions, exclusions, deductions, and exemptions as they affect differing income groups.

The figure below compares the progressivity of the effective tax rates of the three tax alternatives. The lowest line is the most progressive, while the straight line indicates what a strictly proportional tax with no exemptions would look like. A regressive tax structure would lie above the proportional line over at least some area. The most progressive alternative examined here is the progressive rate alternative (one), and the least progressive is the flat rate alternative (three).

PROGRESSIVITY MEASURES



-
- Alternative 1: Reimposition of old Alaska tax rates to new Federal taxable income.
 - Alternative 2: Adoption of two brackets and rates applied to new Federal taxable income.
 - Alternative 3: Flat rate tax applied to new Federal adjusted gross income with high personal exemption.

On the page following, we present a table that compares the three alternatives we looked at for the year 1988, showing the effective tax rates for each income group and each alternative. The table also reveals the actual percentage paid by income groups as a result of the transfer from the Federal to the State pocket, i. e. itemization of deductions allows the taxpayer to deduct state income taxes from Federal income taxes, and thereby infuses new money into the State's economy by transferring funds that would have gone to the Federal government to the State government.

ES TABLE 1
COMPARISON OF EFFECTIVE RATES
TAX ALTERNATIVES FOR 1988 LOW CASE

AGI GROUP	ADJ GROSS INCOME	ALTERNATIVE 1			ALTERNATIVE 2			ALTERNATIVE 3		
		TAX LIABILITY PFD TAXABLE	TAX AS % OF AGI	TAX % WITH FEDERAL TAX SAVINGS	TAX LIABILITY PFD TAXABLE	TAX AS % OF AGI	TAX % WITH FEDERAL TAX SAVINGS	TAX LIABILITY PFD TAXABLE	TAX AS % OF AGI	TAX % WITH FEDERAL TAX SAVINGS
LOSS	(661,678,793)	(6899,317)			(6895,951)			(6678,443)		
0- 10000	8305,298,081	82,416,119	0.79%	0.76%	84,438,624	1.45%	1.42%	87,499,042	2.46%	2.41%
10001-20000	8769,719,578	817,051,401	2.22%	2.14%	826,219,841	3.41%	3.31%	830,091,066	3.91%	3.78%
20001-30000	8943,559,133	830,516,317	3.23%	2.99%	839,176,980	4.15%	3.86%	841,876,832	4.44%	4.06%
30001-40000	91,072,829,850	842,108,721	3.93%	3.42%	846,660,499	4.35%	3.82%	850,465,200	4.70%	4.06%
40001-50000	91,068,241,986	847,133,371	4.41%	3.68%	847,545,499	4.45%	3.65%	852,281,835	4.89%	3.90%
50001-60000	8923,238,677	844,668,610	4.84%	3.71%	842,090,913	4.56%	3.50%	846,667,981	5.05%	3.81%
60001-70000	8777,522,186	841,849,108	5.38%	4.02%	837,811,790	4.86%	3.63%	840,294,811	5.18%	3.84%
70001-80000	8636,844,305	837,367,186	5.87%	4.33%	834,225,036	5.37%	3.95%	833,667,450	5.29%	3.86%
80001-90000	8485,165,675	830,927,599	6.37%	4.62%	828,681,819	5.91%	4.28%	826,128,240	5.39%	3.80%
90001-100000	8349,859,148	824,391,842	6.97%	4.98%	822,072,167	6.31%	4.47%	819,142,228	5.47%	3.82%
100001-150000	8668,888,559	852,949,085	7.92%	5.62%	845,828,247	6.85%	4.82%	837,367,794	5.59%	3.93%
150001-200000	891,310,516	89,159,568	10.03%	7.30%	86,892,991	7.55%	5.47%	85,258,491	5.76%	4.21%
200001-300000	822,032,722	82,681,240	12.17%	9.08%	81,006,047	4.54%	3.30%	81,298,923	5.90%	4.38%
300001-400000	844,902,552	85,376,237	11.97%	8.75%	84,355,330	9.70%	7.10%	82,640,693	5.88%	4.30%
OVER 400000	875,394,772	89,756,416	12.94%	9.32%	86,134,956	8.14%	5.86%	84,477,066	5.94%	4.28%
TOTAL	88,173,120,947	8397,473,503			8392,328,787			8398,484,025		

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INTRODUCTION AND PURPOSE OF STUDY

Current revenue projections for fiscal years 1988 through 1992 indicate that revenues generated by petroleum related activities (Oil and Gas Corporate Net Income Tax, Oil and Gas Property Tax, Oil and Gas Severance Tax and Oil and Gas Royalties) will comprise over 81.5 percent of total unrestricted General Fund Revenues for the period. Therefore, state government is presently very dependent on these sources of revenue. Finding sources of additional revenue is becoming increasingly important.

Prudhoe Bay oil production has already peaked. Total Alaskan production is currently projected to decline from over 1.848 million b/d in fiscal year 1986 to under 400,000 b/d by fiscal year 2005. This represents a compound annual average rate of decline of 7.9 percent.⁽¹⁾ Other North Slope fields which are currently projected to begin producing will only partially offset this decline. These projections are based only on the development of presently known and economically developable reserves. Additional discoveries may be made in the future, but their development as well as the development of some currently known but high cost reserves is highly dependent on the future growth of real oil prices. In addition, these future discoveries may be made on federal OCS lands from which the state would receive little or no revenues. Future petroleum revenues are therefore both exhaustible and highly uncertain.

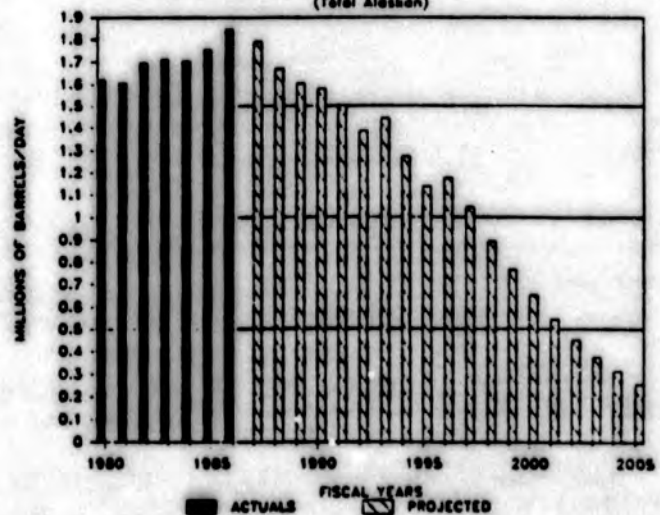
TABLE 1

PETROLEUM PRODUCTIONS PROJECTIONS
(Millions of Barrels/Day)

FISCAL YEAR	TOTAL ALASKAN
1980	1.621
1981	1.679
1982	1.696
1983	1.714
1984	1.714
1985	1.714
1986	1.848
1987	1.842
1988	1.755
1989	1.687
1990	1.558
1991	1.499
1992	1.364
1993	1.287
1994	1.257
1995	1.237
1996	1.095
1997	1.102
1998	1.120
1999	0.995
2000	0.775
2001	0.674
2002	0.593
2003	0.512
2004	0.471
2005	0.284

FIGURE 1

PETROLEUM PRODUCTION PROJECTIONS
(Total Alaskan)

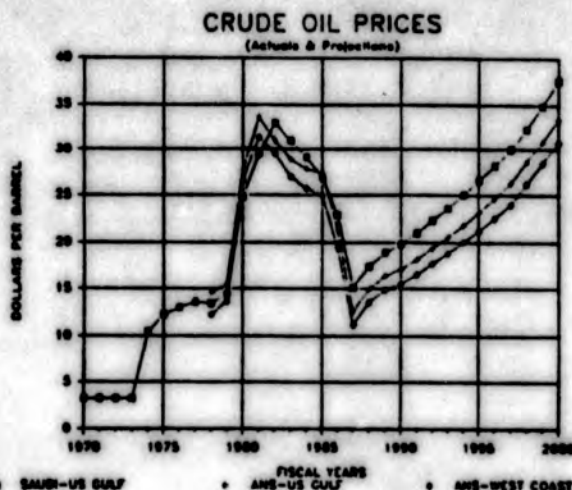


Alaska North Slope oil prices, meanwhile, have dropped from a high in 1981 of \$33.67 per barrel to a 1987 low of \$8.50 (the average is projected to be \$12.59 for the year). These prices have become extremely volatile and difficult to predict. Even if production wasn't declining, this volatility in oil prices and riskiness of oil related revenues could undermine the major source of revenue for this state. To a large extent, this has already happened.

TABLE 2

FISCAL YEAR	SAUDI- US GULF	AMS- US GULF	AMS- WEST COAST
1970	3.23		
1971	3.23		
1972	3.23		
1973	3.23		
1974	10.43		
1975	12.30		
1976	13.04		
1977	13.61		
1978	13.46	14.60	12.30
1979	14.01	15.30	12.70
1980	24.75	27.68	26.80
1981	29.45	33.67	31.43
1982	32.99	31.07	29.50
1983	31.05	28.87	27.60
1984	29.10	27.83	25.68
1985	26.80	27.35	24.92
1986	22.90	21.38	19.26
1987	15.13	12.29	11.19
1988	17.29	14.97	13.57
1989	18.93	16.39	14.90
1990	19.77	17.10	15.52
1991	20.96	18.16	16.32
1992	22.21	19.27	17.70
1993	23.62	20.53	18.62
1994	25.03	21.80	20.02
1995	26.35	23.18	21.20
1996	28.10	24.67	22.57
1997	29.93	26.20	24.01
1998	32.36	28.60	26.18
1999	34.91	30.95	28.46
2000	37.62	33.43	30.87

FIGURE 2



The purpose of this study was to develop a model allowing us to evaluate the revenue potential and burden of individual income tax proposals presented by Legislative and Executive policy makers. We have presented three alternative structures here primarily for illustrative purposes, and in no way wish to suggest these are proposals of this Department or section. The value of these alternatives is comparative, illustrating the way different structural elements in a tax can be altered to obtain various results, and to show what scope of information it is possible to generate in response to a proposal. We have evaluated the advantages and disadvantages, as well as preliminary estimates of fiscal impact, for each of our three illustrative individual income tax alternatives in order to suggest what kinds of questions could be asked about various proposals.

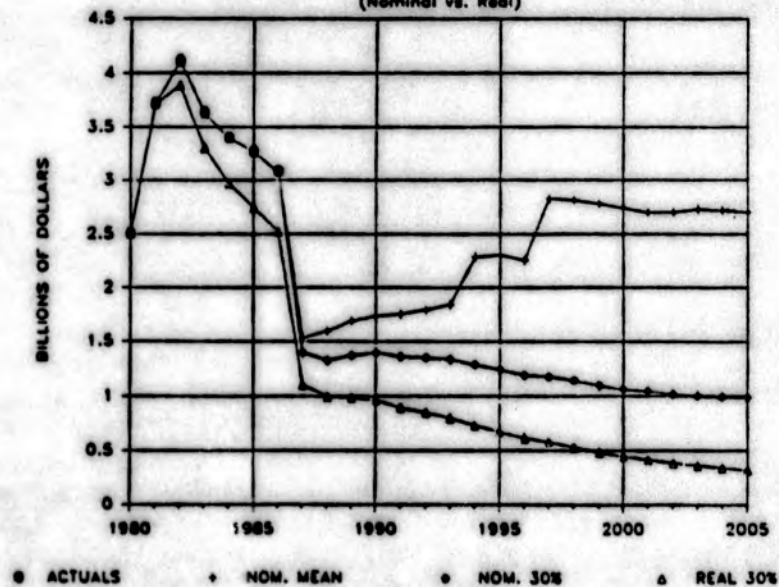
It should be noted at the outset, that it will be practically impossible to replace petroleum revenues with taxes on individuals or other industrial sectors given the present structure of the Alaskan economy. In fiscal year 1984 the gross wellhead value of North Slope oil production was approximately \$10.6 billion⁽²⁾ while the estimated gross production of all other nongovernmental industrial sectors was only \$8.7 billion and total disposable personal income was \$6.8 billion. In addition, oil production has been a high profit sector and thus supported much higher levels of taxation than other more marginal industrial sectors. Also, many other industries are currently supported, directly and indirectly through state government spending of oil revenues.

TABLE 3

GENERAL FUND UNRESTRICTED REVENUE PROJECTIONS
(Nominal vs. Real)

FISCAL YEAR	ACTUALS	ESTIMATES MEAN CASE (NOMINAL \$)	ESTIMATES 30 % CASE (NOMINAL \$)	ESTIMATES 30 % CASE (REAL \$/1981)
1980	2.501			
1981	3.710			3.710
1982	4.108			3.091
1983	3.651			3.290
1984	3.390			2.940
1985	3.240			2.744
1986	3.074			2.522
1987		1.535	1.399	1.105
1988		1.601	1.325	1.000
1989		1.697	1.374	0.992
1990		1.748	1.378	0.985
1991		1.743	1.359	0.997
1992		1.802	1.349	0.951
1993		1.851	1.324	0.900
1994		2.290	1.287	0.775
1995		2.207	1.241	0.672
1996		2.254	1.191	0.615
1997		2.050	1.170	0.576
1998		2.010	1.143	0.550
1999		2.779	1.090	0.480
2000		2.720	1.062	0.444
2001		2.690	1.045	0.414
2002		2.699	1.020	0.381
2003		2.720	1.004	0.350
2004		2.710	0.997	0.327
2005		2.699	0.989	0.317

FIGURE 3

GENERAL FUND UNRESTRICTED REVENUES
(Nominal vs. Real)

TAX CAPACITY AND TAX BURDEN ON ALASKANS

The assessment of the burden of taxation is a complicated problem. Statutes determine who is legally responsible for a tax. In contrast the economic incidence of a tax is the change in the distribution of private real income brought about by a tax. Different taxes can be shifted to differing extents from the person or business legally responsible to other individuals or businesses.

In less rigorous terms, concepts such as burden are examined by resorting to state-by-state comparisons of taxes paid usually on a per capita basis or in relation to some measure of revenue capacity. Because measures such as per capita income are poor measures of revenue capacity, alternative concepts have been developed. One such measure involves the concept of a representative tax system (RTS).(3)

"The RTS is designed to answer this question: what would be the total revenue of each of the 50 states if every state applied identical tax rates - national averages - to each of 26 commonly used tax bases?"

Tax effort is a companion concept that indicates the overall tax burden placed on the base as defined by the tax capacity concept. A tax effort index is created by dividing the state's actual tax collections by its estimated tax capacity and multiplying by 100.

"The result may be interpreted as a measure of how much a state chooses to exploit all its potential tax bases relative to other states. If a state has a tax effort beneath the national norm, it will have an effort index under 100. Conversely, if a state has a tax effort in excess of the national average, it will have an effort index over 100."

The most current estimates of these ratios is in an Advisory Commission on Intergovernmental Relations publication Tax Capacity of the 50 States. Dated May 1985, the book is based on tax data for 1982. While aged, the numbers are indicative of Alaska's state and local tax burden relative to other states.(4)

Indexes of this sort can often hide subtleties in the underlying relationships. For instance the effort variables are developed using per capita measures which hide the fact that a substantial portion of the tax may be paid by out-of-state visitors or seasonal workers. Alaska, for instance, shows a high effort for hunting and fishing licenses. Although care has to be exercised in their interpretation, the figures indicate that Alaska residents are taxed at relatively low levels on income and sales when compared to residents of other states.

Overall Alaska shows a high tax effort because of our resource based taxes. However, effort measures are considerably below national norms for several major taxes commonly found in other states. Column two below shows the relative importance of major taxes and column three shows Alaska's effort index for these taxes.

<u>Tax</u>	<u>State-Local Tax Collections as % of U.S. Total</u>	<u>Alaska Effort Index 1982</u>
General Sales	23.5%	29.1
Selected Sales	11.7%	102.0
License Taxes	3.5%	118.0
Individual Income	19.7%	.7
Corporate Income	5.6%	95.0
Property	31.8%	105.0
Estate and Gift	.9%	22.9
Severance	3.4%	278.8

GENERAL STRUCTURE OF INDIVIDUAL INCOME TAXES

Individual income taxes are based on income at its source in contrast to other taxes, such as sales, excise taxes and duties which tax income in its use. The basic elements of any tax structure apply to the individual income tax. These are tax base, rate(s) and credits against tax owed.

Tax Base

Tax base is characterized by what is included, excluded, and deductible from income. It is also affected by the presence and size of personal exemptions, and whether these exemptions apply to the taxpayer only, or also to dependents or to special debilitating conditions, such as blindness or elderliness.

Tax Rates

Tax rates are applied to the tax base. They can be separated into rate groups for qualifying taxpayers, such as marital status or household type (i. e. married filing jointly, married filing separately, single, single head of household or widower). Rates can also be stratified by income groups so that taxpayers with different incomes pay different rates.

Tax Credits

Tax credits against tax owed are deducted after the rate is applied to the tax base. Tax credits are available for special expenditures and generally are effective in encouraging those expenditures. Examples of common individual income tax credits are for child care expenses, energy conservation investments, or political contributions.

Tax credits have much more impact in eroding tax base than tax exclusions or deductions do, as the following example illustrates.

In the first example below, an exclusion or deduction would have to be worth \$2,500 in order to reduce the tax to \$1,100 that the \$100 tax credit produced. At a four percent tax rate, the \$100 exclusion or deduction effectively reduced the tax base by \$100, or 0.33%; while the \$100 credit reduced the tax base by \$2,500, or 8.33%.

The higher the tax rate, the greater is the value to the taxpayer of all tax base reductions even though the absolute value of the tax credit is the same, \$100. In the second example, the eight percent tax rate has increased the value of the \$100 tax base reduction to \$8 dollars and the credit remains \$100. An exclusion or deduction would have to be worth only \$1,250 in order to reduce the tax to \$2,300 that the \$100 tax credit produced in the second example.

TABLE 4
EXAMPLES OF TAX CREDITS
VERSUS
TAX DEDUCTIONS

	<u>\$100 EXCLUSION</u>	<u>\$100 DEDUCTION</u>	<u>\$100 CREDIT</u>
INCOME	\$30,000	\$30,000	\$30,000
EXCLUSIONS	\$ 100	\$ 0	\$ 0
ADJ GROSS INCOME	\$29,900	\$30,000	\$30,000
DEDUCTIONS	\$ 0	\$ 100	\$ 0
TAXABLE INCOME	\$29,900	\$29,900	\$30,000
IF TAX RATE	4%	4%	4%
TAX	\$ 1,196	\$ 1,196	\$ 1,200
CREDIT	\$ 0	\$ 0	\$ 100
FINAL TAX	\$ 1,196	\$ 1,196	\$ 1,100
TAX REDUCTION	\$ 4	\$ 4	\$ 100
IF TAX RATE	8%	8%	8%
TAX	\$ 2,392	\$ 2,392	\$ 2,400
CREDIT	\$ 0	\$ 0	\$ 100
FINAL TAX	\$ 2,392	\$ 2,392	\$ 2,300
TAX REDUCTION	\$ 8	\$ 8	\$ 100

The Federal Tax Structure and its Effect on State Tax Policy

The Price Waterhouse Guide to the New Tax Law⁽⁵⁾ points out several of the major objectives of the Tax Reform Act of 1986:

1. "Those with similar incomes should pay essentially the same amount of taxes. This injects an element of fairness into the system that has been absent from prior tax laws. At the same time, the new law reflects a sharp departure from the recent trend toward attempting to cure a wide variety of social and economic problems through tax incentives, or perhaps more accurately tax subsidies."⁽⁶⁾
2. "Another objective was that the law be as understandable and as straightforward as possible, to avoid manipulation of statutory complexities that work to the advantage of the sophisticated and the disadvantage of the financially naive."⁽⁷⁾

While these objectives have not been fully realized by the new Federal law, any movement toward realization is laudable. Tying state law to the new federal law, in addition to simplifying return preparation for Alaska taxpayers, would implicitly signal the adoption of similar principles.

One obvious disadvantage to the "piggyback" arrangement is that changes in the Federal law significantly alter the state tax base and state revenues without a policy change by Alaska. This is of particular concern given that large Federal deficits are already leading some in Congress to suggest modifications to the new tax code. The advantages of piggybacking are primarily administrative and relate to audit, compliance and collections functions. When the IRS audits returns and determines adjustments this information can be shared with the state. This lowers audit costs for the state in that there is less independent verification of information. Minimizing administrative and compliance expenses is an important criteria in evaluating alternative tax systems. These costs are an important consideration as is evidenced by this discussion of expenses at the federal level:

"The costs of administering the income tax in the United States are fairly low. In 1981, for example, the Internal Revenue Service expended only 41 cents to raise each \$100 in taxes [Commissioner of Internal Revenue, 1982, p. 55]. However, the compliance costs of personal income taxation are quite substantial. On the basis of survey evidence, Slemrod and Sorum [1983] estimated that in 1982, the average U.S. household devoted about 29 hours to state and federal tax preparation, and spent about \$53 for professional advice. If the value of time is approximated at about \$10.70 per hour, then the total resource cost per household is about \$364. Multiplying this by the 97 million taxpaying units in 1982 gives a total resource cost of \$35.3 billion, about 9 percent of total federal and state income tax revenue."(8)

A final criteria by which any other tax system might be judged is adequacy. That is, does it raise sufficient revenues particularly with reference to all the costs, both political and monetary, associated with its imposition. Currently, individual income taxes rank second as a producer of state revenues nationally producing about 30 percent of revenues in 1984. That proportion has increased significantly over time. In 1973 about 23 percent of state revenues came from this source. In general then income taxes raise significant amounts of revenue in relation to the administrative costs.

PATTERN OF COLLECTION & REFUND

Actual tax collections are spread throughout time. Generally, income taxes are withheld by employers and submitted directly by them to the State. Those who are self-employed submit estimated tax payments on a regular basis throughout the year. Finally, taxes are submitted, if owing, with the tax return prepared for the tax year (due by April 15).

Refunds are generally requested when tax has been overpaid by submission of a tax return that documents the overpayment. Those returns are primarily submitted in February through April and the refunds issued a month after the return is received.

The time pattern of tax payments was evaluated for this project using data available on Department of Revenue data bases and the refunds were analyzed using State accounting system reports. From those, a projected time pattern was generated. This can be used to translate the projected tax year liabilities presented in the tables into gross collections, refunds and net collections by quarter. This translation is an important step in determining fiscal year revenues.

Historically, collections for any given tax year have exceeded liability and a portion of tax collections have been refunded. For this analysis, tax collections for a tax year are estimated to be 25 percent greater than the estimated liability for that tax year.

Receipts for the fiscal year by quarter are estimated using ratios that are based on an analysis of 1970 - 1979 Cash Flow data (9) from the Alaska individual income tax. Refunds are then estimated as 27.2 percent of the total fiscal year receipts from the prior fiscal year; an estimate based on Department of Administration PBA reports for 1970 - 1979.(9)

This analysis may overestimate tax refunds for the flat tax options as presumably the ability to estimate tax liability for the individual will be considerably easier. The refund amounts tend to net out over time, in any case, so this refund estimate is used for all alternatives.

EVALUATION OF ALTERNATIVES

We have presented three alternative structures here primarily for illustrative purposes, and in no way wish to suggest these are proposals of this Department or section. We have designed the three alternatives to raise approximately the same total revenue with three different tax structures; our benchmark revenue amount being that obtained by the first alternative, reinstatement of the old individual income tax.

The tables presented in this report summarize only the projected quantitative impacts of these illustrative individual income tax alternatives and can't effectively be compared on revenue raised. Tax alternatives two and three were constructed to yield approximately the same 1988 revenue as alternative one. After 1988, tax alternatives were allowed to yield whatever revenue the interaction between the tax structure and the economic variables generated. The comparison of the alternative yields identifies the relative responsiveness of each structure to the projected changes in the economy. In addition, these alternatives illustrate the way different structural elements in a tax can be altered to obtain various results, and to show what scope of information it is possible to generate in response to a proposal. We also have evaluated the advantages and disadvantages, as well as the preliminary estimates of fiscal impact, for each of our three illustrative individual income tax alternatives in order to suggest what kinds of questions could be asked about various proposals.

This highlights the other crucial issues. Each of the elements of the tax structure can be tailored to affect different taxpayers differently (or to try and affect them identically). The alternative tax structures we present will each be analyzed briefly on a number of issues including how they affect taxpayer groups, how easily administered they are and how politically palatable they might be.

In general, the issues which should be considered with respect to measures to increase revenues are as follows.

Economic Efficiency: What effect does the proposed tax have on incentives and economic decision making? How does the tax alter consumption, production or resource allocation decisions?

Equity: Who bears the burden of the tax and how does that burden compare with ability to pay or benefits received? Is the tax progressive or regressive with respect to income and/or wealth?

Elasticity: What is the sensitivity of the tax revenue yield to changes in economic or demographic conditions? As income or population increase or decrease, does tax revenue increase or decrease in greater, lesser or equal proportion?

Administrative Efficiency: How costly is the tax to administer in terms of resources devoted to administration and compliance relative to the revenue yield of the tax? Who bears the burden of administrative cost, the taxpayer, the State or the tax collector (if different from the State)?

Political Feasibility: How acceptable is the proposed tax to the legislature and/or the electorate given existing social, political, and economic conditions? Who benefits, who loses, and who has the most political power?

Additionally, we are concerned with three other issues.

Interstate Capture: How much of the tax owed by nonresident taxpayers who work in Alaska is it possible to capture?

Intergovernmental Effects: Does the tax erode the tax base of higher level (federal) or lower level (local) governments? If this should be mitigated, how can it be done?

Inflation Effects: What is the effect of inflation on the elements of the tax structure and the burden on the taxpayer? If this should be mitigated, how can it be done?

Distribution of Income Inclusions, Exclusions and Deductions

The individual income tax is based on source of income. As such, the distribution of income among households is very important in determining the vertical distribution of the tax incidence. It is also important how inclusive of various types of income the tax base is. The tables below present data estimated to simulate the 1988 new federal income tax structure to which all our alternatives will at least partially be tied.

It is obvious from this table that special treatment or exclusions applied to some sources of income are going to affect households at different points on the income distribution, differently. For example, capital gains, until recent tax reform, had special treatment. A portion of net capital gains could be excluded from income for tax purposes. Capital gains and investment income (such as corporate dividends and interest) are not major sources of income for lower income households. The complete inclusion in the tax base of these income sources affects higher income households to a much greater degree than lower income households.

TABLE 5
1988 DISTRIBUTION OF INCOME INCLUSIONS

ADJ GROSS INCOME GROUP	PERCENT OF RETURNS	PERCENT OF ADJ GROSS INCOME	PERCENT OF WAGES & SALARIES	PERCENT OF INTEREST INCOME	PERCENT OF CAPITAL GAIN/LOSS	OF SMALL ENTER PRISE	PERCENT OF PENSIONS ANNUITIES
LOSS	1.19%	-0.75%	0.38%	2.33%	5.32%	-138.19%	1.47%
0- 10000	22.06%	3.74%	3.59%	4.62%	2.06%	-12.96%	5.61%
10001-20000	20.46%	9.42%	9.66%	8.14%	3.96%	21.46%	12.00%
20001-30000	14.92%	11.54%	11.89%	9.18%	4.84%	14.30%	13.12%
30001-40000	11.90%	13.13%	14.05%	10.97%	7.32%	14.71%	12.08%
40001-50000	9.26%	13.07%	14.08%	10.86%	7.39%	3.24%	13.19%
50001-60000	6.56%	11.30%	11.80%	8.50%	5.76%	1.31%	14.41%
60001-70000	4.64%	9.51%	9.89%	7.35%	6.09%	2.37%	7.64%
70001-80000	3.26%	7.79%	7.84%	7.04%	6.42%	13.81%	6.52%
80001-90000	2.15%	5.94%	5.77%	6.39%	6.40%	13.03%	4.07%
90001-100000	1.34%	4.28%	3.71%	5.25%	7.40%	27.92%	3.87%
100001-15000	2.00%	8.18%	6.15%	13.55%	20.46%	84.86%	4.75%
150001-20000	0.17%	1.12%	0.58%	2.23%	4.69%	15.48%	0.73%
200001-30000	0.02%	0.27%	0.06%	0.48%	2.30%	4.21%	0.10%
300001-40000	0.04%	0.55%	0.22%	1.24%	3.16%	12.31%	0.37%
OVER 400000	0.03%	0.92%	0.25%	1.81%	6.36%	22.09%	0.00%
ESTIM MEDIAN	\$26,000	\$44,700	\$44,600	\$55,600	\$84,900	\$182,200	\$45,000

The estimated median is the level of 1984 AGI where one half of the inclusion, exclusion or deduction dollars are found on returns with less than this AGI and half on returns with more than this AGI. The exception to this is the percent of returns column (col. 2) where number of returns determined the median. Half of the returns in the 1988 low case had a 1984 AGI of \$26,000 or less.

The distribution of income exclusions and deductions differs among households also. The table below shows how these are distributed differently among income groups. Special exclusions and deductions will alter the distribution of the tax burden depending on which income sources or expenditure items are given favorable tax treatment. For instance, half of the dollars claimed as standard deductions occurred on returns with AGI less than \$10,500, while the comparable figure for itemized deductions is \$35,200. There is interaction in the function of these two, so a change in one will affect the other.

TABLE 6
1988 DISTRIBUTION OF INCOME EXCLUSIONS
AND INCOME DEDUCTIONS

ADJ GROSS INCOME GROUP	PERCENT OF RETURNS	PERCENT OF ADJ GROSS INCOME	PERCENT OF SAVINGS EXCLUSIONS	PERCENT OF ITEMIZED DEDUCTIONS	PERCENT OF STANDARD DEDUCTIONS	PERCENT OF MEDICAL DEDUCTIONS	PERCENT OF PROP TAX DEDUCTIONS	PERCENT OF TO INT DEDUCTIONS	PERCENT OF MORT INT DEDUCTIONS	PERCENT OF MISC DEDUCTIONS	PERCENT OF VALUE OF EXEMPTIONS
LOSS	1.1%	-0.7%	1.1%	1.4%	1.3%	15.9%	1.3%	1.2%	1.0%	2.0%	1.4%
0- 10000	22.0%	3.7%	1.0%	12.0%	27.3%	11.0%	1.5%	1.1%	1.1%	1.8%	14.2%
10001-20000	20.4%	9.4%	4.1%	12.9%	25.3%	25.1%	4.2%	3.5%	3.9%	6.0%	16.6%
20001-30000	14.9%	11.5%	9.0%	11.0%	17.8%	16.3%	8.3%	7.9%	8.4%	9.8%	14.8%
30001-40000	11.9%	13.1%	20.1%	11.7%	11.9%	11.4%	12.3%	12.6%	13.3%	13.4%	14.0%
40001-50000	9.2%	13.0%	15.2%	10.9%	7.2%	7.9%	14.0%	14.6%	14.9%	13.5%	11.8%
50001-60000	6.5%	11.3%	6.4%	10.0%	3.8%	4.5%	13.6%	15.0%	15.7%	12.1%	8.7%
60001-70000	4.6%	9.5%	4.5%	7.8%	2.0%	2.5%	11.5%	12.0%	12.0%	9.9%	6.3%
70001-80000	3.2%	7.9%	6.8%	6.2%	1.1%	1.9%	9.3%	9.7%	9.7%	8.0%	4.5%
80001-90000	2.1%	5.9%	5.1%	4.6%	0.7%	1.1%	7.6%	7.0%	6.7%	6.5%	2.9%
90001-100000	1.3%	4.2%	4.2%	3.2%	0.4%	1.0%	4.8%	4.7%	4.4%	5.1%	1.7%
100001-150000	2.0%	8.1%	16.4%	5.8%	0.5%	0.9%	9.0%	8.5%	7.6%	9.6%	2.4%
150001-200000	0.1%	1.1%	2.8%	0.6%	0.0%	0.0%	1.0%	0.9%	0.7%	1.1%	0.6%
200001-300000	0.0%	0.2%	0.5%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%
300001-400000	0.0%	0.5%	0.4%	0.1%	0.0%	0.0%	0.3%	0.2%	0.1%	0.0%	0.0%
OVER 400000	0.0%	0.9%	0.7%	0.2%	0.0%	0.0%	0.3%	0.2%	0.0%	0.4%	0.0%
ESTIM MEDIAN	\$26,000	\$44,700	\$43,900	\$35,200	\$10,500	\$13,900	\$54,700	\$34,600	\$54,600	\$65,800	\$35,400

As noted previously, the tax rates in the benchmark alternative (one) were in effect ten years prior to the first forecast year, 1988. Significant inflation has altered the tax base so these rates could be onerous. Inflation from 1978 to October 1986 has been 69.1 percent and over the entire ten year period is estimated to be 84.4 percent. Lack of inflation adjustment to the tax brackets in the rate structure will necessarily lead to bracket creep. What this means in practical terms, is that taxpayers may be no better off in any real sense (their income, after adjustment for inflation, is no greater) but may have to pay greater portions in tax. This can be mitigated with inflation indexed tax brackets.

Federal tax law has also changed the tax base significantly. Our estimate of the revenue yield in 1988 under the old tax law with no federal tax law change to the tax base is over \$35 million less than the alternatives in this study. The estimated tax revenue from our illustrative alternatives is over 35.25 percent of the the taxpayers' estimated federal tax for those years (compared to rates ranging from 19 to 26 percent for states with percentage of federal rate structures in the table above, i. e. Rhode Island, Nebraska and Vermont). Additionally, the old highest rate effective in alternative one (14.5 percent) is higher than any other state, (13.5 percent in New York). In our flat rate tax alternative (three), our tax rate of six percent is higher than any other state that has a flat rate (i. e. Illinois, Indiana, Massachusetts, Michigan, and Pennsylvania).

GENERAL DESCRIPTION OF THE ECONOMIC SCENARIOS

The revenue which can be generated by any income tax structure is obviously dependent on the future course of the Alaskan economy. It is probably safe to say that uncertainty about that course is greater at the present time than at any time in recent Alaska history. The future movement of oil prices is a key determinant as are state policy responses to significantly lower levels of revenue. Briefly, a case can be made for a wide range of economic outcomes.

A large number of economic scenarios combined with a variety of tax structures can quickly lead to a proliferation of cases which can overwhelm both researchers and policy makers. As a consequence we have limited this initial analysis to two economic scenarios and to three tax structures.

With the caveat that it is fairly costly to run different tax structures against the data base, we have considerable flexibility with regard to modelling different structures. Unfortunately we have very little flexibility with regard to economic scenarios. Econometric models which have been developed by state agencies have been rendered inoperative due to the departure of key personnel. Access to university or private models would have involved contractual funds which simply were not available.

Because of this problem we were forced to rely on an already published forecast. In March of 1986 ISER prepared a working paper titled "The Impact of Collapse of the World Oil Market on the Alaska Economy."(11) The paper essentially presents two cases - one based on state revenues as forecasted in December 1985 before the severe oil price decline and one based on revenues which approximate those currently forecasted. In the former case state general fund appropriations fall to about 74 percent of 1986 levels by 1990 while in the latter case these appropriations fall to about 47 percent of 1986 levels. In addition the paper shows other key variables - employment, population and personal income - also as a percent of 1986 levels. While this analysis would be strengthened by an approach which combined the tax forecasting model with custom tailored economic forecasts we feel the two cases we have available provide useful guidance on the sensitivity of our results to economic outcomes.

GENERAL DESCRIPTION OF THE TABLE FORMATS AND TERMS

There are three alternative tax structures considered in this report. Each structure is described, the tax issues discussed, projection tables are presented, and the revenue collections estimates are provided.

A set of two tables is presented for each year in the projection period, 1988 through 1992, and for each of two economic scenarios (described briefly above). The first table in the set is the sum for each variable, and the second set is the mean for each non zero value of the variable. Mean values help determine what is the impact of the individual variables on the average tax return in the income group.

The variables considered for the tax alternatives and economic scenarios are:

- Wages & Salaries;
- Adjusted Gross Income;
- Taxable Income;
- Number of Personal Exemptions;
- Value of Personal Exemptions;
- Itemized Deductions;
- Standard Deductions;
- Tax Liability if PFD is Taxable;
- Amount of Tax Liability Paid from Federal Tax;
- Tax Liability if PFD is not Taxable; and
- Leakage of Tax to Municipalities (from Property Tax).

These variables are presented for each of 15 adjusted gross income groups (AGI GROUP) and for the total. The data was grouped by 1984 AGI because it was felt it would aid in the intuitive interpretations of the tables. It is also possible to group by the AGI of the relevant tax year.

ALTERNATIVE ONE: 1978 ALASKA RATES/ FEDERAL TAX BASE

This alternative attempts to reinstate, largely, the tax structure effective in Alaska before it was repealed. That structure had its own set of progressive tax rates grouped by filing status, and was piggybacked to the federal law for most of its tax base elements.

Tax Base

The federal law has changed dramatically since the Alaska individual income tax was in effect. This proposal assumes that the changes adopted by the federal government will be referenced in Alaska Statute much as they were in 1978-1979. This will result in the expansion of the tax base through the inclusion of more items in income, a decrease in both exclusions and itemized deductions from income, and an increase in standard deductions and the value of exemptions, resulting in lower taxable income in the lower part of the income distribution and higher taxable income in the upper part of the income distribution. The specifics of the changes resulting from tax reform at the federal level are available in a number of publications and we will not attempt to discuss those here. The provisions of the new law that we assume would be effective for this proposal are summarized below.

Income Inclusions and Exclusions

Included as total income are wages, salaries, tips, interest income, dividends, income tax refunds, alimony received, business income, capital gains, pensions, IRA and annuity distributions, rents, royalties, partnership, estates, trusts, farm income, unemployment insurance (which we are unable to include in our model), social security benefits and other income. The new Federal law eliminates the \$100 - \$200 exclusion of dividend income and treats the full amount of capital gain as ordinary income. The Alaska Permanent Fund Dividend is included as income.

New restrictions are now included in the Federal law which define passive and active participation in ventures and set limits for higher income taxpayers on offsetting losses of any kind. Passive losses cannot be used to offset other income except for \$25,000 in participatory rental losses. (Passive losses occur particularly in some partnership and rental activities.)

Additionally, Alaska individual income tax law did include the Federal cost of living allowance and excluded exempt pensions and annuities, military pay of nonresidents serving in Alaska, and income from U. S. government securities. Because our data bases did not have sufficient detail to isolate these elements, it is difficult to quantify their impact. Conceptually our figures (which rely on the Federal income tax data) would exclude the Federal cost of living allowance and include the pay of military stationed in Alaska. Exempt pensions, annuities and U. S. government securities income would be excluded.

Income Adjustments

Under the new Federal law, only the Keogh plan contributions, savings withdrawal penalties and alimony paid adjustments from income remain. Eliminated is the Two Earner adjustment; while the IRA adjustment is phased out at higher income levels or eliminated if the employer covers the employee with a retirement plan. The moving expense and employee business expense adjustment are now deductions.

Treatment of the Alaska Permanent Fund Dividend

All of the alternatives presented show tax liability with PFD both taxable and not taxable. The 1988 low case Table 8 following indicates a loss of \$16.6 million in taxes from exclusion of the PFD from taxable income (\$399.3 million with PFD included - \$382.7 million with PFD excluded). The taxable income shown in the tables is with PFD not taxable. Children and other persons not required to file will not pay tax on the PFD. The estimates of the PFD are as follows:

1988	\$750
1989	\$800
1990	\$800
1991	\$800
1992	\$800

These are rounded values from the December 1986 Long Run Fiscal Model of the Department of Revenue. (12)

Nonresident Apportionment

As was done in the 1978 Alaska individual income tax law, nonresident workers apportion their income by source state in this proposal. The apportionment ratio is obtained by dividing Alaska adjusted gross income (income earned in this state or attributable to investments in this state) by total adjusted gross income. The ratio obtained is used to adjust exemptions and standard deduction. Itemized deductions are apportioned to Alaska based on the expenditure location, property site or source of income to pay the expenditure.

Standard Deduction

The following standard deductions are assumed to be adopted from the Federal Code and are indexed yearly for inflation.

<u>Filing Status</u>	<u>Standard Deduction</u>	<u>Add'l for Blindness/ Age Exemption</u>
Single	\$3,000	\$750 per Exemption
Married Filing Joint	\$5,000	\$600 per Exemption
Married Filing Sep	\$2,500	\$600 per Exemption
Head of Household	\$4,400	\$750 per Exemption

Itemized Deductions

Those with greater than the standard deduction can itemize deductions on state returns as done on the Federal return. Alaska income taxes cannot be deducted for Alaska tax although they can for Federal income tax. Medical expenses in excess of 7.5 percent of adjusted gross income are deductible. Sales taxes are not deductible but property taxes are. Home mortgage interest (for primary and secondary residences) is still deductible, but consumer interest is phased out and other mortgage interest is no longer deductible. Union and professional dues, tax return preparation fees, employee business expenses are also deductible, but must total more than two percent of adjusted gross income. Moving expenses are deductible.

Personal Exemptions

Exemptions are available for the taxpayer, spouse, dependents and for certain debilitating conditions. They are worth \$1,950 each in 1988, \$2,000 in 1989 and are indexed for inflation thereafter. For higher income taxpayers, the value of these exemptions is reduced by five percent of taxable income if taxable income is greater than the threshold amount (which is indexed yearly for inflation).

<u>Filing Status</u>	<u>Income Threshold</u>
Single	\$89,560
Married Filing Joint	\$149,200
Married Fil'g Separately	\$113,300
Head of Household	\$123,790

Tax Credits

We have not included any tax credits in these proposals. Summaries of the major tax credits effective in Alaska and profiles of the taxpayers and amounts credited have been published previously and are available from this office.(13)

Tax rates effective for the 1978 and 1979 Alaska individual income tax are assumed to be re-adopted for this proposal.

These rates were designed to apply to a tax base with a range of exclusions and deductions. With the new federal tax reform, income is much more fully exposed to taxation. We estimate almost \$640 million (or 8.5 percent) more income is subject to taxation. It may be advisable to consider changing these brackets to reflect this exposure to taxation. Our estimate of the revenue yield in 1988 under the old tax law with no federal tax law change to the tax base is over \$35 million less than the alternatives in this study.

한국의 전통 예술은 현대 사회에서 어떻게 재해석되고 있는가?

But there is issued for each taxable year with the taxable income of every resident, nonresident and part year resident married individual who makes a timely return jointly with his spouse, a statement as provided in section 6013 of the Internal Revenue Code and upon every resident, nonresident and part year resident submitting a return for a return in section 6013 of the Internal Revenue Code have collected according to the following table:

(c) There is added for each taxable year with the taxable income of every taxpayer, corporation and part per centum trust of a new amount (as defined in section 1401 of the Internal Revenue Code), being computed according to the following table:

For the purposes shall compute and publish the States income tax liability for residents taxpayers at the amount of each bracket of adjusted gross income for the year 2000 and of the Internal Revenue Code applied as required by sec. 11 of this chapter in 5% steps from \$1,000 and \$10 steps to \$10,000 rounding the calculations to the nearest dollar. Not later than January 15th of the second year after the return shall date, the State shall publish the results of the calculations and the tax liability for each bracket of adjusted gross income for the year 2000 and of the Internal Revenue Code applied as required by sec. 11 of this chapter in 5% steps from \$1,000 and \$10 steps to \$10,000 rounding the calculations to the nearest dollar. Not later than January 15th of the second year after the return shall date, the State shall publish the results of the calculations and the tax liability for each bracket of adjusted gross income for the year 2000 and of the Internal Revenue Code applied as required by sec. 11 of this chapter in 5% steps from \$1,000 and \$10 steps to \$10,000 rounding the calculations to the nearest dollar.

ISSUES

Economic Efficiency

It is difficult to determine the effects on economic efficiency associated with reimposition of a state income tax. Individuals and businesses are making adjustments in light of the new federal tax and it is difficult to determine what additional adjustments would occur in response to a state income tax.

Income Elasticity

The income elasticity of individual income tax revenues, given progressive rates, is greater than one which is to say a given percentage change in income will produce a larger percentage change in tax revenues. Thus, during periods of income growth, individual income tax revenues will increase more than in proportion to the growth and, during periods of income decline, they will fall more than in proportion to the decline. This makes the individual income tax relatively unstable in terms of yield.

Equity

In terms of equity the individual income tax is generally considered the "fairest" tax. The burden or incidence of the tax falls primarily on the individual taxpayer and there is less opportunity for shift of incidence compared with the corporate income or business type taxes. Given a progressive rate schedule, the tax burden is based on the "ability to pay" principle of taxation and the nominal incidence is progressive. That is, as income level of the taxpayer increases, the nominal tax rate also increases. It should be noted though that state income taxes are deductible when computing taxable income for federal income tax purposes if the individual itemizes deductions. This has the effect of reducing the burden on individuals with higher incomes who are subject to higher marginal rates at the federal level and are also more likely to be in a position to itemize. The effect is to reduce the progressivity of the tax burden at the state level. This effect will be reduced, however, in light of recent scheduled income tax rate reductions enacted at the federal level.

Administration and Compliance

Reinstating the individual income tax after dismantling the administrative and compliance functions in the Department of Revenue could involve considerable start up costs. Audit and collection functions would have to be brought back on line. Personnel would have to be hired and trained, computer programs and procedures developed, etc. However, once the initial start up period was completed, administrative and compliance costs similar to previous levels relative to tax collections would probably be achieved.

The Alaska Net Income Tax law as it applies to corporations and as it applied to individuals before those sections were repealed is piggybacked on the federal income tax law. This means basically that the starting point for calculating Alaska taxable income is federal taxable income. The Alaska law follows the federal law as far as allowable deductions and exemptions are concerned unless specified otherwise. The state law specifies its own tax rate schedule which is independent of the federal rate schedules.

This piggybacking has advantages and disadvantages. The advantages are primarily administrative and relate to audit, compliance and collections functions. When the IRS audits returns and determines that there should be adjustments made they share this information with the state. This lowers the state's audit costs because it reduces the amount of information on a return that the state must verify independently. The disadvantage of piggybacking is that when federal tax laws are changed relative to deductions and exemptions there may be an impact on state tax collections unless the state changes its tax law accordingly.

Nonresident Taxpayers

This alternative captures the nonresident worker in the tax base fairly effectively. Alaskan employers submit payroll taxes regardless of the residence of the worker. The potential for avoiding estimated payments remains but is no worse or better for this alternative than any other.

The apportionment of nonresident (or part year resident) income, exemptions and deductions all seem fair and are generally consistent with practice in other states.

Intergovernmental Effects

All state income taxes are deductible from Federal income. This causes a leakage of tax from the federal government to the State. What the 1988 low case Table 8 below shows that for every dollar of Alaska tax paid, the taxpayer effectively pays only 78¢ while the Federal government leaks 22¢ of it to the State (\$86.2 million Federal leakage / \$399.3 million State tax liability).

On the other hand, the deductibility of property taxes (generally levied at the local government level), erodes the tax base of the State. The estimated leakage of tax from the State to local government estimated under this alternative is presented in the tables below. The 1988 low case Table 8 indicates a leakage from municipal property taxes of \$7.5 million.

Inflation Effects

Inflation adjustments are present in the exemption, deduction and income limit amounts of this tax alternative; however, the lack of inflation adjustment to the tax brackets in the rate structure will necessarily lead to bracket creep. What this means in practical terms, is that taxpayers may be no better off in any real sense (their income, after adjustment for inflation, is no greater) but may have to pay greater portions in tax. This can be mitigated with inflation indexed tax brackets.

TABLE 8
1988 TAX ALTERNATIVE ONE
LOW ECONOMIC SCENARIO

	N	PCTN	WAGE & SALARY SUM	ADJ GROSS INCOME SUM	TAXABLE INCOME SUM	NUMBER OF EXEMPTIONS SUM	VALUE OF EXEMPTIONS SUM	ITEMIZED DEDUCTIONS SUM	STANDARD DEDUCTIONS SUM
AGI GROUP									
LOSS	2878	1.19	26309170.00	-41678792.91	9522088.47	7805.00	15093065.29	21978299.00	8361481.80
00 TO \$10000	53355	22.06	248499609.00	305298080.85	51103488.58	78669.00	153385050.00	182077568.76	168834035.70
\$10001 TO \$20000	49490	20.46	668214244.00	769719577.88	361711133.07	91714.00	178824750.00	196100662.73	156198215.60
\$20001 TO \$30000	36082	14.92	822338578.00	943559133.02	567599932.03	82151.00	160156933.31	178839871.42	110198161.10
\$30001 TO \$40000	28778	11.90	971451140.00	1072829850.36	711225185.16	77343.00	150610013.87	177719720.99	73655960.10
\$40001 TO \$50000	22390	9.26	973365388.00	1068241985.88	746097930.25	65702.00	127937517.15	165810358.80	44977736.20
\$50001 TO \$60000	15856	6.56	815676730.00	923230676.83	661901490.79	48533.00	94469411.63	152000537.48	23540605.70
\$60001 TO \$70000	11225	4.64	683752605.00	777522186.01	575697419.09	35348.00	68617104.41	118871746.80	12946000.00
\$70001 TO \$80000	7883	3.26	542298253.00	636844305.28	482688052.22	25290.00	48879109.84	94435768.96	7230400.00
\$80001 TO \$90000	5208	2.15	398926188.00	485165674.57	376776961.75	16585.00	31662349.51	69861199.66	4521200.00
\$90001 TO \$100000	3243	1.34	256764893.00	349859148.04	277822663.84	10278.00	19120685.92	48547255.19	2540200.00
\$100001 TO \$150000	4837	2.00	425160325.00	668888559.51	548327386.29	15373.00	25887775.21	87967948.02	3339400.00
\$150001 TO \$200000	412	0.17	40720223.00	91310515.75	80761636.75	1223.00	743708.82	9273420.18	245100.00
\$200001 TO \$300000	55	0.02	4709336.00	22032721.97	20473845.20	128.00	6049.24	1497327.53	22000.00
\$300001 TO \$400000	93	0.04	15285945.00	44902551.76	41886181.28	297.00	0.00	2830620.46	69000.00
OVER \$400000	79	0.03	17348776.00	75394772.03	71074644.61	260.00	1950.00	4216627.42	28000.00
TOTAL	1241864	100	16910821433.00	8173120946.79	5584670039.37	556499.00	1075395474.20	1512078933.40	616707476.20

	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY PFD NONTAXABLE	LEAKAGE TO MUNICIPALITI- ES
	SUM	SUM	SUM	SUM
AGI GROUP				
LOSS	899316.93	226804.72	880081.22	14468.33
\$0 TO \$10000	2416119.14	92110.72	1839506.04	24833.16
\$10001 TO \$20000	17051401.49	579771.33	15040091.45	166253.58
\$20001 TO \$30000	30516317.42	2311360.21	28172968.47	452411.10
\$30001 TO \$40000	42108721.07	5401201.48	39617450.37	829369.83
\$40001 TO \$50000	47133370.87	8630545.22	44764018.51	1029036.05
\$50001 TO \$60000	44668609.82	10425030.21	42737348.02	1020584.71
\$60001 TO \$70000	41869107.58	10615382.12	40358933.79	942931.34
\$70001 TO \$80000	37367186.11	9777395.26	36239920.77	808293.19
\$80001 TO \$90000	30927599.34	8494474.62	30144541.35	650313.70
\$90001 TO \$100000	24391842.25	6964249.62	23886628.45	453872.72
\$100001 TO \$150000	52949084.81	15376563.61	52144393.42	925385.99
\$150001 TO \$200000	9159567.69	2490940.93	9087926.39	123591.08
\$200001 TO \$300000	2681239.56	681444.79	2673304.56	15894.97
\$300001 TO \$400000	5376237.33	1445019.79	5356628.58	43804.51
OVER \$400000	9756415.97	2731796.47	9740973.47	40764.87
TOTAL	399272137.36	86250091.11	382684714.86	7541809.13

AGE GROUP	N	PCIN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	ITEMIZED DEDUCTIONS	STANDARD DEDUCTIONS
1055	2878	1.19	9141.48	-2198.56	3388.58	2.71	5244.29	7656.66	4393.84
50 TO 61000	53355	22.06	4657.48	5748.09	957.00	1.47	2874.00	3412.57	3299.22
610001 TO 820000	49490	20.46	13502.01	15587.05	7308.77	1.85	3613.35	3962.43	3600.95
820001 TO 930000	36802	14.92	22790.83	26205.61	15730.83	2.28	4438.69	4956.48	4013.63
930001 TO 940000	28778	11.90	33756.73	37330.10	24714.20	2.69	5233.51	6175.54	4292.56
940001 TO 950000	22390	9.26	43473.22	47761.07	33322.82	2.93	5714.05	7405.55	4509.95
950001 TO 960000	15856	6.56	51442.78	58303.17	41744.54	3.06	5957.96	9586.31	4710.81
960001 TO 970000	11223	4.64	60913.37	69341.14	51287.08	3.15	6112.08	10589.91	4726.54
970001 TO 980000	7803	3.26	68793.39	80930.78	61231.52	3.21	6200.57	11979.67	4759.97
980001 TO 990000	5208	2.15	76598.73	93283.15	72345.81	3.18	6079.56	13414.21	4848.69
990001 TO 9100000	3243	1.34	79175.11	107947.90	85668.41	3.17	5895.99	14649.86	4875.62
9100001 TO 9150000	4837	2.00	87897.52	138371.65	113361.05	3.18	5352.83	18186.47	5129.65
91500001 TO 92000000	412	0.17	90835.49	221627.47	196823.39	2.97	1805.12	22508.30	4713.46
92000001 TO 93000000	55	0.02	85624.29	400594.94	372251.73	2.33	189.99	27224.14	4400.00
93000001 TO 94000000	93	0.04	164365.00	482823.14	450389.05	3.19	0.00	30974.41	5750.00
940000001 TO 940000000	79	0.03	219684.76	966599.64	899679.05	3.29	24.68	53375.83	4666.67
TOTAL	241864	100	28573.17	33870.36	23090.13	2.30	4444.28	6251.77	3795.61

	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY PFD NONTAXABLE	LEAKAGE TO MUNICIPALITI- ES
	MEAN	MEAN	MEAN	MEAN
AGI GROUP				
LOS5	312.48	78.81	305.80	5.03
\$0 TO \$10000	45.28	1.84	34.48	0.47
\$10001 TO \$20000	344.54	11.71	303.90	3.36
\$20001 TO \$30000	845.75	64.06	780.80	12.54
\$30001 TO \$40000	1463.23	187.69	1376.66	28.82
\$40001 TO \$50000	2105.11	385.46	1999.29	45.96
\$50001 TO \$60000	2817.14	657.48	2695.34	64.37
\$60001 TO \$70000	3729.99	945.69	3595.45	84.00
\$70001 TO \$80000	4740.22	1240.31	4597.22	102.54
\$80001 TO \$90000	5938.48	1631.04	5788.12	124.87
\$90001 TO \$100000	7521.38	2147.47	7365.60	139.95
\$100001 TO \$150000	10946.68	3178.95	10780.32	191.31
\$150001 TO \$200000	22231.96	6045.97	22058.07	299.98
\$200001 TO \$300000	48749.81	12389.91	48605.54	289.00
\$300001 TO \$400000	57809.00	15537.85	57598.16	471.02
OVER \$400000	123498.94	34579.70	123303.46	516.01
TOTAL	1650.81	356.61	1582.23	31.18

TABLE 9
1989 TAX ALTERNATIVE ONE
LOW ECONOMIC SCENARIO

	N	PCTN	WAGE & SALARY SUM	ADJ GROSS INCOME SUM	TAXABLE INCOME SUM	NUMBER OF EXEMPTIONS SUM	VALUE OF EXEMPTIONS SUM	ITEMIZED DEDUCTIONS SUM	STANDARD DEDUCTIONS SUM
AGI GROUP									
LOSS	2727	1.14	24379758.00	-59527626.97	8539877.59	7470.00	14846327.64	21084905.50	8367769.76
\$0 TO \$10000	49750	20.81	232987396.00	286672325.82	43820769.88	73786.00	147556000.00	176304462.61	163787805.25
\$10001 TO \$20000	48252	20.19	656298356.00	751585286.54	343897257.30	89031.00	178042000.00	195143890.35	157531673.01
\$20001 TO \$30000	35369	14.80	812405077.00	923763680.84	548745272.46	79515.00	159008000.00	177599705.33	112547490.52
\$30001 TO \$40000	28712	12.01	985741252.00	1070678566.88	706774140.62	76053.00	151948000.00	176830167.86	77262576.00
\$40001 TO \$50000	22522	9.42	989322698.00	1074621071.55	746927729.42	65638.00	131085200.65	166106723.06	48722923.85
\$50001 TO \$60000	15948	6.67	819697745.00	928255468.79	661843839.95	48377.00	96615931.55	153682669.80	25767530.03
\$60001 TO \$70000	11568	4.84	704321793.00	801060959.06	589753611.64	36355.00	72433344.64	123148975.88	14463323.70
\$70001 TO \$80000	8326	3.48	572604837.00	673113198.20	507520192.42	26733.00	53047841.18	100359852.33	8500826.94
\$80001 TO \$90000	5626	2.35	431283215.00	523202734.79	404613126.68	17881.00	35189627.87	75257881.92	5220974.82
\$90001 TO \$100000	3642	1.52	288673205.00	394794853.94	311889364.95	11567.00	22348398.95	55279979.96	2997955.44
\$100001 TO \$150000	5790	2.42	512296742.00	802432875.56	655680697.13	18561.00	32805332.25	105314904.19	4263216.36
\$150001 TO \$200000	541	0.23	56662960.00	119475168.33	105190074.84	1648.00	1339483.93	12180009.57	375576.60
\$200001 TO \$300000	64	0.03	6216251.00	25806499.57	24055611.52	148.00	0.00	1675688.05	24070.20
\$300001 TO \$400000	106	0.04	18829475.00	48952894.76	45458394.83	356.00	346.64	3326953.30	95235.00
OVER \$400000	90	0.04	17208477.00	94194971.63	89647513.03	285.00	4000.00	4430533.40	79197.60
TOTAL	1239033	100	7129129237.00	8459082929.26	5794357474.22	553404.00	1096269835.30	1547727303.11	630008145.07

	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY PFD NONTAXABLE	LEAKAGE TO MUNICIPALITI- ES
	SUM	SUM	SUM	SUM
AGI GROUP				
LOSS	808923.16	208229.55	798731.76	12881.84
\$0 TO \$10000	2115386.81	79224.36	1567745.78	25258.59
\$10001 TO \$20000	16316172.68	578141.30	14261707.09	166454.98
\$20001 TO \$30000	29677495.73	2259090.19	27253699.14	445791.36
\$30001 TO \$40000	42283555.05	5512458.96	39574487.13	846028.86
\$40001 TO \$50000	47442576.99	8720754.05	44917154.87	1050869.83
\$50001 TO \$60000	44863279.29	10445742.78	42808462.57	1021133.64
\$60001 TO \$70000	42954318.61	10911696.96	41300160.27	975451.34
\$70001 TO \$80000	39314874.25	10315268.98	38046344.56	857588.83
\$80001 TO \$90000	33206170.17	9098697.08	32305800.59	685111.56
\$90001 TO \$100000	27393323.70	7815786.38	26786425.38	512139.84
\$100001 TO \$150000	63242606.10	18363433.37	62210257.41	1110627.65
\$150001 TO \$200000	11856187.39	3269577.40	11753508.48	160691.83
\$200001 TO \$300000	3127435.48	784508.26	3116691.48	22439.53
\$300001 TO \$400000	5788830.78	1525859.44	5764690.78	46897.36
OVER \$400000	12401223.39	3352803.97	12383359.39	48385.63
TOTAL	422712359.59	93233273.04	404841226.66	7987721.85

	N	PCTN	WAGE & SALARY MEAN	ADJ GROSS INCOME MEAN	TAXABLE INCOME MEAN	NUMBER OF EXEMPTIONS MEAN	VALUE OF EXEMPTIONS MEAN	ITEMIZED DEDUCTIONS MEAN	STANDARD DEDUCTIONS MEAN
AGI GROUP									
LOSS	2727	1.14	9013.48	-21885.16	3131.60	2.74	9444.20	7731.91	4575.85
\$0 TO \$10000	49750	20.81	4683.16	5787.85	880.82	1.48	2965.95	3543.81	3438.61
\$10001 TO \$20000	48252	20.19	13601.47	15610.54	7127.11	1.85	3689.84	4844.27	3731.03
\$20001 TO \$30000	35369	14.80	22969.41	26168.20	15514.87	2.25	4495.69	5021.34	4141.43
\$30001 TO \$40000	28712	12.01	34332.03	37342.30	24615.98	2.65	5292.14	6158.75	4420.31
\$40001 TO \$50000	22522	9.42	43926.95	47771.55	33164.36	2.91	5820.32	7375.31	4631.02
\$50001 TO \$60000	15948	6.67	51398.15	58278.22	41500.12	3.03	6058.18	9636.49	4883.91
\$60001 TO \$70000	11568	4.84	60885.36	69343.92	50981.47	3.14	6261.53	10645.66	4926.20
\$70001 TO \$80000	8326	3.48	68773.10	81019.88	60956.06	3.21	6371.35	12053.79	4985.82
\$80001 TO \$90000	5626	2.35	76658.94	93146.29	71918.44	3.18	6254.82	13376.80	5054.19
\$90001 TO \$100000	3642	1.52	79262.27	108489.93	85636.84	3.18	6136.30	15178.47	5133.49
\$100001 TO \$150000	5790	2.42	88479.58	138637.33	113243.64	3.21	5665.86	18189.10	5329.02
\$150001 TO \$200000	541	0.23	104737.45	220841.35	194436.37	3.05	2475.94	22513.83	5216.34
\$200001 TO \$300000	64	0.03	97128.92	403226.56	375868.93	2.31	0.00	26182.63	4814.04
\$300001 TO \$400000	106	0.04	177636.56	461819.76	428852.78	3.36	3.27	31386.35	6349.00
OVER \$400000	98	0.04	191205.30	1070397.40	996083.48	3.17	44.44	49228.15	4949.85
TOTAL	239033	100	29824.87	35468.60	24240.83	2.32	4586.27	6474.95	3954.83

	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY PFD NONTAXABLE	LEAKAGE TO MUNICIPALITI- ES
	MEAN	MEAN	MEAN	MEAN
AGI GROUP				
LOSS :	296.63	76.36	289.96	4.72
\$0 TO \$10000	42.52	1.59	31.51	0.51
\$10001 TO \$20000	338.15	11.82	295.57	3.45
\$20001 TO \$30000	839.88	63.87	770.55	12.60
\$30001 TO \$40000	1469.89	191.99	1378.33	29.47
\$40001 TO \$50000	2106.50	387.21	1994.37	46.66
\$50001 TO \$60000	2813.10	654.99	2684.25	64.03
\$60001 TO \$70000	3713.20	943.27	3570.21	84.32
\$70001 TO \$80000	4721.94	1238.92	4569.58	102.99
\$80001 TO \$90000	5902.27	1617.26	5742.23	121.78
\$90001 TO \$100000	7521.51	2146.01	7354.87	140.62
\$100001 TO \$150000	10922.73	3171.58	10744.43	191.82
\$150001 TO \$200000	21915.32	6043.58	21725.52	297.03
\$200001 TO \$300000	48866.18	12257.94	48698.30	351.40
\$300001 TO \$400000	54611.61	14394.90	54383.88	442.43
OVER \$400000	137791.37	37253.38	137592.88	537.62
TOTAL	1768.43	390.04	1693.66	33.42

TABLE 10
1990 TAX ALTERNATIVE ONE
LOW ECONOMIC SCENARIO

	N	PCTN	WAGE & SALARY SUM	ADJ GROSS INCOME SUM	TAXABLE INCOME SUM	NUMBER OF EXEMPTIONS SUM	VALUE OF EXEMPTIONS SUM	ITEMIZED DEDUCTIONS SUM	STANDARD DEDUCTIONS SUM
AGI GROUP									
LOSS	2622	1.13	25526126.00	-54911695.16	11333431.23	7222.00	14955107.50	21076660.44	8483328.04
\$0 TO \$10000	45296	19.52	209413184.00	268591560.84	35461641.15	67414.00	140990635.47	168623804.08	158474657.30
\$10001 TO \$20000	44893	19.34	607363524.00	699222851.00	309927139.85	81794.00	171067780.80	188890844.23	159317118.76
\$20001 TO \$30000	33958	14.63	775758196.00	888313489.07	520665780.64	74942.00	156725679.60	174641883.02	113826028.76
\$30001 TO \$40000	27907	12.03	956564806.00	1040705076.59	680127666.79	72648.00	151780933.34	175199547.49	79145947.52
\$40001 TO \$50000	22315	9.62	978808639.00	1064817448.92	733981817.95	64267.00	134250481.18	166743279.85	51893937.69
\$50001 TO \$60000	16087	6.93	828475374.00	936611011.46	663039984.41	48500.00	101311016.69	155989373.02	28052083.90
\$60001 TO \$70000	11938	5.14	724824159.00	826709341.16	605454012.30	37315.00	77766208.92	127314481.14	16394745.37
\$70001 TO \$80000	8778	3.78	604631162.00	710172238.27	532791585.96	28093.00	58339638.05	106166096.46	9759496.30
\$80001 TO \$90000	6192	2.67	471880182.00	576217347.26	443325723.96	19739.00	40637328.28	83488960.27	6193680.48
\$90001 TO \$100000	4132	1.78	328407845.00	444702445.62	350006028.77	13145.00	26701728.73	61964092.34	3612900.38
\$100001 TO \$150000	4952	3.00	609539110.00	964848535.81	785154740.35	22506.00	41902973.58	127339108.48	5737862.54
\$150001 TO \$200000	709	0.31	77427061.00	153190549.32	133381755.73	2237.00	2413340.31	16365853.28	561657.74
\$200001 TO \$300000	79	0.03	8081215.00	27081756.16	25212211.63	198.00	9600.75	1756743.78	47173.20
\$300001 TO \$400000	110	0.05	17519133.00	53161612.12	48748186.34	372.00	2370.19	4237455.58	72153.50
OVER \$400000	100	0.04	18918257.00	100847567.87	95247484.78	312.00	2091.60	5456164.19	73015.70
TOTAL	232068	100	7243137973.00	8692281137.11	5973859191.81	540704.00	1118856914.97	1585253547.67	641645785.17

TAX LIABILITY PAID FROM FEDERAL TAX	TAX LIABILITY PAID FROM STATE TAX	TAX LIABILITY PAID FROM MUNICIPALITY	LEAKAGE TO MUNICIPALITY
SUM	SUM	SUM	SUM
1190245.11	300374.02	1130168.50	13983.95
1721078.40	64146.42	1259468.76	18032.66
14649898.05	493021.09	12787220.48	148348.58
28294563.04	2176476.72	25998866.64	429967.78
40840369.17	5374622.20	38322947.28	825167.34
46831481.59	8556267.09	44362058.51	1037843.30
44972149.02	10500952.60	42918814.06	1032387.41
44125903.80	11190827.17	42428191.10	1003443.35
41294042.67	10823344.54	39962602.43	902539.06
36341465.11	9920639.54	35352120.42	760544.43
30589051.64	8789922.35	29902313.22	574039.78
75393347.75	21849634.45	741446603.31	1336840.58
14821388.68	4105563.55	14683961.01	223447.27
3168456.60	812254.38	3153812.60	26615.02
6237269.25	1658120.39	6212209.25	57266.27
13101479.29	3668414.20	13080135.09	50487.99
443532190.05	100284580.71	425700512.86	8438994.36
TOTAL			

AGI GROUP	N	PCTN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	ITEMIZED DEDUCTIONS	STANDARD DEDUCTIONS
			MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
LOSS	2622	1.13	9735.36	-20990.71	4322.44	2.75	5703.70	8038.39	4828.30
\$0 TO \$10000	45296	19.52	4623.22	5778.60	782.89	1.49	3112.65	3722.69	2619.63
\$10001 TO \$20000	44893	19.34	13529.14	15611.83	6903.69	1.82	3810.57	4207.58	2881.24
\$20001 TO \$30000	33958	14.63	22844.64	26213.99	15332.64	2.21	4615.28	5142.88	313.39
\$30001 TO \$40000	27907	12.03	34276.88	37342.75	24371.22	2.60	5438.81	6277.98	-594.03
\$40001 TO \$50000	22315	9.62	43863.26	47773.23	32891.86	2.88	6016.15	7472.25	-786.82
\$50001 TO \$60000	16087	6.93	51499.68	58301.34	41215.89	3.01	6297.69	9696.61	5092.05
\$60001 TO \$70000	11938	5.14	60715.71	69348.99	50716.54	3.13	6514.17	10664.64	531.38
\$70001 TO \$80000	8778	3.78	64880.29	81005.16	60696.24	3.20	6646.12	12094.57	5193.98
\$80001 TO \$90000	6192	2.67	76208.04	93223.97	71596.53	3.19	6562.88	13483.36	5080.21
\$90001 TO \$100000	4132	1.78	79479.15	107650.07	84706.20	3.18	6462.18	14996.15	5120.91
\$100001 TO \$150000	6952	3.00	87678.24	138827.13	112939.40	3.24	6027.47	18316.90	5557.91
\$150001 TO \$200000	709	0.31	109206.01	216065.65	188126.59	3.16	3403.87	23083.01	5526.45
\$200001 TO \$300000	79	0.03	102293.86	342807.04	319141.92	2.51	121.53	22237.26	5156.65
\$300001 TO \$400000	110	0.05	159264.85	483287.38	443165.33	3.38	21.55	38522.32	4559.41
OVER \$400000	100	0.04	189182.57	1018662.30	952474.85	3.12	20.92	54561.44	5116.59
TOTAL	232068	100	31211.27	37538.41	25741.85	2.33	4821.25	6830.99	1149.31

	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY PFD NONTAXABLE	LEAKAGE TO MUNICIPALITI- ES
	MEAN	MEAN	MEAN	MEAN
AGI GROUP				
LOSS	438.69	114.56	431.03	5.33
\$0 TO \$10000	58.00	1.42	27.81	0.40
\$10001 TO \$20000	326.33	10.98	284.84	3.31
\$20001 TO \$30000	833.22	64.09	765.65	12.66
\$30001 TO \$40000	1463.45	192.59	1373.24	29.57
\$40001 TO \$50000	2098.65	383.43	1987.99	46.51
\$50001 TO \$60000	2795.56	652.76	2667.92	64.18
\$60001 TO \$70000	3696.26	937.41	3554.05	84.05
\$70001 TO \$80000	4704.27	1233.01	4352.59	102.82
\$80001 TO \$90000	5869.10	1602.17	5709.32	122.83
\$90001 TO \$100000	7402.97	2127.28	7236.77	138.93
\$100001 TO \$150000	10844.84	3142.93	10665.22	192.01
\$150001 TO \$200000	20904.64	5790.64	20710.81	315.16
\$200001 TO \$300000	40107.05	10281.70	39921.68	336.90
\$300001 TO \$400000	56702.45	15073.82	56474.63	520.60
OVER \$400000	131014.79	36684.14	130801.35	504.88
TOTAL	1911.22	432.13	1834.38	36.36

TABLE 11
1991 TAX ALTERNATIVE ONE
LOW ECONOMIC SCENARIO

AGI GROUP	N	PCTN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	ITEMIZED DEDUCTIONS	STANDARD DEDUCTIONS
			SUM	SUM	SUM	SUM	SUM	SUM	SUM
LOSS	2419	1.07	22722616.00	-48966407.45	9697792.17	6664.00	14468915.64	19574019.26	8189143.56
\$0 TO \$10000	42107	18.55	193833384.00	241699360.09	29806371.81	62257.00	136176587.00	163415328.15	155432229.09
\$10001 TO \$20000	42552	18.74	573637888.00	663765627.54	285202344.27	76780.00	167937635.00	185411324.71	158306421.37
\$20001 TO \$30000	32994	14.53	751855480.00	861414298.61	497522399.55	71271.00	155885061.00	173732249.71	115890927.74
\$30001 TO \$40000	27248	12.00	933776569.00	1016421637.12	658895697.42	69442.00	151728471.99	172656130.28	81040430.83
\$40001 TO \$50000	21843	9.62	956248447.00	1042692481.52	713241840.92	61808.00	135056358.54	165878703.87	54379153.88
\$50001 TO \$60000	16104	7.09	828050505.00	938350265.57	660747128.36	47990.00	104844269.40	156683042.18	30406753.84
\$60001 TO \$70000	12292	5.41	746748943.00	851055079.46	619440346.65	38192.00	83306535.04	131753600.07	18235957.04
\$70001 TO \$80000	9227	4.06	634749096.00	745792375.32	556753370.83	29334.00	63852393.40	111702118.27	11195935.36
\$80001 TO \$90000	6585	2.90	504345180.00	613002694.62	469110985.06	20956.00	45309622.99	89242122.52	7094186.64
\$90001 TO \$100000	4516	1.99	358621482.00	489577935.00	383977340.94	14463.00	30759375.32	68386060.98	4302698.44
\$100001 TO \$150000	7982	3.52	707583864.00	1107770863.76	898085467.76	25739.00	51258246.52	146445074.28	7255194.80
\$150001 TO \$200000	917	0.40	95826032.00	202428533.36	176850429.20	2895.00	3572277.85	20661826.31	804320.92
\$200001 TO \$300000	91	0.04	8526371.00	34485304.75	32249030.01	211.00	6936.16	2118138.57	87348.32
\$300001 TO \$400000	91	0.04	14471967.00	44541391.74	41317990.67	306.00	3398.36	3078402.71	89206.50
OVER \$400000	82	0.04	18777337.00	81885809.63	78164222.52	259.00	0.00	3599987.11	59946.20
TOTAL	1227050	100	7349775161.00	8885917250.63	6111062758.12	528567.00	1144166084.22	1614338128.97	652769854.54

TAX LIABILITY FED TAXABLE	SUM	PAID FROM FEDRL TAX	SUM	TAX LIABILITY FED NONTAXABLE	SUM	LEAKAGE TO MUNICIPALITI- ES	SUM
AGI GROUP							
LOSS	955445.47	249725.47		936768.88		13893.82	
\$0 TO \$10000	1459624.03	52913.50		1057087.90		17518.77	
\$10001 TO \$20000	13484520.13	461182.36		11769617.94		136692.18	
\$20001 TO \$30000	27868433.31	2068864.05		24866765.51		408445.69	
\$30001 TO \$40000	39802425.27	5287922.42		37380146.55		801481.07	
\$40001 TO \$50000	45719348.98	8322320.52		43336429.70		1015949.52	
\$50001 TO \$60000	45010846.44	10405556.45		42979672.25		102227.66	
\$60001 TO \$70000	45147499.37	11460365.85		43412174.48		1025604.76	
\$70001 TO \$80000	43888121.84	11294176.42		41684343.39		943982.02	
\$80001 TO \$90000	38419457.66	10502066.81		37369412.41		814657.32	
\$90001 TO \$100000	33664907.26	9596874.51		32914176.72		619610.48	
\$100001 TO \$150000	86134545.24	25112915.17		84701787.69		1540184.28	
\$150001 TO \$200000	19749940.41	5492629.14		19570493.93		275021.67	
\$200001 TO \$300000	4150277.79	1033242.99		4134433.79		27915.60	
\$300001 TO \$400000	5311376.09	1441996.29		5290958.79		45592.12	
OVER \$400000	10749404.27	2857015.68		107331772.27		49046.39	
TOTAL	459900173.54	105715767.02		442136834.19		8770872.55	

	N	PCTN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	ITEMIZED DEDUCTIONS	STANDARD DEDUCTIONS
			MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
AGI GROUP									
LOSS	2419	1.07	9393.39	-20284.34	4009.01	2.75	5981.36	8091.78	5058.15
\$0 TO \$10000	42107	18.55	4603.35	5765.59	707.87	1.48	3234.06	3880.95	3778.68
\$10001 TO \$20000	42552	18.74	13480.87	15631.26	6702.44	1.80	3946.64	4357.29	4047.72
\$20001 TO \$30000	32994	14.53	22787.64	26162.92	15079.18	2.16	4724.65	5265.57	4470.58
\$30001 TO \$40000	27248	12.00	34269.55	37354.71	24181.43	2.55	5568.43	6336.47	4759.25
\$40001 TO \$50000	21843	9.62	43778.26	47788.28	32653.11	2.83	6183.05	7594.14	4978.86
\$50001 TO \$60000	16104	7.09	51418.93	58344.23	41030.00	2.98	6510.45	9729.45	5287.21
\$60001 TO \$70000	12292	5.41	60750.81	69338.04	50393.78	3.11	6777.30	10718.65	5347.79
\$70001 TO \$80000	9227	4.06	68792.58	80950.00	60339.59	3.18	6920.17	12106.01	5427.02
\$80001 TO \$90000	6585	2.90	76590.00	93246.53	71239.33	3.18	6880.73	13552.33	5503.64
\$90001 TO \$100000	4516	1.99	79411.31	108457.67	85025.98	3.20	6811.20	15143.06	5646.59
\$100001 TO \$150000	7982	3.52	88647.44	138853.20	112513.84	3.22	6421.73	18346.91	5888.96
\$150001 TO \$200000	917	0.40	104499.49	220750.85	192857.61	3.16	3895.61	22531.98	5786.48
\$200001 TO \$300000	91	0.34	93696.38	378959.39	354384.95	2.32	76.22	23276.25	5823.22
\$300001 TO \$400000	91	0.04	159032.60	489465.84	454043.85	3.36	37.34	33828.60	6371.89
OVER \$400000	82	0.04	228991.91	998607.43	953222.23	3.16	0.00	43902.28	5449.65
TOTAL	227050	100	32370.73	39219.30	26915.05	2.33	5039.27	7110.06	4339.59

	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY PFD NONTAXABLE	LEAKAGE TO MUNICIPALITI- ES
	MEAN	MEAN	MEAN	MEAN
AGI GROUP				
LOSS	394.98	101.58	387.25	5.74
\$0 TO \$10000	34.66	1.26	25.12	0.42
\$10001 TO \$20000	316.90	10.84	276.59	3.21
\$20001 TO \$30000	820.16	62.70	753.68	12.38
\$30001 TO \$40000	1460.75	194.07	1371.85	29.41
\$40001 TO \$50000	2093.09	381.01	1984.00	46.51
\$50001 TO \$60000	2795.01	651.12	2668.88	63.79
\$60001 TO \$70000	3672.92	932.34	3531.74	83.44
\$70001 TO \$80000	4668.92	1224.04	4517.65	102.31
\$80001 TO \$90000	5834.39	1594.85	5674.93	123.71
\$90001 TO \$100000	7454.59	2125.08	7288.35	137.20
\$100001 TO \$150000	10791.10	3146.19	10611.60	193.96
\$150001 TO \$200000	21537.56	5989.78	21341.87	299.91
\$200001 TO \$300000	45607.45	11354.32	45433.34	306.76
\$300001 TO \$400000	58366.77	15846.11	58142.32	501.01
OVER \$400000	131090.30	34841.65	130875.27	598.13
TOTAL	2025.55	465.61	1947.31	38.63

TABLE 12
1992 TAX ALTERNATIVE ONE
LOW ECONOMIC SCENARIO

	N	PCTH	WAGE & SALARY SUM	ADJ GROSS INCOME SUM	TAXABLE INCOME SUM	NUMBER OF EXEMPTIONS SUM	VALUE OF EXEMPTIONS SUM	ITEMIZED DEDUCTIONS SUM	STANDARD DEDUCTIONS SUM
AGI GROUP									
LOSS	2264	1.03	21510055.00	-48921117.13	8114347.25	6330.00	14384194.44	18863524.74	8114243.02
\$0 TO \$10000	38092	17.35	173424469.00	218101755.25	23788322.16	56474.00	129185347.20	155174388.06	147773688.14
\$10001 TO \$20000	39603	18.04	531457697.00	618621308.98	257937418.47	70168.00	160509454.00	179307812.24	155171903.87
\$20001 TO \$30000	31514	14.35	715441887.00	822644758.59	467034651.20	46914.00	153042727.60	170561026.02	117073787.49
\$30001 TO \$40000	26099	11.89	884436553.00	969951666.68	620734000.89	65254.00	149178971.20	169210251.67	81851749.25
\$40001 TO \$50000	21295	9.70	925620350.00	1017112468.21	690264912.17	59416.00	135753966.36	163329146.61	56694376.20
\$50001 TO \$60000	16056	7.31	824716113.00	935551453.61	654404147.90	47366.00	108233956.20	157095074.37	32668999.51
\$60001 TO \$70000	12422	5.66	752396329.00	862414743.02	624635880.11	38291.00	87347154.61	133696562.59	20038019.25
\$70001 TO \$80000	9564	4.36	657913473.00	773528676.35	573470189.91	30524.00	69524885.52	116622587.60	12781926.80
\$80001 TO \$90000	7028	3.20	536363704.00	655823705.91	500347250.32	22269.00	50447780.07	95256782.34	8289646.80
\$90001 TO \$100000	4866	2.22	385216038.00	526313960.95	409804453.11	15613.00	34820123.27	74625087.75	5142120.00
\$100001 TO \$150000	9346	4.26	835105299.00	1304899322.58	1055418619.10	30255.00	63751156.73	171645717.94	8996436.00
\$150001 TO \$200000	1171	0.53	126341782.00	258367717.96	224494628.73	3716.00	5403653.06	26731036.17	1093440.00
\$200001 TO \$300000	143	0.07	13834587.00	50797706.62	47043251.32	378.00	28787.04	3532868.26	131494.40
\$300001 TO \$400000	37	0.02	5966913.00	17275554.88	16280573.60	110.00	0.00	939781.28	47270.00
OVER \$400000	84	0.04	16066422.00	77918048.33	73140582.27	275.00	0.00	4644666.06	65783.00
TOTAL	219584	100	7405811671.00	9060393730.75	6246913228.49	513353.00	1161612157.31	1641236313.68	655934888.73

	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY PFD NONTAXABLE	LEAKAGE TO MUNICIPALITI- ES
	SUM	SUM	SUM	SUM
AGI GROUP				
LOSS	795487.64	204310.63	779743.86	11954.47
00 TO \$10000	1190966.42	49810.19	858601.13	13962.27
\$10001 TO \$20000	12140871.45	406609.81	10587816.86	123358.64
\$20001 TO \$30000	25487672.14	1950395.30	23428446.44	379028.15
\$30001 TO \$40000	37599443.16	4962217.96	35322102.52	750218.21
\$40001 TO \$50000	44480283.59	8005716.99	42189380.67	969291.06
\$50001 TO \$60000	44648919.03	10369611.73	42644930.09	1024817.55
\$60001 TO \$70000	45681974.16	11619068.37	43941446.54	1032769.93
\$70001 TO \$80000	44362325.70	11591927.63	42922452.64	978010.43
\$80001 TO \$90000	41079226.67	11190384.11	39962027.68	872395.31
\$90001 TO \$100000	35766562.35	10208858.59	34958009.11	677680.77
\$100001 TO \$150000	101205411.47	29695415.21	99521833.28	1790557.11
\$150001 TO \$200000	24950436.79	6931801.88	24718510.45	355159.25
\$200001 TO \$300000	5914369.39	1532480.58	5836965.39	45459.03
\$300001 TO \$400000	2092857.17	586000.01	2084853.17	9511.71
OVER \$400000	10005640.43	2710828.15	9987544.43	42710.18
TOTAL	477402497.56	112015437.13	459794663.47	9076884.07

	N	PCTN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	ITEMIZED DEDUCTIONS	STANDARD DEDUCTIONS
			MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
AGI GROUP									
LOSS	2264	1.03	9500.91	-21656.09	3584.08	2.80	6353.44	8331.95	5334.81
\$0 TO \$10000	38092	17.35	4552.78	5750.26	624.50	1.48	3391.40	4073.67	3968.89
\$10001 TO \$20000	39603	18.04	13419.63	15652.98	6513.08	1.77	4052.96	4527.63	4226.50
\$20001 TO \$30000	31514	14.35	22702.35	26162.22	14819.21	2.12	4856.34	5412.23	4644.13
\$30001 TO \$40000	26099	11.89	33887.76	37219.94	23783.82	2.50	5715.89	6483.40	4953.21
\$40001 TO \$50000	21295	9.70	43466.56	47816.86	32414.41	2.79	6374.92	7669.84	5198.93
\$50001 TO \$60000	16056	7.31	51364.98	58340.70	40757.61	2.95	6741.03	9784.20	5498.91
\$60001 TO \$70000	12422	5.66	60569.66	69515.94	50284.65	3.08	7031.65	10762.89	5567.66
\$70001 TO \$80000	9564	4.36	68790.62	81006.25	59961.33	3.19	7269.44	12193.91	5658.22
\$80001 TO \$90000	7028	3.20	76318.11	93462.12	71193.40	3.17	7178.11	13553.90	5748.71
\$90001 TO \$100000	4866	2.22	79164.82	108206.00	84217.93	3.21	7155.80	15336.02	5863.31
\$100001 TO \$150000	9346	4.26	89354.30	139680.94	112927.31	3.24	6821.22	18365.69	6103.42
\$150001 TO \$200000	1171	0.53	107892.21	220638.53	191711.89	3.17	4614.56	22827.53	6177.63
\$200001 TO \$300000	143	0.07	96745.36	355228.72	328973.79	2.64	201.31	24705.37	6261.64
\$300001 TO \$400000	37	0.02	161267.92	466906.89	440015.50	2.97	0.00	25399.49	6752.86
OVER \$400000	84	0.04	191266.93	927500.58	870721.22	3.27	0.00	55293.64	5980.73
TOTAL	1219584	100	33726.55	41346.55	28448.85	2.34	5290.06	7474.30	4557.79

	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY PFD NONTAXABLE	LEAKAGE TO MUNICIPALITI- ES
	MEAN	MEAN	MEAN	MEAN
AGI GROUP				
LOSS	351.36	90.24	344.41	5.28
\$0 TO \$10000	31.27	1.31	22.54	0.37
\$10001 TO \$20000	306.56	10.27	267.35	3.11
\$20001 TO \$30000	808.77	61.89	743.43	12.03
\$30001 TO \$40000	1440.65	190.13	1353.39	28.75
\$40001 TO \$50000	2088.77	375.94	1981.19	45.52
\$50001 TO \$60000	2780.82	645.84	2656.01	63.83
\$60001 TO \$70000	3677.51	935.36	3537.39	83.14
\$70001 TO \$80000	4638.47	1212.04	4487.92	102.26
\$80001 TO \$90000	5845.08	1592.26	5686.12	124.13
\$90001 TO \$100000	7350.30	2098.00	7184.14	139.27
\$100001 TO \$150000	10828.74	3177.34	10648.60	191.59
\$150001 TO \$200000	21306.99	5919.56	21108.89	303.30
\$200001 TO \$300000	41359.23	10716.65	41167.59	317.90
\$300001 TO \$400000	56563.71	15837.84	56347.38	257.07
OVER \$400000	119114.77	32271.76	118899.34	508.45
TOTAL	2174.12	510.13	2093.94	41.34

Liability to Collections

The projected time pattern generated from 1970 - 1979 accounting data can be used to translate the projected tax year collections presented in the tables below into gross receipts (col. 2), refunds (col. 3), and net receipts (col. 4) by quarter and fiscal year. The U. S. Consumer Price Index (col. 5) is used to deflate or inflate the net receipts in nominal dollars to real 1986 dollars (col. 6) so we can compare estimated 1988 through 1992 projected fiscal year collections to actual collections from 1975 through 1979.

TABLE 13
LIABILITY TO COLLECTIONS
TAX ALTERNATIVE ONE
LOW ECONOMIC SCENARIO

-----USING HISTORICAL DATA-----											
FY/Q	GROSS RECEIPTS (\$m nom)	REFUNDS (\$m nom)	NET RECEIPTS (\$m nom)	CPI	NET REC \$86 (\$m real)	FY/Q	GROSS RECEIPTS (\$m nom)	REFUNDS (\$m nom)	NET RECEIPTS (\$m nom)	CPI	NET REC \$86 (\$m real)
86				325.98		86				325.98	
75/1	\$18	\$1	\$17			88/1	\$0	\$1	(\$1)		
/2	\$25	\$0	\$25			/2	\$0	\$0	(\$0)		
/3	\$27	\$2	\$25			/3	\$1	\$3	(\$1)		
/4	\$34	\$14	\$21			/4	\$80	\$6	\$74		
TOTAL	\$104	\$16	\$87	155.16	\$184	TOTAL	\$81	\$9	\$72	338.66	\$69
76/1	\$36	\$2	\$34			89/1	\$106	\$5	\$101		
/2	\$46	\$1	\$45			/2	\$140	\$2	\$138		
/3	\$47	\$13	\$34			/3	\$136	\$16	\$120		
/4	\$50	\$16	\$34			/4	\$114	\$36	\$78		
TOTAL	\$178	\$31	\$147	166.17	\$288	TOTAL	\$496	\$60	\$437	354.17	\$402
77/1	\$53	\$3	\$50			90/1	\$112	\$6	\$106		
/2	\$62	\$1	\$61			/2	\$148	\$2	\$146		
/3	\$77	\$15	\$63			/3	\$144	\$20	\$124		
/4	\$60	\$22	\$38			/4	\$120	\$44	\$77		
TOTAL	\$252	\$41	\$210	175.80	\$390	TOTAL	\$525	\$72	\$453	370.39	\$398
78/1	\$46	\$3	\$43			91/1	\$118	\$5	\$113		
/2	\$43	\$1	\$42			/2	\$155	\$2	\$154		
/3	\$42	\$6	\$36			/3	\$151	\$16	\$135		
/4	\$50	\$25	\$25			/4	\$125	\$35	\$91		
TOTAL	\$181	\$36	\$146	187.62	\$253	TOTAL	\$549	\$57	\$493	387.35	\$415
79/1	\$43	\$10	\$33			92/1	\$122	\$5	\$117		
/2	\$42	\$1	\$41			/2	\$161	\$2	\$159		
/3	\$42	\$15	\$27			/3	\$157	\$15	\$141		
/4	\$47	\$31	\$16			/4	\$126	\$34	\$93		
TOTAL	\$174	\$57	\$117	205.22	\$186	TOTAL	\$566	\$55	\$511	405.09	\$411

TABLE 14
1988 TAX ALTERNATIVE ONE
MODERATE ECONOMIC SCENARIO

	N	PCTN	WAGE & SALARY SUM	ADJ GROSS INCOME SUM	TAXABLE INCOME SUM	NUMBER OF EXEMPTIONS SUM	VALUE OF EXEMPTIONS SUM	ITEMIZED DEDUCTIONS SUM	STANDARD DEDUCTIONS SUM
AGI GROUP									
LOSS	3100	1.17	28281141.00	-61444490.96	11505727.51	8295.00	16031015.29	23199403.58	8920079.40
0 TO \$10000	59403	22.42	270122023.00	338555016.00	56644579.29	85667.00	167031150.00	202316548.83	188501300.20
\$10001 TO \$20000	54784	20.68	728576580.00	851035482.08	404898280.60	98951.00	192938850.00	216241954.99	174005920.40
\$20001 TO \$30000	39411	14.88	891007933.00	1030107863.38	623992788.56	88043.00	171646333.31	194628692.21	119972045.00
\$30001 TO \$40000	31031	11.71	1030650179.00	1150799371.58	764557341.66	81746.00	159257939.75	191698072.98	79069707.80
\$40001 TO \$50000	23954	9.04	1032909499.00	1142649829.99	799475004.57	69458.00	135255859.46	178033078.14	48153836.10
\$50001 TO \$60000	17163	6.48	882968616.00	998647869.19	718014053.73	51769.00	100765961.63	163584738.02	25302837.20
\$60001 TO \$70000	12206	4.61	742422172.00	844152753.33	625583999.21	38244.00	74256265.58	128844532.84	14164300.00
\$70001 TO \$80000	8524	3.22	588115204.00	688799061.32	522169281.65	27190.00	52566559.84	102377161.71	7935050.00
\$80001 TO \$90000	5672	2.14	432324512.00	528886838.01	411022653.00	17968.00	34313376.56	76079694.81	4994400.00
\$90001 TO \$100000	3549	1.34	282732742.00	381335884.95	301526506.32	11218.00	20913480.42	54197458.58	2602100.00
\$100001 TO \$150000	5427	2.05	473620536.00	748821667.34	614044733.23	17285.00	29172404.62	98034229.49	3845000.00
\$150001 TO \$200000	470	0.18	47369847.00	101944043.67	90063530.18	1404.00	906224.67	10364538.82	322300.00
\$200001 TO \$300000	49	0.02	4666366.00	18125990.20	16787484.76	116.00	8474.81	1277530.62	15200.00
\$300001 TO \$400000	05	0.04	15666462.00	46314279.44	42683468.92	339.00	0.00	3489810.52	47100.00
OVER \$400000	83	0.03	17633031.00	85184874.61	81601792.58	256.00	0.00	3467582.03	42900.00
TOTAL	264921	100	7469072843.00	8893916334.10	6084571225.77	597949.00	1155063895.95	1647885028.16	677894596.10

	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY PFD NONTAXABLE	LEAKAGE TO MUNICIPALITI- ES
	SUM	SUM	SUM	SUM
AGI GROUP				
LOSS	1139491.38	289502.30	1118881.76	16062.96
\$0 TO \$10000	2649711.60	92560.54	2005319.96	25714.20
\$10001 TO \$20000	19087811.92	632826.63	16865933.26	180350.94
\$20001 TO \$30000	33750017.79	2523845.31	31201146.18	484184.15
\$30001 TO \$40000	45363595.63	5713791.30	42700047.03	868484.41
\$40001 TO \$50000	50873608.33	9259129.78	48359833.12	1096208.94
\$50001 TO \$60000	48729794.94	11392222.91	46654414.26	1106448.91
\$60001 TO \$70000	45599805.51	11575180.13	43965608.68	1027924.48
\$70001 TO \$80000	40497662.59	10630219.98	39283334.88	879302.83
\$80001 TO \$90000	33847757.73	9265441.26	32998061.05	702192.07
\$90001 TO \$100000	26394624.59	7541639.35	254031.83	495270.32
\$100001 TO \$150000	59289699.25	17210959.93	58388669.26	1029100.37
\$150001 TO \$200000	10149834.75	2753793.00	10067992.59	134977.34
\$200001 TO \$300000	2167839.15	526329.56	2160361.65	16728.91
\$300001 TO \$400000	5466880.96	1513822.01	5446513.66	48619.29
OVER \$400000	11239067.42	2994065.26	11222319.92	51621.88
TOTAL	436247293.56	93915329.25	418281769.08	8163192.01

AGI GROUP	N	PCTN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	ITEMIZED DEDUCTIONS	STANDARD DEDUCTIONS
			MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
LOSS	3100	1.17	9122.95	-19878.52	3711.53	2.68	5171.30	7483.68	4340.67
0 TO \$10000	59483	22.42	4547.38	5726.77	953.56	1.44	2811.83	3405.83	3295.25
\$10001 TO \$20000	54784	20.68	13299.08	15570.76	7390.81	1.81	3521.81	3947.17	3591.75
\$20001 TO \$30000	39411	14.88	22608.10	26192.07	15832.96	2.23	4355.29	4938.44	3992.81
\$30001 TO \$40000	31031	11.71	33213.57	37138.13	24638.50	2.63	5132.22	6177.63	4274.73
\$40001 TO \$50000	23954	9.04	43120.54	47765.65	33375.43	2.90	5646.48	7432.29	4502.04
\$50001 TO \$60000	17163	6.48	51446.05	58264.17	41835.00	3.02	5871.12	9531.24	4674.46
\$60001 TO \$70000	12206	4.61	60824.36	69255.29	51252.17	3.13	6083.59	10555.84	4701.06
\$70001 TO \$80000	8524	3.22	68995.21	80939.96	61258.71	3.19	6166.89	12010.46	4740.17
\$80001 TO \$90000	5672	2.14	76220.82	93376.91	72465.21	3.17	6049.61	13413.20	4806.93
\$90001 TO \$100000	3549	1.34	79665.47	107539.73	84960.98	3.16	5892.78	15271.19	4881.99
\$100001 TO \$150000	5427	2.05	87271.15	138031.64	113146.26	3.19	5375.42	18073.38	5099.47
\$150001 TO \$200000	470	0.18	100786.91	216902.22	191624.53	2.99	1928.14	22052.21	4966.15
\$200001 TO \$300000	49	0.02	95231.96	369918.17	342601.73	2.37	172.96	26072.05	5066.67
\$300001 TO \$400000	95	0.04	164910.13	487518.73	449299.67	3.57	0.00	36734.85	5837.50
OVER \$400000	83	0.03	212446.16	1026323.79	983154.13	3.08	0.00	41778.10	4766.67
TOTAL	1264921	100	28193.59	33654.15	22967.49	2.26	4360.03	6220.29	3777.50

	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY PFD NONTAXABLE	LEAKAGE TO MUNICIPALITI- ES
	MEAN	MEAN	MEAN	MEAN
AGI GROUP				
LOSS	367.98	93.39	368.93	5.18
\$0 TO \$10000	44.61	1.56	33.76	0.43
\$10001 TO \$20000	348.42	11.55	307.86	3.29
\$20001 TO \$30000	856.36	64.04	791.69	12.29
\$30001 TO \$40000	1461.88	184.13	1376.84	27.99
\$40001 TO \$50000	2123.80	386.54	2018.83	45.76
\$50001 TO \$60000	2839.24	663.77	2718.31	64.47
\$60001 TO \$70000	3735.86	948.32	3601.97	84.21
\$70001 TO \$80000	4751.02	1247.89	4608.56	103.16
\$80001 TO \$90000	5967.52	1633.54	5817.71	123.80
\$90001 TO \$100000	7437.20	2125.00	7282.06	139.55
\$100001 TO \$150000	10924.95	3171.36	10758.92	189.63
\$150001 TO \$200000	21595.39	5859.13	21421.26	287.19
\$200001 TO \$300000	44241.62	10741.62	44089.01	341.41
\$300001 TO \$400000	57546.12	15934.97	57331.72	511.78
OVER \$400000	135410.45	36073.08	135208.67	621.95
TOTAL	1646.71	354.58	1578.89	30.81

TABLE 15
1989 TAX ALTERNATIVE ONE
MODERATE ECONOMIC SCENARIO

	N	PCTM	WAGE & SALARY		ADJ GROSS INCOME		TAXABLE INCOME		NUMBER OF EXEMPTIONS		VALUE OF EXEMPTIONS		ITEMIZED DEDUCTIONS		STANDARD DEDUCTIONS	
			SUM		SUM		SUM		SUM		SUM		SUM		SUM	
AGI GROUP																
LOSS	3086	1.12	28070529.00		-64487864.75		12527197.24		8114.00		16054655.29		23465964.55		9031311.99	
20 TO \$10000	56662	21.11	25763566.00		324767512.55		49707681.10		82012.00		164004000.00		201516525.51		188252971.03	
\$10001 TO \$20000	54308	28.24	720811102.00		844326258.27		390899175.82		97269.00		194522000.00		221137337.87		180274961.14	
\$20001 TO \$30000	39735	14.81	897217379.00		1038269296.78		622409739.02		87008.00		173964000.00		199618758.65		126400873.11	
\$30001 TO \$40000	31588	11.77	1055289336.00		1174989186.46		777546279.07		81557.00		162894000.00		196678224.06		84411576.09	
\$40001 TO \$50000	24634	9.18	1062494637.00		1175937775.50		818667183.43		70535.00		140867549.44		183764348.07		52882562.28	
\$50001 TO \$60000	17785	6.43	913542735.00		1035260965.56		739312225.99		53447.00		106743931.55		170569901.29		28633225.61	
\$60001 TO \$70000	13042	4.86	791237713.00		903171006.17		646591012.64		40429.00		80564991.87		138267945.76		16448045.34	
\$70001 TO \$80000	9356	3.49	643333916.00		757004148.90		571722995.34		29782.00		59048005.95		112581320.48		9607889.88	
\$80001 TO \$90000	6388	2.30	486846827.00		595002856.86		460538317.14		20259.00		39829895.91		85422644.14		5926512.78	
\$90001 TO \$100000	4223	1.57	333768399.00		456222662.61		360691218.15		13467.00		26015499.13		63676806.25		3515644.80	
\$100001 TO \$150000	6717	2.50	592160693.00		93314844.45		763688792.71		21486.00		37687267.22		122155700.73		5070038.56	
\$150001 TO \$200000	658	0.25	67581334.00		143041504.29		125800597.88		1992.00		1608859.59		14708846.82		472561.20	
\$200001 TO \$300000	78	0.03	6477017.00		32038015.94		30026468.92		180.00		0.00		1916347.02		39757.20	
\$300001 TO \$400000	90	0.03	13946040.00		45523451.28		42368441.86		311.00		346.64		3013862.78		45988.50	
OVER \$400000	80	0.03	15339448.00		76761347.92		7136283.07		264.00		0.00		5300104.85		40811.60	
TOTAL	1268350	100	7885752785.00		9471642938.98		6503820169.33		608112.00		1203805002.59		1744014638.84		711074730.90	

TAX LIABILITY	PAID FROM	TAX LIABILITY	PAID FROM	TAX LIABILITY	PAID FROM
FED TAXABLE	FEDRL TAX	FED TAXABLE	FEDRL TAX	FED TAXABLE	FEDRL TAX
SUM	SUM	SUM	SUM	SUM	SUM
AGT GROUP					
1055	1298531.08	340713.65	1276962.37	16841.85	
50 TO \$10000	2394718.76	90944.99	1771066.87	24716.92	
\$10001 TO \$20000	18549269.96	605260.15	16244585.35	172522.21	
\$20001 TO \$30000	33998876.85	2549026.47	31291848.56	488093.33	
\$30001 TO \$40000	4686194.21	6086233.08	44826557.43	89256.82	
\$40001 TO \$50000	52451462.07	9582536.53	49718663.36	1120182.53	
\$50001 TO \$60000	50353283.02	11751983.54	48876190.43	1143991.17	
\$60001 TO \$70000	48763034.58	12393280.04	46908158.28	1092051.18	
\$70001 TO \$80000	44557849.72	11680760.24	43038016.47	967565.04	
\$80001 TO \$90000	37946466.89	10376628.43	36928684.98	782246.14	
\$90001 TO \$100000	31643594.95	9013309.65	30942010.13	590822.37	
\$100001 TO \$150000	73754077.98	21395146.21	72555975.33	1298772.62	
\$150001 TO \$200000	14125465.89	3851417.65	14001500.86	192052.77	
\$200001 TO \$300000	3896221.28	1014560.19	3882633.28	29578.83	
\$300001 TO \$400000	5466723.80	1503936.24	5446393.19	42473.50	
OVER \$400000	9775640.25	2708440.65	9758472.25	47178.80	
TOTAL	475759410.49	186943777.69	455867631.13	8904366.07	

AGI GROUP	N	PCTN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	ITEMIZED DEDUCTIONS	STANDARD DEDUCTIONS
			MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
LOSS	3006	1.12	9338.17	-21510.30	4167.40	2.70	5340.87	7813.03	4542.91
0 TO \$10000	56662	21.11	4546.89	5759.00	877.27	1.45	2894.43	3556.47	3447.67
\$10001 TO \$20000	54308	20.24	13272.65	15582.86	7197.82	1.79	3581.83	4071.91	3734.02
\$20001 TO \$30000	39735	14.81	22580.03	26186.52	15664.02	2.19	4378.10	5023.75	4137.37
\$30001 TO \$40000	31588	11.77	33407.92	37257.48	24615.24	2.58	5156.83	6226.36	4418.99
\$40001 TO \$50000	24634	9.18	43131.23	47798.46	33232.41	2.86	5718.42	7459.79	4652.70
\$50001 TO \$60000	17785	6.63	51365.91	58281.88	41569.43	3.01	6001.91	9590.66	4865.46
\$60001 TO \$70000	13042	4.86	60668.43	69330.70	51111.10	3.10	6177.35	10601.74	4982.55
\$70001 TO \$80000	9356	3.49	68761.64	81058.37	61107.63	3.18	6311.24	12033.06	4955.07
\$80001 TO \$90000	6388	2.38	76212.72	93304.51	72094.29	3.17	6235.11	13403.67	5026.73
\$90001 TO \$100000	4223	1.57	79035.85	108155.10	85411.13	3.19	6160.43	15078.57	5109.95
\$100001 TO \$150000	6717	2.50	88158.51	139060.75	113694.92	3.20	5610.73	18186.05	5374.91
\$150001 TO \$200000	658	0.25	102707.19	217388.30	191186.32	3.03	2445.08	22353.87	5031.30
\$200001 TO \$300000	78	0.03	83038.68	410743.79	384954.73	2.31	0.00	24568.55	4969.65
\$300001 TO \$400000	90	0.03	154956.00	505816.13	470760.47	3.46	3.85	33487.36	6569.79
OVER \$400000	80	0.03	191743.60	957516.85	891785.54	3.30	0.00	66251.31	5830.20
TOTAL	268350	100	29386.07	35380.50	24236.33	2.27	4485.95	6499.03	3950.48

	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY PFD NONTAXABLE	LEAKAGE TO MUNICIPALITI- ES
	MEAN	MEAN	MEAN	MEAN
AGI GROUP				
LOSS	431.98	113.34	424.88	5.60
\$0 TO \$10000	42.26	1.61	31.26	0.44
\$10001 TO \$20000	341.56	11.14	299.12	3.18
\$20001 TO \$30000	855.64	64.15	787.51	12.28
\$30001 TO \$40000	1484.24	192.68	1393.77	28.34
\$40001 TO \$50000	2129.23	389.00	2018.29	45.47
\$50001 TO \$60000	2831.22	660.78	2703.19	64.32
\$60001 TO \$70000	3738.92	950.26	3596.78	83.73
\$70001 TO \$80000	4751.80	1248.48	4600.04	103.42
\$80001 TO \$90000	5940.27	1624.39	5780.93	122.46
\$90001 TO \$100000	7493.16	2134.34	7327.02	139.91
\$100001 TO \$150000	10980.21	3185.22	10801.84	193.36
\$150001 TO \$200000	21467.27	5853.22	21278.88	291.87
\$200001 TO \$300000	49951.55	13007.18	49777.35	379.22
\$300001 TO \$400000	60741.38	16705.96	60515.48	471.93
OVER \$400000	122195.50	33855.51	121980.90	589.73
TOTAL	1772.91	391.07	1698.78	33.18

TABLE 16
1990 TAX ALTERNATIVE ONE
MODERATE ECONOMIC SCENARIO

	N	PCTN	WAGE & SALARY SUM	ADJ GROSS INCOME SUM	TAXABLE INCOME SUM	NUMBER OF EXEMPTIONS SUM	VALUE OF EXEMPTIONS SUM	ITEMIZED DEDUCTIONS SUM	STANDARD DEDUCTIONS SUM
AGI GROUP									
LOSS	2925	1.09	26365568.00	-59283482.17	11337997.98	7950.00	16496112.09	22824015.78	9373639.40
\$0 TO \$10000	53944	20.14	244905721.00	308713792.33	43056718.50	77609.00	162308222.67	199670764.38	188244312.37
\$10001 TO \$20000	52742	19.70	703208749.00	821126187.45	370647855.45	93055.00	194619196.80	220867731.34	186756467.60
\$20001 TO \$30000	39408	14.72	893115999.00	1028639440.14	609644898.11	84237.00	176173376.40	201989234.29	131116493.43
\$30001 TO \$40000	31554	11.78	1062534280.00	1173442339.22	770072221.35	80088.00	167362366.65	198689943.63	88535178.35
\$40001 TO \$50000	24721	9.23	1067862265.00	1177443432.09	812942509.28	69872.00	145995525.29	186123844.48	57144337.87
\$50001 TO \$60000	18138	6.77	932249695.00	1056722125.05	750862451.92	53910.00	112595198.69	174443488.61	31564743.03
\$60001 TO \$70000	13563	5.06	822511897.00	939857608.90	690064852.08	41827.00	87163767.72	144311044.92	18607855.21
\$70001 TO \$80000	10073	3.76	695422872.00	814731935.87	611876117.07	31954.00	66362892.92	121867843.56	11260025.10
\$80001 TO \$90000	6963	2.60	532100419.00	649054524.68	500150049.99	22062.00	45426453.02	93618955.43	6936209.08
\$90001 TO \$100000	4660	1.74	370013362.00	504648932.17	397286463.18	14755.00	29914591.71	70727157.77	4049718.93
\$100001 TO \$150000	7947	2.97	701929743.00	1102871983.44	898160155.21	25661.00	47835041.27	144969873.56	6519836.20
\$150001 TO \$200000	853	0.32	89488808.00	186064265.47	163004905.63	2641.00	2735090.69	19093869.16	726619.36
\$200001 TO \$300000	109	0.04	9900570.00	42186195.84	39206127.93	274.00	6330.58	2840137.33	104252.06
\$300001 TO \$400000	108	0.04	15989348.00	53490334.51	49940619.07	357.00	105.66	3373409.78	109430.25
OVER \$400000	74	0.03	14865466.00	74469794.42	70193242.72	240.00	2091.60	4170232.80	76103.10
TOTAL	267782	100	8182464762.00	9874179409.39	6788447185.41	606492.00	1254996363.75	1869586546.80	741175271.40

TAX LIABILITY	PAID FROM	TAX LIABILITY	TAX LIABILITY	LEAKAGE TO
PFD TAXABLE	FEDRL TAX	PFD TAXABLE	PFD TAXABLE	ES
SUM	SUM	SUM	SUM	SUM
AGI GROUP				
LOSS	1121559.10	290863.63	1100053.68	15901.99
60 TO \$10000	2103011.85	82071.37	1547597.30	21776.07
\$10001 TO \$20000	17557024.82	580555.59	15370300.90	169737.84
\$20001 TO \$30000	33314032.35	2509347.67	30665073.03	401476.50
\$30001 TO \$40000	46576394.51	6065475.44	43760375.07	919632.98
\$40001 TO \$50000	52142396.70	9429966.76	49439706.02	1123109.00
\$50001 TO \$60000	51331971.19	11964061.95	49033252.05	1161336.67
\$60001 TO \$70000	50554602.06	12021717.79	48639119.16	113371.30
\$70001 TO \$80000	47552394.00	12400943.07	46031195.70	1034101.02
\$80001 TO \$90000	41173751.94	11262124.01	40065377.04	857900.61
\$90001 TO \$100000	34910772.74	9955695.12	34130556.73	654124.50
\$100001 TO \$150000	46367644.20	25191172.10	40944302.56	1531095.27
\$150001 TO \$200000	10215114.61	4905000.74	10050322.59	255707.92
\$200001 TO \$300000	5044007.26	1268944.60	5025035.26	36072.26
\$300001 TO \$400000	6420425.99	1726293.98	6395697.99	55917.93
OVER \$400000	9651122.19	2673505.32	9635230.19	29036.50
TOTAL	504039705.60	113293500.73	403042964.07	9401764.51

AGI GROUP	N	PCTN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	ITEMIZED DEDUCTIONS	STANDARD DEDUCTIONS
			MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
LOSS	2925	1.09	9013.87	-20309.52	3876.24	2.72	5639.70	7803.08	4792.25
\$0 TO \$10000	53944	20.14	4540.00	5749.72	798.17	1.44	3008.83	3701.45	3599.04
\$10001 TO \$20000	52742	19.70	13332.99	15603.35	7027.57	1.76	3690.02	4187.70	3868.28
\$20001 TO \$30000	39408	14.72	22663.32	26149.41	15470.08	2.14	4470.50	5125.59	4274.52
\$30001 TO \$40000	31554	11.78	33673.52	37239.13	24404.90	2.54	5304.00	6296.82	4572.15
\$40001 TO \$50000	24721	9.23	43196.56	47687.15	32884.69	2.83	5905.73	7528.93	4800.03
\$50001 TO \$60000	18138	6.77	51397.60	58337.32	41397.20	2.97	6207.70	9617.57	5051.98
\$60001 TO \$70000	13563	5.06	60643.80	69377.55	50878.48	3.08	6426.58	10640.05	5086.89
\$70001 TO \$80000	10073	3.76	69038.31	81043.66	60744.18	3.17	6588.20	12098.47	5179.40
\$80001 TO \$90000	6963	2.60	76418.27	93375.70	71829.68	3.17	6523.98	13445.20	5244.90
\$90001 TO \$100000	4660	1.74	79402.01	108317.01	85254.61	3.17	6419.44	15177.50	5314.59
\$100001 TO \$150000	7947	2.97	88326.38	138813.34	113018.77	3.23	6019.26	18242.09	5596.47
\$150001 TO \$200000	853	0.32	104910.68	218129.27	191096.02	3.10	3206.44	22384.37	5382.37
\$200001 TO \$300000	109	0.04	90830.92	387029.32	359689.25	2.51	58.08	26056.31	5486.95
\$300001 TO \$400000	108	0.04	148049.52	495280.88	462413.14	3.31	0.98	31251.57	6437.07
OVER \$400000	74	0.03	200884.68	1020134.17	948557.33	3.24	28.26	56354.50	5854.03
TOTAL	267782	100	30556.44	36956.06	25350.65	2.26	4686.63	6757.69	4117.53

	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY PFD NONTAXABLE	LEAKAGE TO MUNICIPALITI- ES
	MEAN	MEAN	MEAN	MEAN
AGI GROUP				
LOSS	383.44	99.44	376.89	5.46
\$0 TO \$10000	39.00	1.54	28.49	0.40
\$10001 TO \$20000	332.90	11.01	291.42	3.22
\$20001 TO \$30000	845.38	43.68	778.16	12.22
\$30001 TO \$40000	1476.09	192.23	1386.84	29.14
\$40001 TO \$50000	2109.23	381.29	1999.91	45.43
\$50001 TO \$60000	2830.08	659.61	2703.34	64.03
\$60001 TO \$70000	3727.41	945.35	3586.16	83.59
\$70001 TO \$80000	4720.78	1239.84	4569.76	102.67
\$80001 TO \$90000	5913.22	1617.42	5754.04	123.22
\$90001 TO \$100000	7491.58	2136.42	7325.87	140.37
\$100001 TO \$150000	10867.96	3169.90	10688.86	192.66
\$150001 TO \$200000	21354.18	5845.12	21160.99	299.87
\$200001 TO \$300000	46283.37	11641.69	46108.58	330.94
\$300001 TO \$400000	59448.39	15924.20	59219.43	517.76
OVER \$400000	130420.57	36129.53	130205.81	403.20
TOTAL	1882.28	423.08	1806.85	35.41

TABLE 17
1991 TAX ALTERNATIVE ONE
MODERATE ECONOMIC SCENARIO

	N	PCTN	WAGE & SALARY SUM	ADJ GROSS INCOME SUM	TAXABLE INCOME SUM	NUMBER OF EXEMPTIONS SUM	VALUE OF EXEMPTIONS SUM	ITEMIZED DEDUCTIONS SUM	STANDARD DEDUCTIONS SUM
AGI GROUP									
LOSS	2826	1.05	26151717.00	-58930891.94	11872666.66	7702.00	16712452.69	22704079.67	9613825.57
\$0 TO \$10000	51193	19.07	233394604.00	292786918.06	36408407.86	76429.00	162795057.60	198011904.68	188677056.95
\$10001 TO \$20000	51365	19.14	686318284.00	799113086.17	348699801.46	90083.00	197027867.60	223647139.26	190566584.05
\$20001 TO \$30000	39219	14.61	889736838.00	1022530539.62	595998716.60	82853.00	181193279.00	205168826.57	136473268.16
\$30001 TO \$40000	31792	11.85	1071210898.00	1181316606.58	768577005.95	79365.00	173430339.69	202249836.33	93983364.12
\$40001 TO \$50000	25107	9.35	1086818833.00	1197238525.45	821357492.71	69920.00	152772111.14	190643103.37	62066212.91
\$50001 TO \$60000	18680	6.96	959615727.00	1087936586.28	767582659.23	55022.00	120208567.00	180798508.82	35065388.29
\$60001 TO \$70000	14172	5.28	862239297.00	983541884.84	717558041.14	43674.00	95213638.27	151635463.79	21077462.14
\$70001 TO \$80000	10701	3.99	734716610.00	866083961.40	647604945.86	33882.00	73706630.40	129320745.22	13229483.90
\$80001 TO \$90000	7572	2.82	576125158.00	705032371.02	541238140.72	23906.00	51677673.59	101179027.58	8368573.74
\$90001 TO \$100000	5223	1.95	412975522.00	565674142.95	443513266.89	16559.00	35189173.36	79515744.94	4880433.00
\$100001 TO \$150000	9204	3.43	813480190.00	1285842525.18	1043039035.46	29707.00	58979616.15	170026835.97	8268831.12
\$150001 TO \$200000	1073	0.40	113944305.00	231801267.08	201633784.26	3371.00	4370942.86	24230939.96	901382.44
\$200001 TO \$300000	143	0.05	15670147.00	52588873.08	48697808.45	349.00	15526.73	3690737.90	134281.32
\$300001 TO \$400000	44	0.02	7005312.00	22124906.06	20646225.25	142.00	0.00	1412280.81	68730.50
OVER \$400000	79	0.03	15733671.00	86653603.57	82178076.31	251.00	0.00	4360327.26	58014.80
TOTAL	268393	100	8505137113.00	10321334905	7096606274.75	611215.00	1323292876.09	1888595502.14	773432893.01

	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY PFD NONTAXABLE	LEAKAGE TO MUNICIPALITI- ES
	SUM	SUM	SUM	SUM
AGI GROUP				
LOSS	1248321.95	336440.56	1228947.03	15682.10
00 TO \$10000	1803531.21	77499.51	1315109.02	20885.12
\$10001 TO \$20000	16483892.14	551112.32	14413657.78	159364.22
\$20001 TO \$30000	32626823.91	2470230.89	30030846.13	479065.61
\$30001 TO \$40000	46727395.55	6129571.69	43930216.39	906529.21
\$40001 TO \$50000	52968022.43	9607349.66	50252461.96	1138590.37
\$50001 TO \$60000	52539601.63	12237575.24	50199084.12	1191246.06
\$60001 TO \$70000	52624462.47	13359408.90	50633131.52	1179198.21
\$70001 TO \$80000	50419336.20	13187834.48	48812744.32	1089554.71
\$80001 TO \$90000	44522203.49	12151134.67	43320563.71	923805.81
\$90001 TO \$100000	38951241.39	11106773.92	38088590.97	719824.99
\$100001 TO \$150000	100483155.19	29170656.68	98834870.08	1765045.86
\$150001 TO \$200000	22391457.21	6251485.02	22183010.08	321107.21
\$200001 TO \$300000	6189472.50	1609254.55	6163220.50	48758.54
\$300001 TO \$400000	2672200.66	682540.48	2662572.66	12789.29
OVER \$400000	11363725.06	3153124.29	11347021.06	43369.94
TOTAL	534014843.00	122081992.87	513416047.33	10014817.25

AGI GROUP	N	PCTN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	ITEMIZED DEDUCTIONS	STANDARD DEDUCTIONS
			MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
LOSS	2826	1.05	9253.97	-20904.89	4201.23	2.73	5913.82	8036.00	5009.81
\$0 TO \$10000	51193	19.07	4559.11	5746.33	711.20	1.45	3180.03	3867.95	3768.72
\$10001 TO \$20000	51365	19.14	13361.59	15592.75	6788.67	1.75	3835.84	4354.08	4028.64
\$20001 TO \$30000	39219	14.61	22686.37	26124.95	15196.68	2.11	4620.04	5231.36	4435.99
\$30001 TO \$40000	31792	11.85	33694.35	37213.85	24175.17	2.50	5455.16	6361.66	4733.01
\$40001 TO \$50000	25107	9.35	43287.48	47742.49	32714.29	2.78	6084.84	7593.23	4972.06
\$50001 TO \$60000	18680	6.96	51371.29	58309.39	41091.15	2.95	6435.15	9678.72	5250.10
\$60001 TO \$70000	14172	5.28	60841.05	69473.89	50632.09	3.08	6718.43	10699.65	5311.86
\$70001 TO \$80000	10701	3.99	68658.69	81094.00	60518.17	3.17	6887.83	12084.92	5373.47
\$80001 TO \$90000	7572	2.82	76086.26	93245.92	71478.89	3.16	6824.84	13362.26	5491.19
\$90001 TO \$100000	5223	1.95	79068.64	108345.94	84915.43	3.17	6737.35	15224.15	5564.92
\$100001 TO \$150000	9204	3.43	88383.33	139735.11	113324.54	3.23	6408.04	18473.15	5839.57
\$150001 TO \$200000	1073	0.40	106192.27	216031.00	187915.92	3.14	4073.57	22582.42	5704.95
\$200001 TO \$300000	143	0.05	109581.45	367754.36	340544.12	2.44	108.58	25809.36	6103.70
\$300001 TO \$400000	44	0.02	159211.64	502838.77	469232.39	3.23	0.00	32097.29	6873.05
OVER \$400000	79	0.03	199160.39	1096881.06	1040228.81	3.18	0.00	55194.02	5801.48
TOTAL	268393	100	31689.12	38541.35	26441.10	2.28	4930.43	7036.68	4308.41

TAX LIABILITY PAID FROM FEDRL TAX	TAX LIABILITY PAID FROM FEDRL TAX	TAX LIABILITY PAID FROM FEDRL TAX	TAX LIABILITY PAID FROM FEDRL TAX	TAX LIABILITY PAID FROM FEDRL TAX	TAX LIABILITY PAID FROM FEDRL TAX
MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
AGI GROUP	AGI GROUP	AGI GROUP	AGI GROUP	AGI GROUP	AGI GROUP
LOSS	LOSS	LOSS	LOSS	LOSS	LOSS
\$0 TO \$10000	\$0 TO \$10000	\$0 TO \$10000	\$0 TO \$10000	\$0 TO \$10000	\$0 TO \$10000
\$10001 TO \$20000	\$10001 TO \$20000	\$10001 TO \$20000	\$10001 TO \$20000	\$10001 TO \$20000	\$10001 TO \$20000
\$20001 TO \$30000	\$20001 TO \$30000	\$20001 TO \$30000	\$20001 TO \$30000	\$20001 TO \$30000	\$20001 TO \$30000
\$30001 TO \$40000	\$30001 TO \$40000	\$30001 TO \$40000	\$30001 TO \$40000	\$30001 TO \$40000	\$30001 TO \$40000
\$40001 TO \$50000	\$40001 TO \$50000	\$40001 TO \$50000	\$40001 TO \$50000	\$40001 TO \$50000	\$40001 TO \$50000
\$50001 TO \$60000	\$50001 TO \$60000	\$50001 TO \$60000	\$50001 TO \$60000	\$50001 TO \$60000	\$50001 TO \$60000
\$60001 TO \$70000	\$60001 TO \$70000	\$60001 TO \$70000	\$60001 TO \$70000	\$60001 TO \$70000	\$60001 TO \$70000
\$70001 TO \$80000	\$70001 TO \$80000	\$70001 TO \$80000	\$70001 TO \$80000	\$70001 TO \$80000	\$70001 TO \$80000
\$80001 TO \$90000	\$80001 TO \$90000	\$80001 TO \$90000	\$80001 TO \$90000	\$80001 TO \$90000	\$80001 TO \$90000
\$90001 TO \$100000	\$90001 TO \$100000	\$90001 TO \$100000	\$90001 TO \$100000	\$90001 TO \$100000	\$90001 TO \$100000
\$100001 TO \$150000	\$100001 TO \$150000	\$100001 TO \$150000	\$100001 TO \$150000	\$100001 TO \$150000	\$100001 TO \$150000
\$150001 TO \$200000	\$150001 TO \$200000	\$150001 TO \$200000	\$150001 TO \$200000	\$150001 TO \$200000	\$150001 TO \$200000
\$200001 TO \$300000	\$200001 TO \$300000	\$200001 TO \$300000	\$200001 TO \$300000	\$200001 TO \$300000	\$200001 TO \$300000
\$300001 TO \$400000	\$300001 TO \$400000	\$300001 TO \$400000	\$300001 TO \$400000	\$300001 TO \$400000	\$300001 TO \$400000
OVER \$400000	OVER \$400000	OVER \$400000	OVER \$400000	OVER \$400000	OVER \$400000
TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
1989.68	1989.68	1989.68	1989.68	1989.68	1989.68
143844.62	143844.62	143844.62	143844.62	143844.62	143844.62
39912.97	39912.97	39912.97	39912.97	39912.97	39912.97
454.86	454.86	454.86	454.86	454.86	454.86
1912.93	1912.93	1912.93	1912.93	1912.93	1912.93
37.31	37.31	37.31	37.31	37.31	37.31

TABLE 18
1992 TAX ALTERNATIVE ONE
MODERATE ECONOMIC SCENARIO

	N	PCTN	WAGE & SALARY SUM	ADJ GROSS INCOME SUM	TAXABLE INCOME SUM	NUMBER OF EXEMPTIONS SUM	VALUE OF EXEMPTIONS SUM	ITEMIZED DEDUCTIONS SUM	STANDARD DEDUCTIONS SUM
AGI GROUP									
LOSS	2782	1.03	25603313.00	-59702639.05	10093941.91	7712.00	17534219.64	23117590.28	10112748.75
\$0 TO \$10000	48792	18.13	223074635.00	278533905.75	31083547.41	71311.00	163121893.20	196487788.19	187724315.76
\$10001 TO \$20000	50190	18.65	676856501.00	781699606.62	330045403.10	87589.00	200352583.20	223917120.72	194515019.66
\$20001 TO \$30000	38976	14.48	888895439.00	1015967845.12	583680017.10	80948.00	185153768.80	207987386.91	142916341.15
\$30001 TO \$40000	32175	11.96	1106841949.00	1198468641.04	775128730.30	78924.00	180405355.49	205316610.90	99733008.05
\$40001 TO \$50000	25484	9.47	1115540797.00	1217226964.02	830492206.51	70076.00	160127424.80	194024120.63	66688582.03
\$50001 TO \$60000	18908	7.03	972929669.00	1100596817.88	772178558.60	54889.00	125429476.70	183563174.45	38343422.91
\$60001 TO \$70000	14503	5.39	880193746.00	1006003243.51	730736458.78	44089.00	100552474.48	156264946.87	23516550.80
\$70001 TO \$80000	11144	4.14	765860468.00	901551955.07	669984614.85	35168.00	80047845.52	135445269.78	14948299.33
\$80001 TO \$90000	8039	2.99	611409955.00	749701168.29	571757051.78	25249.00	57239380.77	109355337.09	9596233.60
\$90001 TO \$100000	5768	2.14	455260282.00	625050219.33	487649380.69	18361.00	40948603.67	88024673.89	6242568.00
\$100001 TO \$150000	10728	3.99	956129483.00	1494754712.25	1208526139.92	34613.00	72967216.34	197215927.20	10237601.20
\$150001 TO \$200000	1357	0.50	144745472.00	297047438.64	257914997.04	4346.00	6347380.72	30778660.88	1286368.80
\$200001 TO \$300000	170	0.06	16224039.00	62192474.87	57614008.24	449.00	45981.68	4302084.94	156614.40
\$300001 TO \$400000	28	0.01	4277365.00	13337617.96	12565041.78	99.00	0.00	727776.18	28720.00
OVER \$400000	85	0.03	18159817.00	82022574.16	77743067.26	307.00	0.00	4151506.90	60416.00
TOTAL	1269129	100	8862002930.00	10764452545	7407193165.22	614150.00	1390273605.02	1960679975.81	806106810.44

	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY PFD NONTAXABLE	LEAKAGE TO MUNICIPALITI- ES
	SUM	SUM	SUM	SUM
AGI GROUP				
LOSS	1006130.99	264357.35	986855.24	14170.60
00 TO \$10000	1573921.41	81549.18	1144593.69	19037.82
\$10001 TO \$20000	15551262.60	526845.25	13579747.87	156952.81
\$20001 TO \$30000	32005296.10	2464903.66	29463562.13	474819.44
\$30001 TO \$40000	47406690.51	6392973.55	44602724.36	955896.73
\$40001 TO \$50000	53954081.29	9857918.06	51230445.42	1178149.87
\$50001 TO \$60000	53039713.49	12341596.26	50699615.39	1200190.35
\$60001 TO \$70000	53737940.83	13691359.24	51721442.57	1216923.63
\$70001 TO \$80000	52059122.92	13655790.97	50390910.90	1141236.66
\$80001 TO \$90000	47051820.45	12810880.39	45782613.45	982041.83
\$90001 TO \$100000	42788261.78	12229537.33	41835630.01	808184.41
\$100001 TO \$150000	116144188.56	33925776.35	114225631.90	2060851.25
\$150001 TO \$200000	28629757.75	7893321.93	28362116.15	409236.62
\$200001 TO \$300000	7271097.18	1884779.62	7238337.18	59240.02
\$300001 TO \$400000	1607227.06	434075.85	1600731.06	8611.26
OVER \$400000	10657664.75	2955438.00	10639104.75	59705.05
TOTAL	564484177.66	131411102.98	543504062.07	10745248.36

AGI GROUP	N	PCTN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	ITEMIZED DEDUCTIONS	STANDARD DEDUCTIONS
			MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
LO55	2782	1.03	9203.20	-21514.46	3628.30	2.77	6302.74	8309.70	5305.74
\$0 TO \$10000	48792	18.13	4571.95	5735.52	637.06	1.46	3343.21	4027.05	3931.40
\$10001 TO \$20000	50190	18.65	13485.88	15611.82	6575.92	1.75	3991.88	4461.39	4174.68
\$20001 TO \$30000	38976	14.48	22806.23	26120.78	14975.37	2.08	4750.46	5336.29	4575.67
\$30001 TO \$40000	32175	11.96	34400.68	37302.93	24091.03	2.45	5607.00	6381.25	4877.87
\$40001 TO \$50000	25484	9.47	43774.16	47822.53	32588.77	2.75	6283.45	7613.57	5128.31
\$50001 TO \$60000	18908	7.03	51455.98	58278.89	40838.72	2.90	6633.67	9708.23	5455.03
\$60001 TO \$70000	14503	5.39	60690.46	69451.38	50385.19	3.04	6933.22	10774.66	5521.61
\$70001 TO \$80000	11144	4.14	68724.02	81038.38	60120.66	3.16	7183.04	12154.10	5630.24
\$80001 TO \$90000	8039	2.99	76055.47	93409.07	71122.91	3.14	7120.21	13603.10	5698.48
\$90001 TO \$100000	5768	2.14	78928.62	108402.74	84543.93	3.18	7099.27	15260.87	5796.26
\$100001 TO \$150000	10728	3.99	89124.67	139384.06	112651.58	3.23	6801.57	18383.29	6072.12
\$150001 TO \$200000	1357	0.50	106665.79	218900.10	190062.64	3.20	4677.51	22681.40	5983.11
\$200001 TO \$300000	170	0.06	95435.52	365838.09	338905.93	2.64	270.48	25306.38	6264.58
\$300001 TO \$400000	28	0.01	152763.04	476343.50	448751.49	3.54	0.00	25992.01	7180.00
OVER \$400000	85	0.03	213644.91	964971.46	914624.32	3.61	0.00	48841.26	6041.60
TOTAL	269129	100	32928.46	40085.70	27522.84	2.28	5165.83	7285.28	4488.90

TAX LIABILITY PAID FROM FEDERAL TAX	TAX LIABILITY PAID FROM FEDERAL TAX	TAX LIABILITY PAID FROM FEDERAL TAX	TAX LIABILITY PAID FROM FEDERAL TAX	TAX LIABILITY PAID FROM FEDERAL TAX
MEAN	MEAN	MEAN	MEAN	MEAN
AGI GROUP	AGI GROUP	AGI GROUP	AGI GROUP	AGI GROUP
LOSS	LOSS	LOSS	LOSS	LOSS
80 TO 910000	32.26	1.67	23.46	0.39
910001 TO 920000	309.85	10.50	270.57	3.13
920001 TO 930000	821.15	63.24	755.94	12.18
930001 TO 940000	1473.48	198.69	1386.25	29.71
940001 TO 950000	2117.17	386.83	2010.30	46.23
950001 TO 960000	2805.15	652.72	2681.38	63.48
960001 TO 970000	3705.38	944.84	3566.26	83.91
970001 TO 980000	4671.49	1225.39	4521.80	102.41
980001 TO 990000	5852.94	1593.59	5695.86	122.16
990001 TO 1000000	7418.21	2120.24	7253.86	140.12
1000001 TO 1010000	10826.27	3162.36	10647.43	192.10
1010001 TO 1020000	21897.83	5816.74	20988.80	381.57
1020001 TO 1030000	42771.16	11086.94	42578.45	348.47
1030001 TO 1040000	57400.97	15502.71	57168.97	307.54
OVER \$400000	125384.29	34769.86	125165.94	702.41
TOTAL	2097.45	488.28	2019.49	39.93

Liability to Collections

The projected time pattern generated from 1970 - 1979 accounting data can be used to translate the projected tax year collections presented in the tables below into gross receipts (col. 2), refunds (col. 3), and net receipts (col. 4) by quarter and fiscal year. The U. S. Consumer Price Index (col. 5) is used to deflate or inflate the net receipts in nominal dollars to real 1986 dollars (col. 6) so we can compare estimated 1988 through 1992 projected fiscal year collections to actual collections from 1975 through 1979.

TABLE 19
LIABILITY TO COLLECTIONS
TAX ALTERNATIVE ONE
MODERATE ECONOMIC SCENARIO

FY/0	GROSS RECEIPTS (\$m nom)	REFUNDS (\$m nom)	NET RECEIPTS (\$m nom)	CPI	NET REC \$86 (\$m real)
86				325.98	
88/1	\$0	\$1	(\$1)		
/2	\$0	\$0	(\$0)		
/3	\$1	\$3	(\$1)		
/4	\$87	\$6	\$82		
TOTAL	\$89	\$9	\$79	338.66	\$76
89/1	\$116	\$5	\$111		
/2	\$153	\$2	\$151		
/3	\$149	\$16	\$132		
/4	\$128	\$36	\$92		
TOTAL	\$545	\$60	\$486	354.17	\$447
90/1	\$126	\$6	\$120		
/2	\$167	\$2	\$165		
/3	\$162	\$20	\$142		
/4	\$136	\$44	\$93		
TOTAL	\$592	\$72	\$520	370.39	\$457
91/1	\$134	\$5	\$129		
/2	\$176	\$2	\$175		
/3	\$172	\$16	\$156		
/4	\$145	\$35	\$110		
TOTAL	\$627	\$57	\$570	387.35	\$480
92/1	\$142	\$5	\$137		
/2	\$187	\$2	\$185		
/3	\$182	\$15	\$167		
/4	\$147	\$34	\$113		
TOTAL	\$657	\$55	\$602	405.09	\$485

ALTERNATIVE TWO: LIMITED BRACKETS/ FEDERAL TAX BASE

This alternative is piggybacked to the federal law for most of its tax base elements.

Relationship to Federal Law

The following chart taken from the Price Waterhouse Guide to the New Tax Law(14) provides a convenient framework for discussing a tax structure which is similar in construction to the new federal law.

FEDERAL LAW CHANGES AT A GLANCE

Old Law

Fifteen brackets, ranging up to 50 percent

Taxpayers may use income-averaging

Two-earner deduction is available to working couples

Taxpayers may exclude \$100 of dividend income from taxation

New Law

1987;
Five brackets, ranging up to 38.5 percent

1988
Two brackets, 15 and 28 percent

Income averaging is no longer allowed

Two-earner deduction is eliminated

Dividend exclusion is no longer permitted

State Structure

A state law might be structured as follows:

1. Adopt new federal rules to derive the taxable income base;
2. Divide taxable income into a small number (2 or 3) of brackets according to some objective criteria or adopt the Federal brackets.
3. Specify state tax rates for each of the chosen brackets with income in the higher bracket(s) being taxed at a higher rate.

The details except for the limited number of brackets and rates are similar to the previous case.

Tax Base

The federal law has changed dramatically since the Alaska individual income tax was in effect. This proposal assumes that the changes adopted by the federal government will be referenced in Alaska Statute much as they were in 1978-1979. This will result in the expansion of the tax base through the inclusion of more items in income, a decrease in both exclusions and itemized deductions from income, and an increase in standard deductions and the value of exemptions, resulting in lower taxable income in the lower part of the income distribution and higher taxable income in the upper part of the income distribution. The specifics of the changes resulting from tax reform at the federal level are available in a number of publications and we will not attempt to discuss those here. The provisions of the new law that we assume would be effective for this proposal are summarized below.

Income Inclusions and Exclusions

Included as total income are wages, salaries, tips, interest income, dividends, income tax refunds, alimony received, business income, capital gains, pensions, IRA and annuity distributions, rents, royalties, partnership, estates, trusts, farm income, unemployment insurance (which we are unable to include in our model), social security benefits and other income. The new Federal law eliminates the \$100 - \$200 exclusion of dividend income and treats the full amount of capital gain as ordinary income. The Alaska Permanent Fund Dividend is included as income.

New restrictions are now included in the Federal law which define passive and active participation in ventures and set limits for higher income taxpayers on offsetting losses of any kind. Passive losses cannot be used to offset other income except for \$25,000 in participatory rental losses. (Passive losses occur particularly in some partnership and rental activities.)

Income Adjustments

Under the new Federal law, only the Keogh plan contributions, savings withdrawal penalties and alimony paid adjustments from income remain. Eliminated is the Two Earner adjustment; while the IRA adjustment is phased out at higher income levels or eliminated if the employer covers the employee with a retirement plan. The moving expense and employee business expense adjustment are now deductions.

Treatment of the Alaska Permanent Fund Dividend

All of the alternatives presented include the Alaska Permanent Fund Dividend as taxable income. The 1988 low case Table 20 indicates a loss of \$16 million if the PFD were not taxable (\$393.9 million with PFD included - \$377.9 million with PFD excluded). The taxable income presented in the tables is with PFD not taxable. Children and other persons not required to file will not pay tax on the PFD. The estimates of the PFD are as follows:

1988	\$750
1989	\$800
1990	\$800
1991	\$800
1992	\$800

These are rounded values from the December 1986 Long Run Fiscal Model of the Department of Revenue.(15)

Nonresident Apportionment

As was done in the 1978 Alaska individual income tax, nonresident workers apportion their income by source state in this proposal. The apportionment ratio is obtained by dividing Alaska adjusted gross income (income earned in this state or attributable to investments in this state) by total adjusted gross income. The ratio obtained is used to adjust exemptions and standard deduction. Itemized deductions are apportioned to Alaska based on the expenditure location, property site or source of income to pay the expenditure.

Standard Deduction

The following standard deductions are assumed to be adopted from the Federal Code and are indexed yearly for inflation.

<u>Filing Status</u>	<u>Standard Deduction</u>	<u>Add'l for Blindness/ Age Exemption</u>
Single	\$3,000	\$750 per Exemption
Married Filing Joint	\$5,000	\$600 per Exemption
Married Filing Sep	\$2,500	\$600 per Exemption
Head of Household	\$4,400	\$750 per Exemption

Itemized Deductions

Those with greater than the standard deduction can itemize deductions on state returns as done on the Federal return. Alaska income taxes cannot be deducted for Alaska tax although they can for Federal income tax. Medical expenses in excess of 7.5 percent of adjusted gross income are deductible. Sales taxes are not deductible but property taxes are. Home mortgage interest (for primary and secondary residences) is still deductible, but consumer interest is phased out and other mortgage interest is no longer deductible. Union and professional dues, tax return preparation fees, employee business expenses are also deductible, but must total more than two percent of adjusted gross income. Moving expenses are deductible.

Personal Exemptions

Exemptions are available for the taxpayer, spouse, dependents and for certain debilitating conditions. They are worth \$1,950 each in 1988, \$2,000 in 1989 and are indexed for inflation thereafter. For higher income taxpayers, the value of these exemptions is reduced by five percent of taxable income if taxable income is greater than the threshold amount (which is indexed yearly for inflation).

<u>Filing Status</u>	<u>Income Threshold</u>
Single	\$89,560
Married Filing Joint	\$149,200
Married Fil'g Separately	\$113,300
Head of Household	\$123,790

Tax Credits

We have not included any tax credits in these proposals. Summaries of the major tax credits effective in Alaska and profiles of the taxpayers and amounts credited have been published previously and are available from this office.(16)

Tax Rates

The rates and rate groups assumed to be in place for this proposal are presented below. These rates are a set that make the alternative revenue neutral compared to the first alternative and the last alternative, for the first year (1988) only. That is, all three proposals are constructed to raise approximately the same revenue.

TAXABLE INCOME LEVEL	SINGLE SEPARATE
\$0-\$25,000	6.5%
\$25,000 & MORE	11.5%
TAXABLE INCOME LEVEL	HOUSEHOLD HEAD JOINT
\$0-\$50,000	6.5%
\$50,000 & MORE	11.5%

ISSUES

Economic Efficiency

As in the first case it is difficult to make precise statements about efficiency of a limited bracket tax. It obviously will entail costs as individuals and businesses make adjustments. The difficult question is what extra additional adjustments would be made with a state income tax. One could possibly argue that this would be a good time to impose a state tax. Individuals and businesses are in the process of adjusting to new federal rules and could more readily modify their decisions than would be the case if the state waits several years to reimpose a tax.

Income Elasticity

The limited number of brackets would probably cause this type of tax to be less revenue elastic than the first case. Under a system with narrower brackets and more numerous rates real or inflation driven increases in income can easily push returns into higher brackets with larger marginal rates. Conversely with rates that apply to broader income ranges it seems that bracket creep would be less of a phenomenon.

Equity

One possible disadvantage of this type of structure is that those at the lower end of each bracket are taxed at the same nominal rate as those at the upper end. The tax is still progressive in nature across brackets. It is progressive to a lesser extent within brackets given that the personal exemption excludes a larger proportion of the lower income from the tax.

Changes in tax laws have implications for horizontal equity in that individuals make commitments based on existing tax laws which are difficult or impossible to reverse. When the law changes this can reduce welfare. An example is the reduced deduction for personal interest expenses under the new federal law. Persons who entered installment purchase agreements prior to the change are going to be adversely affected.

Administration and Compliance

Comments made on the first tax structure also apply to this case. Compliance costs could be reduced from the first case since this structure is simply a scaled down version of the new federal system. Brackets could be made identical and this could simplify the preparation of returns.

Nonresident Taxpayers

This alternative captures the nonresident worker in the tax base fairly effectively. Alaskan employers submit payroll taxes regardless of the residence of the worker. The potential for avoiding estimated payments remains but is no worse or better for this alternative than any other. The apportionment of nonresident (or part year resident) income seems fair and is generally consistent with practice in other states.

Intergovernmental Effects

All state income taxes are deductible from Federal income. This causes a leakage of tax from the federal government to the State. The 1988 low case Table 20 below shows that for every dollar of Alaska tax paid, the taxpayer pays only 80¢ while the Federal government leaks 20¢ of it to the State (\$79.5 million in Federal leakage / \$393.9 million in State tax liability).

On the other hand, the deductibility from income taxes of property taxes (generally levied at the local government level), erodes the tax base of the State. The estimated leakage of tax from the State to local government estimated under this alternative is presented in the tables below. The 1988 low case Table 20 indicates a leakage from municipal property taxes of \$6.4 million.

Inflation Effects

Inflation adjustments are present in the exemption, deduction, and income limit amounts of this tax alternative. Inflation adjustment to the tax brackets in the rate structure will also help to prevent bracket creep, where taxpayers who may be no better off in any real sense (their income, after adjustment for inflation, is no greater) may have to pay greater portions in tax. As noted, the wider brackets make bracket creep less likely, but without indexing of any amounts expressed in dollar terms, inflation remains a concern.

TABLE 20
1988 TAX ALTERNATIVE TWO
LOW ECONOMIC SCENARIO

	N	PCTN	WAGE & SALARY SUM	ADJ GROSS INCOME SUM	TAXABLE INCOME SUM	NUMBER OF EXEMPTIONS SUM	VALUE OF EXEMPTIONS SUM	ITEMIZED DEDUCTIONS SUM	STANDARD DEDUCTIONS SUM
AGI GROUP									
LOSS	2878	1.19	26309170.00	-61678792.91	9522088.47	7805.00	15093065.29	21978299.00	8361481.80
\$0 TO \$10000	53355	22.06	248499609.00	305298080.85	51103488.58	78669.00	153385050.00	182077568.74	168834035.70
\$10001 TO \$20000	49490	20.46	668214244.00	769719577.88	361711133.07	91714.00	178824750.00	196100662.73	156198215.60
\$20001 TO \$30000	36082	14.92	822338578.00	943559133.02	567599932.03	82151.00	160156933.31	178839871.42	110198161.10
\$30001 TO \$40000	28778	11.90	971451140.00	1072829850.36	711225185.16	77343.00	150610013.87	177719720.99	73655960.10
\$40001 TO \$50000	22390	9.26	973365388.00	1068241985.88	746097930.25	65702.00	127937517.15	165810358.80	44977736.20
\$50001 TO \$60000	15856	6.56	815676730.00	923230676.83	661901490.79	48533.00	94469411.63	152000537.48	23540605.70
\$60001 TO \$70000	11225	4.64	683752605.00	777522186.01	575697419.09	35348.00	68617104.41	118371746.80	12946000.00
\$70001 TO \$80000	7883	3.26	542298283.00	636844305.28	482688052.22	25290.00	48879109.84	94435768.96	7230400.00
\$80001 TO \$90000	5208	2.15	398926188.00	485165674.57	376776961.75	16585.00	31662349.51	49861199.66	4521200.00
\$90001 TO \$100000	3243	1.34	256764893.00	349859148.04	277822663.84	10278.00	19120685.92	48547255.19	2540200.00
\$100001 TO \$150000	4837	2.00	425160325.00	668888559.51	548327386.29	15373.00	25887775.21	87967948.02	3339400.00
\$150001 TO \$200000	412	0.17	40720223.00	91310515.75	80761636.75	1223.00	743708.82	9273420.18	245100.00
\$200001 TO \$300000	55	0.02	4709336.00	22032721.97	20473845.20	128.00	6049.24	1497327.53	22000.00
\$300001 TO \$400000	93	0.04	15285945.00	44902551.74	41886181.28	297.00	0.00	2880620.46	69000.00
OVER \$400000	79	0.03	17348776.00	75394772.03	71074644.61	260.00	1950.00	4216627.42	28000.00
TOTAL	1241864	100	6910821433.00	8173120946.79	5584670039.37	556699.00	1075395474.20	1512078933.40	616707476.20

	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY PFD NONTAXABLE	LEAKAGE TO MUNICIPALITIES
	SUM	SUM	SUM	SUM
AGI GROUP				
1055	805951.00	200322.54	786573.72	13324.86
\$0 TO \$10000	4438674.10	113000.43	3349095.35	36028.81
\$10001 TO \$20000	26219840.58	777091.59	23464027.34	218233.57
\$20001 TO \$30000	39176979.56	2773480.06	36688166.92	455076.67
\$30001 TO \$40000	46660490.14	5659491.37	44654047.80	646396.23
\$40001 TO \$50000	47545498.74	8515129.86	45797643.19	730659.97
\$50001 TO \$60000	42090912.62	9815637.85	40718882.46	704807.30
\$60001 TO \$70000	37811798.08	9620499.84	36507427.15	790003.65
\$70001 TO \$80000	34225035.73	9042808.09	33091264.77	794083.68
\$80001 TO \$90000	28681819.09	7906701.10	27886221.43	636653.01
\$90001 TO \$100000	22072167.13	6419023.32	21578111.24	430551.89
\$100001 TO \$150000	45828246.99	13530189.39	45096326.12	791755.21
\$150001 TO \$200000	6892991.47	1896647.98	6837739.72	88859.21
\$200001 TO \$300000	1000047.14	273130.16	996071.02	7574.74
\$300001 TO \$400000	4355330.30	1167429.82	4339951.93	34468.44
OVER \$400000	6134956.01	1717787.68	6123717.63	29168.83
TOTAL	393940688.69	79477771.07	377915267.78	6407645.08

AGI GROUP	N	PCTN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	ITEMIZED DEDUCTIONS	STANDARD DEDUCTIONS
			MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
LO55	2878	1.19	9141.48	-21498.36	3308.58	2.71	5244.29	7636.66	4393.84
\$0 TO \$10000	53355	22.06	4657.48	5748.09	957.80	1.47	2874.80	3412.57	3299.22
\$10001 TO \$20000	49490	20.46	13502.01	15587.05	7308.77	1.85	3613.35	3962.43	3600.95
\$20001 TO \$30000	36082	14.92	22790.83	26205.61	15730.83	2.28	4438.69	4956.48	4013.63
\$30001 TO \$40000	28778	11.90	33756.73	37330.10	24714.20	2.69	5233.51	6175.54	4292.56
\$40001 TO \$50000	22390	9.26	43473.22	47761.87	33322.82	2.93	5714.05	7405.55	4509.95
\$50001 TO \$60000	15856	6.56	51442.00	58303.17	41744.54	3.06	5957.96	9586.31	4710.01
\$60001 TO \$70000	11225	4.64	60913.37	69341.14	51287.08	3.15	6112.88	10589.91	4726.54
\$70001 TO \$80000	7883	3.26	68793.39	80930.78	61231.52	3.21	6200.57	11979.67	4759.97
\$80001 TO \$90000	5208	2.15	76598.73	93283.15	72345.81	3.18	6079.56	13414.21	4840.69
\$90001 TO \$100000	3243	1.34	79175.11	107947.90	85668.41	3.17	5895.99	14969.86	4875.67
\$100001 TO \$150000	4837	2.00	87897.52	138371.65	113361.05	3.18	5352.03	18186.47	5129.65
\$150001 TO \$200000	412	0.17	98835.49	221627.47	196023.39	2.97	1805.12	22508.30	4713.46
\$200001 TO \$300000	55	0.02	85624.29	400594.94	372251.73	2.33	109.99	27224.14	4400.00
\$300001 TO \$400000	93	0.04	164365.00	482823.14	450389.05	3.19	0.00	30974.41	5750.00
OVER \$400000	79	0.03	219604.76	966599.64	899679.05	3.29	24.68	53375.03	4666.67
TOTAL	241864	100	28573.17	33870.36	23090.13	2.30	4446.28	6251.77	3795.61

	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY PFD NONTAXABLE	LEAKAGE TO MUNICIPALITI- ES
	MEAN	MEAN	MEAN	MEAN
AGI GROUP				
LOSS	280.04	69.60	273.31	4.63
\$0 TO \$10000	83.19	2.12	62.77	0.68
\$10001 TO \$20000	529.80	15.70	474.12	4.41
\$20001 TO \$30000	1085.78	76.87	1016.80	12.61
\$30001 TO \$40000	1621.39	196.66	1551.67	22.46
\$40001 TO \$50000	2123.51	380.31	2045.45	32.63
\$50001 TO \$60000	2654.57	619.01	2568.04	44.45
\$60001 TO \$70000	3368.53	857.06	3252.33	70.38
\$70001 TO \$80000	4341.63	1147.13	4197.80	100.73
\$80001 TO \$90000	5507.26	1518.18	5354.50	122.25
\$90001 TO \$100000	6806.10	1979.35	6653.75	132.76
\$100001 TO \$150000	9474.52	2807.56	9323.20	163.49
\$150001 TO \$200000	16730.56	4603.51	16596.46	215.68
\$200001 TO \$300000	18182.68	4966.00	18110.38	137.72
\$300001 TO \$400000	46831.51	12553.01	46666.15	370.63
OVER \$400000	77657.67	21744.15	77515.41	369.23
TOTAL	1628.77	328.61	1562.51	26.49

TABLE 21
1989 TAX ALTERNATIVE TWO
LOW ECONOMIC SCENARIO

	N	PCTN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	ITEMIZED DEDUCTIONS	STANDARD DEDUCTIONS
			SUM	SUM	SUM	SUM	SUM	SUM	SUM
AGI GROUP									
LOSS	2727	1.14	24579758.00	-59527626.97	8539877.59	7470.00	14846327.64	21084905.50	8367769.76
0 TO \$10000	49750	20.81	232987396.00	286672325.82	43820769.88	73786.00	147556000.00	176304462.61	163787805.25
\$10001 TO \$20000	48252	20.19	656298356.00	751535286.54	343897257.30	89031.00	178042000.00	195143890.35	157531673.01
\$20001 TO \$30000	35368	14.80	812405077.00	923763680.84	548745272.46	79515.00	159008000.00	177599705.33	112547490.52
\$30001 TO \$40000	28712	12.01	985741252.00	1070678566.88	706774140.62	76053.00	151948000.00	176830167.86	77262576.00
\$40001 TO \$50000	22522	9.42	989322698.00	1074621071.55	746927729.42	65638.00	131085200.65	166106723.06	48722923.85
\$50001 TO \$60000	15948	6.67	819697745.00	928255468.79	661843839.95	48377.00	96615931.55	153682669.80	25767530.03
\$60001 TO \$70000	11568	4.84	704321793.00	801060959.06	589753611.64	36355.00	72433344.64	123148975.88	14463323.70
\$70001 TO \$80000	8326	3.48	572604837.00	673113193.20	507520192.42	26733.00	53047841.18	100359852.33	8500826.94
\$80001 TO \$90000	5626	2.35	431283215.00	523202734.79	404613126.68	17881.00	35189627.87	75257881.92	5220974.82
\$90001 TO \$100000	3642	1.52	288673205.00	394794853.94	311889364.95	11567.00	22348398.95	55279979.96	2997955.44
\$100001 TO \$150000	5790	2.42	512296742.00	802432875.56	655680697.13	18561.00	32805332.25	105314904.19	4263216.36
\$150001 TO \$200000	541	0.23	56662960.00	119475168.33	105190074.84	1648.00	1339483.93	12180009.57	375576.60
\$200001 TO \$300000	64	0.03	6216251.00	25806499.57	24055611.52	148.00	0.00	1675688.05	24070.20
\$300001 TO \$400000	106	0.04	18829475.00	48952894.76	45458394.83	356.00	346.64	3326953.30	95235.00
OVER \$400000	90	0.04	17208477.00	94194971.63	89647513.03	285.00	4000.00	4430533.40	79197.60
TOTAL	239033	100	7129129237.00	8459082929.26	5794357474.22	553404.00	1076269835.30	1547727303.11	630008145.07

	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY PFD NONTAXABLE	LEAKAGE TO MUNICIPALITI- ES
	SUM	SUM	SUM	SUM
AGI GROUP				
LOSS	702031.58	175564.55	683889.89	11448.01
\$0 TO \$10000	3907670.17	95409.30	2866945.57	35723.00
\$10001 TO \$20000	25131022.67	761567.21	22309042.40	216444.60
\$20001 TO \$30000	38084505.38	2722826.15	35507304.99	450738.36
\$30001 TO \$40000	46436544.11	5733877.52	44337287.36	649397.15
\$40001 TO \$50000	47580392.01	8541177.00	45726616.09	740189.09
\$50001 TO \$60000	41919178.52	9754354.03	40472479.53	700788.28
\$60001 TO \$70000	38684465.03	9862651.70	37266681.00	808872.49
\$70001 TO \$80000	35971210.18	9522570.45	34697611.36	836398.06
\$80001 TO \$90000	30788824.69	8482168.65	29873813.72	674914.07
\$90001 TO \$100000	25023309.82	7264074.17	24426740.57	487725.29
\$100001 TO \$150000	55245384.16	16364553.68	54303123.36	955908.56
\$150001 TO \$200000	9220857.89	2567027.92	9139769.09	120569.23
\$200001 TO \$300000	1426380.41	374095.26	1420133.61	12528.72
\$300001 TO \$400000	4950982.18	1303539.32	4931836.98	37320.01
OVER \$400000	7656004.34	2090602.80	7643409.54	35157.00
TOTAL	412731763.13	85616059.73	395606685.05	6774121.92

AGI GROUP	N	PCTN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	ITEMIZED DEDUCTIONS	STANDARD DEDUCTIONS
			MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
LOSS	2727	1.14	9013.48	-21885.16	3131.60	2.74	5444.20	7731.91	4575.85
00 TO \$10000	49750	20.81	4683.16	5787.85	880.82	1.48	2965.95	3543.81	3438.61
\$10001 TO \$20000	48252	20.19	13601.47	15610.54	7127.11	1.85	3689.84	4044.27	3731.03
\$20001 TO \$30000	35369	14.80	22969.41	26168.20	15514.87	2.25	4495.69	5021.34	4141.43
\$30001 TO \$40000	28712	12.01	34332.03	37342.30	24615.98	2.65	5292.14	6158.75	4420.31
\$40001 TO \$50000	22522	9.42	43926.95	47771.55	33164.36	2.91	5820.32	7375.31	4631.02
\$50001 TO \$60000	15948	6.67	51398.15	58278.22	41500.12	3.03	6058.18	9636.49	4883.91
\$60001 TO \$70000	11568	4.84	60885.36	69343.92	50981.47	3.14	6261.53	10645.66	4926.20
\$70001 TO \$80000	8326	3.48	68773.10	81019.88	60956.06	3.21	6371.35	12053.79	4985.82
\$80001 TO \$90000	5626	2.35	76658.94	93146.29	71918.44	3.18	6254.82	13376.80	5054.19
\$90001 TO \$100000	3642	1.52	79262.27	108489.93	85636.84	3.18	6136.30	15178.47	5133.49
\$100001 TO \$150000	5790	2.42	88479.58	138637.33	113243.64	3.21	5665.66	18189.10	5329.02
\$150001 TO \$200000	541	0.23	104737.45	220841.35	194436.37	3.05	2475.94	22513.88	5216.34
\$200001 TO \$300000	64	0.03	97128.92	403226.56	375868.93	2.31	0.00	26182.63	4814.04
\$300001 TO \$400000	106	0.04	177636.56	461819.76	428852.78	3.36	3.27	31386.35	6349.00
OVER \$400000	90	0.04	191205.30	1070397.40	996083.48	3.17	44.44	49228.15	4949.85
TOTAL	239933	100	29824.87	35468.60	24240.83	2.32	4586.27	6474.95	3954.83

	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY PFD NONTAXABLE	LEAKAGE TO MUNICIPALITI- ES
	MEAN	MEAN	MEAN	MEAN
AGI GROUP				
LOSS	257.44	64.38	250.78	4.20
00 TO \$10000	78.55	1.92	57.63	0.72
\$10001 TO \$20000	520.83	15.78	462.34	4.49
\$20001 TO \$30000	1076.78	76.98	1003.91	12.74
\$30001 TO \$40000	1617.32	199.70	1544.21	22.62
\$40001 TO \$50000	2112.62	379.24	2030.31	32.87
\$50001 TO \$60000	2628.49	611.63	2537.78	43.94
\$60001 TO \$70000	3344.09	852.58	3221.53	69.92
\$70001 TO \$80000	4320.35	1143.71	4167.38	100.46
\$80001 TO \$90000	5472.60	1507.67	5309.96	119.96
\$90001 TO \$100000	6870.76	1994.53	6706.96	133.92
\$100001 TO \$150000	9542.04	2826.35	9378.78	165.10
\$150001 TO \$200000	17044.10	4744.97	16894.21	222.86
\$200001 TO \$300000	22287.19	5845.24	22189.59	195.76
\$300001 TO \$400000	46707.38	12297.54	46526.76	352.08
OVER \$400000	85066.71	23228.92	84926.77	390.63
TOTAL	1726.67	358.18	1655.03	28.34

TABLE 22
1990 TAX ALTERNATIVE TWO
LOW ECONOMIC SCENARIO

	N	PCTN	WAGE & SALARY SUM	ADJ GROSS INCOME SUM	TAXABLE INCOME SUM	NUMBER OF EXEMPTIONS SUM	VALUE OF EXEMPTIONS SUM	ITEMIZED DEDUCTIONS SUM	STANDARD DEDUCTIONS SUM
AGI GROUP									
LOSS	2622	1.13	25526126.00	-54911695.16	11333431.23	7222.00	14955107.50	21076660.44	8483328.04
\$0 TO \$10000	45296	19.52	209413184.00	260591560.84	35461641.15	67414.00	140990635.47	168623004.08	158474657.30
\$10001 TO \$20000	44893	19.34	607363524.00	699222851.80	309927139.85	81794.00	171067780.80	188890844.23	159317118.76
\$20001 TO \$30000	33958	14.63	775758196.00	888313489.07	520665780.64	74942.00	156725679.60	174641883.02	113826028.76
\$30001 TO \$40000	27907	12.03	956564806.00	1040705076.59	680127666.79	72648.00	151780933.34	175199547.49	79145947.52
\$40001 TO \$50000	22315	9.62	978808639.00	1064817448.92	733981817.95	64267.00	134250481.18	166743279.85	51893937.69
\$50001 TO \$60000	16087	6.93	828475374.00	936611011.46	663039984.41	48500.00	101311016.69	155989373.02	28052083.90
\$60001 TO \$70000	11938	5.14	724824159.00	826709341.16	605454012.30	37315.00	77766208.92	127314481.14	16394745.37
\$70001 TO \$80000	8778	3.78	604631162.00	710172238.27	532791585.96	28093.00	58339638.05	106166096.46	9759494.30
\$80001 TO \$90000	6192	2.67	471880182.00	576217347.26	443325723.96	19739.00	40637328.28	83488960.27	6193680.48
\$90001 TO \$100000	4132	1.78	328407845.00	444702445.62	350006028.77	13145.00	26701728.73	61964092.34	3612900.38
\$100001 TO \$150000	6952	3.00	609539110.00	964848535.81	785154740.35	22506.00	41902973.58	127339108.48	5737862.54
\$150001 TO \$200000	709	0.31	77427061.00	153190549.32	133381755.73	2237.00	2413340.31	16365853.28	561657.74
\$200001 TO \$300000	79	0.03	8081215.00	27081756.16	25212211.63	198.00	9600.75	1756743.78	47173.20
\$300001 TO \$400000	110	0.05	17519133.00	53161612.12	48748186.34	372.00	2370.19	4237455.58	72153.50
OVER \$400000	100	0.04	18918257.00	100847567.87	95247484.78	312.00	2091.60	5456164.19	73015.70
TOTAL	1232068	100	7243132973.00	8692281137.11	5973859191.81	540704.00	1118856914.07	1585253547.67	641645785.17

	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY PFD NONTAXABLE	LEAKAGE TO MUNICIPALITI- ES
	SUM	SUM	SUM	SUM
AGI GROUP				
LOSS	979376.38	252567.04	959792.56	12628.02
\$0 TO \$10000	3194810.41	76204.66	2311315.50	26252.62
\$10001 TO \$20000	22661326.86	667333.04	20094771.21	192979.90
\$20001 TO \$30000	36134707.09	2594426.43	33697112.96	430943.18
\$30001 TO \$40000	44710987.17	5562748.90	42706914.26	631522.73
\$40001 TO \$50000	46527081.87	8280929.74	44725800.30	718932.01
\$50001 TO \$60000	41818057.52	9738912.28	40380361.70	698390.70
\$60001 TO \$70000	39453490.26	10040080.45	38019166.95	821172.09
\$70001 TO \$80000	37511896.94	9915432.48	36184081.85	876826.09
\$80001 TO \$90000	33613074.03	9237383.37	32607070.06	749865.10
\$90001 TO \$100000	27878020.81	8141973.68	27202004.64	548547.11
\$100001 TO \$150000	67371725.94	19921207.82	66221059.54	1173940.48
\$150001 TO \$200000	12079913.30	3383405.01	11968795.70	171088.77
\$200001 TO \$300000	1747435.14	468833.74	1737637.14	16742.36
\$300001 TO \$400000	5287819.24	1404220.39	5268020.84	45525.68
OVER \$400000	9341921.02	2615737.89	9326069.42	37472.70
TOTAL	430311643.96	92301446.89	413409974.63	7152829.54

	N	PCTN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	ITEMIZED DEDUCTIONS	STANDARD DEDUCTIONS
			MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
AGI GROUP									
LOSS	2622	1.13	9735.36	-20990.71	4322.44	2.75	5703.70	8038.39	4828.30
\$0 TO \$10000	45296	19.52	4623.22	5778.60	782.89	1.49	3112.65	3722.69	3619.63
\$10001 TO \$20000	44893	19.34	13529.14	15611.83	6903.69	1.82	3810.57	4207.58	3881.24
\$20001 TO \$30000	33958	14.63	22844.64	26213.99	15332.64	2.21	4615.28	5142.88	4313.39
\$30001 TO \$40000	27907	12.03	34276.88	37342.75	24371.22	2.60	5438.81	6277.98	4594.03
\$40001 TO \$50000	22315	9.62	43863.26	47773.23	32891.86	2.88	6016.15	7472.25	4786.82
\$50001 TO \$60000	16087	6.93	51499.68	58301.34	41215.89	3.01	6297.69	9696.61	5092.05
\$60001 TO \$70000	11938	5.14	60715.71	69348.99	50716.54	3.13	6514.17	10664.64	5131.38
\$70001 TO \$80000	8778	3.78	68880.29	81005.16	60696.24	3.20	6646.12	12094.57	5193.98
\$80001 TO \$90000	6192	2.67	76208.04	93223.97	71596.53	3.19	6562.88	13483.36	5280.21
\$90001 TO \$100000	4132	1.78	79429.15	107650.07	84706.20	3.18	6462.18	14996.15	5320.91
\$100001 TO \$150000	4952	3.00	87678.24	138827.13	112939.40	3.24	6027.47	18316.90	5597.91
\$150001 TO \$200000	709	0.31	109206.01	216065.65	188126.59	3.16	3403.87	23083.01	5506.45
\$200001 TO \$300000	79	0.03	102293.86	342807.04	319141.92	2.51	121.53	22237.26	5896.65
\$300001 TO \$400000	110	0.05	159264.85	483287.38	443165.33	3.38	21.55	38522.32	6559.41
OVER \$400000	100	0.04	189182.57	1018662.30	952474.85	3.12	20.92	54561.64	5616.59
TOTAL	1232068	100	31211.27	37538.41	25741.85	2.33	4821.25	6830.99	4149.31

	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY PFD NONTAXABLE	LEAKAGE TO MUNICIPALITI- ES
	MEAN	MEAN	MEAN	MEAN
AGI GROUP				
LOSS	373.52	96.33	366.05	4.82
\$0 TO \$10000	70.53	1.68	51.03	0.58
\$10001 TO \$20000	504.79	14.86	447.61	4.30
\$20001 TO \$30000	1064.10	76.40	992.32	12.69
\$30001 TO \$40000	1602.14	199.33	1530.33	22.63
\$40001 TO \$50000	2085.01	371.09	2004.29	32.22
\$50001 TO \$60000	2599.49	605.39	2510.12	43.41
\$60001 TO \$70000	3304.87	841.02	3184.72	68.79
\$70001 TO \$80000	4273.40	1129.58	4122.13	99.89
\$80001 TO \$90000	5428.47	1491.83	5266.00	121.10
\$90001 TO \$100000	6746.86	1970.47	6583.25	132.76
\$100001 TO \$150000	9690.98	2865.54	9525.47	168.86
\$150001 TO \$200000	17037.96	4772.08	16881.24	241.31
\$200001 TO \$300000	22119.43	5935.24	21995.41	211.93
\$300001 TO \$400000	48071.08	12765.64	47891.10	413.87
OVER \$400000	93419.21	26157.38	93260.69	374.73
TOTAL	1854.25	397.73	1781.42	30.82

TABLE 23
1991 TAX ALTERNATIVE TWO
LOW ECONOMIC SCENARIO

	N	PCTN	WAGE & SALARY SUM	ADJ GROSS INCOME SUM	TAXABLE INCOME SUM	NUMBER OF EXEMPTIONS SUM	VALUE OF EXEMPTIONS SUM	ITEMIZED DEDUCTIONS SUM	STANDARD DEDUCTIONS SUM
AGI GROUP									
LOSS	2419	1.07	22722616.00	-48966407.45	9697792.17	6664.00	14468915.64	19574019.26	8189143.56
\$0 TO \$10000	42107	18.55	193833384.00	241699360.09	29806371.81	62257.00	136176587.00	163415328.15	155432229.09
\$10001 TO \$20000	42552	18.74	573637888.00	663765627.54	285202344.27	76780.00	167937635.00	185411324.71	158306421.37
\$20001 TO \$30000	32994	14.53	751855480.00	861414298.61	497522399.95	71271.00	155885061.00	173732249.71	115890927.74
\$30001 TO \$40000	27248	12.00	933776569.00	1016421637.12	658895697.42	69442.00	151728471.99	172656130.28	81040430.83
\$40001 TO \$50000	21843	9.62	956248447.00	1042692481.52	713241840.92	61808.00	135056358.54	165878703.87	54379153.88
\$50001 TO \$60000	16104	7.09	828050505.00	938350265.57	660747128.36	47990.00	104844269.40	156683042.18	30406753.84
\$60001 TO \$70000	12292	5.41	746748943.00	851055079.46	619440346.65	38192.00	83306535.04	131753600.07	18235957.04
\$70001 TO \$80000	9227	4.06	634749096.00	745792375.32	556753370.83	29334.00	63852393.40	111702118.27	11195935.36
\$80001 TO \$90000	6585	2.90	504345180.00	613002694.62	469110985.06	20956.00	45309622.99	89242122.52	7094186.64
\$90001 TO \$100000	4516	1.99	358621482.00	489577935.00	383977340.94	14463.00	30759375.32	68386060.98	4302698.44
\$100001 TO \$150000	7982	3.52	707583864.00	1107770863.76	898085467.76	25739.00	51258246.52	146445074.28	7255194.80
\$150001 TO \$200000	917	0.40	95826032.00	202428533.36	176850429.20	2895.00	3572277.85	20661826.31	804320.92
\$200001 TO \$300000	91	0.04	8526371.00	34485304.75	32249030.01	211.00	6936.16	2118138.57	87348.32
\$300001 TO \$400000	91	0.04	14471967.00	44541391.74	41317990.67	306.00	3398.36	3078402.71	89206.90
OVER \$400000	82	0.04	18777337.00	81885809.63	78164222.52	259.00	0.00	3599987.11	59946.20
TOTAL	227050	100	7349775161.00	8885917250.63	6111062758.12	528567.00	1144164084.22	1614338128.97	652769854.54

AGI GROUP	TAX LIABILITY PFED TAXABLE		PAID FROM FEDRL TAX		TAX LIABILITY PFED NONTAXABLE		LEAKAGE TO MUNICIPALITI- ES	
	SUM		SUM		SUM		SUM	
LOSS	779018.17		195788.69		761225.61		11333.70	
\$0 TO \$10000	2723817.51		65986.97		1949983.01		25258.31	
\$10001 TO \$20000	20866072.63		616826.03		18498297.84		180513.13	
\$20001 TO \$30000	34475269.53		2462403.14		32147589.70		407991.63	
\$30001 TO \$40000	43140127.20		5409102.47		41229857.96		602692.90	
\$40001 TO \$50000	44875887.18		7922280.81		43158242.01		700366.15	
\$50001 TO \$60000	41334688.23		9599165.49		39926244.68		684434.11	
\$60001 TO \$70000	40076977.22		10197474.33		38634482.59		824778.37	
\$70001 TO \$80000	39042773.80		10307669.01		37657340.94		907148.12	
\$80001 TO \$90000	35479130.58		9749151.56		34412118.54		800547.78	
\$90001 TO \$100000	30710209.65		8893062.51		29968645.48		597150.97	
\$100001 TO \$150000	76847109.30		22784437.92		75525106.50		1351866.79	
\$150001 TO \$200000	16232508.77		4560646.05		16086559.97		213988.56	
\$200001 TO \$300000	1995382.42		500809.86		1986323.62		15148.54	
\$300001 TO \$400000	4276015.04		1158281.62		4259979.44		35655.37	
OVER \$400000	7083086.30		1948666.14		7070013.10		37619.61	
TOTAL	439938573.54		96371752.59		423272011.00		7396494.04	

AGI GROUP	N	PCTN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	ITEMIZED DEDUCTIONS	STANDARD DEDUCTIONS
			MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
LOSS	2419	1.07	9393.39	-20284.34	4009.01	2.75	5981.36	8091.78	5058.15
20 TO \$10000	42107	18.55	4603.35	5765.59	707.87	1.48	3234.06	3880.95	3778.68
\$10001 TO \$20000	42552	18.74	13480.87	15631.26	6702.44	1.80	3946.64	4357.29	4047.72
\$20001 TO \$30000	32994	14.53	22787.44	26162.92	15079.18	2.16	4724.65	5265.57	4470.58
\$30001 TO \$40000	27248	12.00	34269.55	37354.71	24181.43	2.55	5568.43	6336.47	4759.25
\$40001 TO \$50000	21843	9.62	43778.26	47788.28	32653.11	2.83	6183.05	7594.14	4978.86
\$50001 TO \$60000	16104	7.09	51418.93	58344.23	41030.00	2.98	6510.45	9729.45	5287.21
\$60001 TO \$70000	12292	5.41	60750.81	69338.04	50393.78	3.11	6777.30	10718.65	5347.79
\$70001 TO \$80000	9227	4.06	68792.58	80950.00	60339.59	3.18	6920.17	12106.01	5427.02
\$80001 TO \$90000	6585	2.90	76590.00	93246.53	71239.33	3.18	6880.73	13552.33	5503.64
\$90001 TO \$100000	4516	1.99	79411.31	108457.67	85025.98	3.20	6811.20	15143.06	5646.59
\$100001 TO \$150000	7982	3.52	88647.44	138853.20	112513.84	3.22	6421.73	18346.91	5888.96
\$150001 TO \$200000	917	0.40	104499.49	220750.85	192857.61	3.16	3895.61	22531.98	5786.48
\$200001 TO \$300000	91	0.04	93696.38	378959.39	354384.95	2.32	76.22	23276.25	5823.22
\$300001 TO \$400000	91	0.04	159032.60	489465.84	454043.85	3.36	37.34	33828.60	6371.89
OVER \$400000	82	0.04	228991.91	998607.43	953222.23	3.16	0.00	43902.28	5449.65
TOTAL	227050	100	32370.73	39219.30	26915.05	2.33	5039.27	7110.06	4339.59

	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY PFD NONTAXABLE	LEAKAGE TO MUNICIPALITI- ES
	MEAN	MEAN	MEAN	MEAN
AGI GROUP				
LOSS	322.04	88.94	314.69	4.69
\$0 TO \$10000	64.69	1.57	46.31	0.60
\$10001 TO \$20000	490.37	14.50	434.72	4.24
\$20001 TO \$30000	1044.90	74.63	974.35	12.37
\$30001 TO \$40000	1583.24	198.51	1513.13	22.12
\$40001 TO \$50000	2054.47	362.69	1975.84	32.06
\$50001 TO \$60000	2566.73	596.07	2479.28	42.50
\$60001 TO \$70000	3260.41	829.60	3143.06	67.10
\$70001 TO \$80000	4231.36	1117.12	4081.21	98.31
\$80001 TO \$90000	5387.87	1480.51	5225.83	121.57
\$90001 TO \$100000	6800.31	1969.23	6636.10	132.23
\$100001 TO \$150000	9627.55	2854.48	9461.93	169.36
\$150001 TO \$200000	17701.75	4973.44	17542.60	233.36
\$200001 TO \$300000	21932.77	5503.41	21827.73	166.47
\$300001 TO \$400000	46989.18	12728.37	46812.96	391.82
OVER \$400000	86379.10	23764.22	86219.67	458.78
TOTAL	1937.63	424.45	1864.22	32.58

TABLE 24
1992 TAX ALTERNATIVE TWO
LOW ECONOMIC SCENARIO

	N	PCTH	WAGE & SALARY SUM	ADJ GROSS INCOME SUM	TAXABLE INCOME SUM	NUMBER OF EXEMPTIONS SUM	VALUE OF EXEMPTIONS SUM	ITEMIZED DEDUCTIONS SUM	STANDARD DEDUCTIONS SUM
AGI GROUP									
LOSS	2264	1.03	21510055.00	-48921117.13	8114347.25	6330.00	14384194.44	18863524.74	8114243.02
\$0 TO \$10000	38092	17.35	173424469.00	218101755.25	23788322.16	56474.00	129185347.20	155174388.06	147773688.14
\$10001 TO \$20000	39603	18.04	531457697.00	618621308.98	257937418.47	70168.00	160509454.00	179307812.24	155171903.87
\$20001 TO \$30000	31514	14.35	715441887.00	822644758.59	467034651.20	66914.00	153042727.60	170561026.02	117073787.49
\$30001 TO \$40000	26099	11.89	884436553.00	969951666.68	620734000.89	65254.00	149178971.20	169210251.67	81851749.25
\$40001 TO \$50000	21295	9.70	925620350.00	1017112468.21	690264912.17	59416.00	135753966.36	163329146.61	56694376.20
\$50001 TO \$60000	16056	7.31	824716113.00	935551453.61	654404147.90	47366.00	108233956.20	157095074.37	82668999.51
\$60001 TO \$70000	12422	5.66	752396329.00	862414743.02	624635880.11	38291.00	87347154.61	133696562.59	20038019.25
\$70001 TO \$80000	9564	4.36	657913473.00	773528676.35	573470189.91	30524.00	69524885.52	116622587.60	12781926.80
\$80001 TO \$90000	7028	3.20	536363704.00	655823705.91	500347250.32	22269.00	50447780.07	95256782.34	8289646.80
\$90001 TO \$100000	4866	2.22	385216038.00	526313960.95	409804453.11	15613.00	34820123.27	74625087.75	5142120.00
\$100001 TO \$150000	9346	4.26	835105299.00	1304899322.58	1055418619.10	30255.00	63751156.73	171645717.94	8996436.00
\$150001 TO \$200000	1171	0.53	126341782.00	258367717.96	224494628.73	3716.00	5403653.06	26731036.17	1093440.04
\$200001 TO \$300000	143	0.07	13834587.00	50797706.62	47043251.32	378.00	28787.04	3532868.26	131494.40
\$300001 TO \$400000	37	0.02	5966913.00	17275554.88	16280573.60	110.00	0.00	939781.28	47270.00
OVER \$400000	84	0.04	16066422.00	77910048.33	73140582.27	275.00	0.00	4644666.06	65788.00
TOTAL	219584	100	7405811671.00	9060393730.75	6246913228.49	513353.00	1161612157.31	1641236313.68	655934288.73

	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY PFD NONTAXABLE	LEAKAGE TO MUNICIPALITI- ES
	SUM	SUM	SUM	SUM
AGI GROUP				
LOSS	669330.40	168998.96	653945.35	10295.72
\$0 TO \$10000	2193775.97	56995.08	1550346.78	20175.82
\$10001 TO \$20000	18854038.22	542939.34	16709237.19	161323.28
\$20001 TO \$30000	32381416.26	2303961.33	30193582.61	380239.40
\$30001 TO \$40000	40620982.75	5067769.78	38835094.14	560592.36
\$40001 TO \$50000	43273139.70	7569076.77	41634999.33	654888.96
\$50001 TO \$60000	40769515.62	9444555.49	39390426.99	675415.71
\$60001 TO \$70000	40155833.34	10247933.97	38727810.99	821261.87
\$70001 TO \$80000	39920002.91	10554881.98	38500523.09	932517.45
\$80001 TO \$90000	37491451.70	10273439.10	36362104.97	852659.55
\$90001 TO \$100000	32767620.79	9502986.87	31967502.75	653833.45
\$100001 TO \$150000	91033657.39	27143717.93	89476021.79	1577162.60
\$150001 TO \$200000	20920648.69	5853790.82	20730171.89	280600.49
\$200001 TO \$300000	3719224.83	986462.36	3700364.83	29540.97
\$300001 TO \$400000	1611082.08	451102.98	1604982.48	7164.13
OVER \$400000	6699342.54	1846610.18	6685901.34	32511.12
TOTAL	453081063.19	102015222.92	436723016.50	7650182.87

AGI GROUP	N	PCTH	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	ITEMIZED DEDUCTIONS	STANDARD DEDUCTIONS
			MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
LOSS	2264	1.03	9500.91	-21656.09	3584.08	2.80	6353.44	8331.95	5334.81
\$0 TO \$10000	38092	17.35	4552.78	5750.26	624.50	1.48	3391.40	4073.67	3968.89
\$10001 TO \$20000	39603	18.04	13419.63	15652.98	6513.08	1.77	4052.96	4527.63	4226.50
\$20001 TO \$30000	31514	14.35	22702.35	26162.22	14819.91	2.12	4856.34	5412.23	4644.13
\$30001 TO \$40000	26099	11.89	33887.76	37219.94	23783.82	2.50	5715.89	6483.40	4953.21
\$40001 TO \$50000	21295	9.70	43466.56	47816.86	32414.41	2.79	6374.92	7669.84	5198.93
\$50001 TO \$60000	16056	7.31	51364.98	58340.70	40757.61	2.95	6741.03	9784.20	5498.91
\$60001 TO \$70000	12422	5.66	60569.66	69515.94	50284.65	3.08	7031.65	10762.89	5567.66
\$70001 TO \$80000	9564	4.36	68790.62	81006.25	59961.33	3.19	7269.44	12193.91	5658.22
\$80001 TO \$90000	7028	3.20	76318.11	93462.12	71193.40	3.17	7178.11	13553.90	5748.71
\$90001 TO \$100000	4866	2.22	79164.82	108206.00	84217.93	3.21	7155.80	15336.02	5863.31
\$100001 TO \$150000	9346	4.26	89354.30	139680.94	112927.31	3.24	6821.22	18365.69	6103.42
\$150001 TO \$200000	1171	0.53	107892.21	220638.53	191711.89	3.17	4614.56	22827.53	6177.63
\$200001 TO \$300000	143	0.07	96745.36	355228.72	328973.79	2.64	201.31	24705.37	6261.64
\$300001 TO \$400000	37	0.02	161267.92	466906.89	440015.50	2.97	0.00	25399.49	6752.86
OVER \$400000	84	0.04	191266.93	927500.58	870721.22	3.27	0.00	55293.64	5980.73
TOTAL	219584	100	33726.55	41346.55	28448.85	2.34	5290.06	7474.30	4557.79

TAX LIABILITY FED TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY FED NONTAXABLE	TAX LIABILITY FED MUNICIPALITY- ES	AGI GROUP	
				MEAN	MEAN
1055	295.64	74.65	288.85	4.55	0.53
50 TO \$10000	57.59	1.50	40.70	4.07	12.07
\$10001 TO \$20000	476.08	13.71	421.92	4.07	12.07
\$20001 TO \$30000	1027.52	73.11	958.10	4.07	12.07
\$30001 TO \$40000	1556.42	194.17	1487.99	21.48	30.75
\$40001 TO \$50000	2032.08	355.44	1955.15	42.07	66.11
\$50001 TO \$60000	2539.21	588.23	2453.32	66.11	97.50
\$60001 TO \$70000	3232.64	824.98	3117.68	121.32	134.37
\$70001 TO \$80000	4173.99	1103.61	4025.57	168.75	239.62
\$80001 TO \$90000	5334.58	1461.79	5173.89	206.58	259.62
\$90001 TO \$100000	6734.00	1952.94	6569.56	259.62	34.84
\$100001 TO \$150000	9740.39	2904.31	9573.72	34.84	387.04
\$150001 TO \$200000	17865.63	4998.97	17702.96	387.04	193.63
\$200001 TO \$300000	26008.57	6498.34	25876.68	193.63	387.04
\$300001 TO \$400000	43542.76	12191.97	43377.90	387.04	193.63
OVER \$400000	79754.08	21983.45	79594.06	193.63	387.04
TOTAL	2063.36	464.58	1988.87	34.84	387.04

Liability to Collections

The projected time pattern generated from 1970 - 1979 accounting data can be used to translate the projected tax year collections presented in the tables below into gross receipts (col. 2), refunds (col. 3), and net receipts (col. 4) by quarter and fiscal year. The U. S. Consumer Price Index (col. 5) is used to deflate or inflate the net receipts in nominal dollars to real 1986 dollars (col. 6) so we can compare estimated 1988 through 1992 projected fiscal year collections to actual collections from 1975 through 1979.

TABLE 25
(PFD TAXABLE)
LIABILITY TO COLLECTIONS
TAX ALTERNATIVE TWO

-----USING HISTORICAL DATA-----											
FY/Q	GROSS RECEIPTS (\$m nom)	REFUNDS (\$m nom)	NET RECEIPTS (\$m nom)	CPI	NET REC \$86 (\$m real)	FY/Q	GROSS RECEIPTS (\$m nom)	REFUNDS (\$m nom)	NET RECEIPTS (\$m nom)	CPI	NET REC \$86 (\$m real)
86				325.98		86				325.98	
75/1	\$18	\$1	\$17			88/1	\$0	\$1	(\$1)		
/2	\$25	\$0	\$25			/2	\$0	\$0	(\$0)		
/3	\$27	\$2	\$25			/3	\$1	\$3	(\$1)		
/4	\$34	\$14	\$21			/4	\$79	\$6	\$73		
TOTAL	\$104	\$16	\$87	155.16	\$184	TOTAL	\$80	\$9	\$71	338.66	\$68
76/1	\$36	\$2	\$34			89/1	\$105	\$5	\$99		
/2	\$46	\$1	\$45			/2	\$138	\$2	\$136		
/3	\$47	\$13	\$34			/3	\$134	\$16	\$118		
/4	\$50	\$16	\$34			/4	\$112	\$36	\$76		
TOTAL	\$178	\$31	\$147	166.17	\$288	TOTAL	\$489	\$60	\$429	354.17	\$395
77/1	\$53	\$3	\$50			90/1	\$110	\$6	\$103		
/2	\$62	\$1	\$61			/2	\$144	\$2	\$142		
/3	\$77	\$15	\$63			/3	\$141	\$20	\$121		
/4	\$60	\$22	\$38			/4	\$117	\$44	\$73		
TOTAL	\$252	\$41	\$210	175.80	\$390	TOTAL	\$512	\$72	\$440	370.39	\$387
78/1	\$46	\$3	\$43			91/1	\$114	\$5	\$109		
/2	\$43	\$1	\$42			/2	\$151	\$2	\$149		
/3	\$42	\$6	\$36			/3	\$147	\$16	\$131		
/4	\$50	\$25	\$25			/4	\$120	\$35	\$86		
TOTAL	\$181	\$36	\$146	187.62	\$253	TOTAL	\$532	\$57	\$475	387.35	\$400
79/1	\$43	\$10	\$33			92/1	\$117	\$5	\$112		
/2	\$42	\$1	\$41			/2	\$154	\$2	\$152		
/3	\$42	\$15	\$27			/3	\$150	\$15	\$135		
/4	\$47	\$31	\$16			/4	\$121	\$34	\$87		
TOTAL	\$174	\$57	\$117	205.22	\$186	TOTAL	\$542	\$55	\$486	405.09	\$391

TABLE 26
1988 TAX ALTERNATIVE TWO
MODERATE ECONOMIC SCENARIO

	N	PCTN	WAGE & SALARY SUM	ADJ GROSS INCOME SUM	TAXABLE INCOME SUM	NUMBER OF EXEMPTIONS SUM	VALUE OF EXEMPTIONS SUM	ITEMIZED DEDUCTIONS SUM	STANDARD DEDUCTIONS SUM
AGI GROUP									
LOSS	3100	1.17	28281141.00	-61444490.96	11505727.51	8295.00	16031015.29	23199403.58	8920079.40
\$0 TO \$10000	59403	22.42	270128023.00	338555016.00	56644579.29	85667.00	167031150.00	202316548.83	188501300.20
\$10001 TO \$20000	54784	20.68	728576580.00	851035482.08	404898280.60	98951.00	192938850.00	216241954.99	174005920.40
\$20001 TO \$30000	39411	14.88	891007933.00	1030107863.38	623992788.56	88043.00	171646333.31	194628692.21	119972065.00
\$30001 TO \$40000	31031	11.71	1030650179.00	1150799371.58	764557341.66	81746.00	159257939.75	191698072.93	79069707.80
\$40001 TO \$50000	23954	9.04	1032909499.00	1142649829.99	799475004.57	69458.00	135255859.46	178033078.14	48153836.10
\$50001 TO \$60000	17163	6.48	882968616.00	998647869.19	718014053.73	51769.00	100765961.63	163584738.02	25302837.20
\$60001 TO \$70000	12206	4.61	742422172.00	844152753.33	625583999.21	38244.00	74256265.58	128844532.84	14164300.00
\$70001 TO \$80000	8524	3.22	588115204.00	688799061.32	522169281.65	27190.00	52566559.84	102377161.71	7935050.00
\$80001 TO \$90000	5672	2.14	432324512.00	528886838.01	411022653.00	17968.00	34313376.56	76079694.81	4994400.00
\$90001 TO \$100000	3549	1.34	282732742.00	381335884.95	301526506.32	11218.00	20913480.42	54197458.58	2602100.00
\$100001 TO \$150000	5427	2.05	473620536.00	748821667.34	614044733.23	17285.00	29172404.62	98084229.49	3845000.00
\$150001 TO \$200000	470	0.18	47369847.00	101944043.67	90063530.18	1404.00	906224.67	10364538.82	322800.00
\$200001 TO \$300000	49	0.02	4666366.00	18125990.20	16787484.76	116.00	8474.81	1277530.62	15200.00
\$300001 TO \$400000	95	0.04	15666462.00	46314279.44	42683468.92	339.00	0.00	3489810.52	47100.00
OVER \$400000	83	0.03	17633031.00	85184874.61	81601792.58	256.00	0.00	3467582.03	42900.00
TOTAL	264921	100	7469072843.00	8893916334.10	6084571225.77	597949.00	1155063895.95	1647885028.16	677894596.10

TAX LIABILITY PAID FROM FEDL TAX	TAX LIABILITY PAID MONTAXABLE	TAX LIABILITY LEAKAGE TO MUNICIPALITI- ES	SUM	SUM	SUM
972072.33	241851.04	952116.26	13567.82		
4911733.32	108083.62	3692978.82	37470.19		
29287030.43	849348.23	26274323.13	234957.70		
42994516.14	3006364.63	40318484.26	484075.52		
50012330.48	5997923.94	47901413.64	669000.41		
50634865.30	9001474.60	48807081.38	766785.45		
45311118.80	10591465.47	43852614.64	757167.45		
40883976.47	10406263.18	39478360.87	852135.39		
36916400.99	9775562.15	35699789.32	856265.07		
31083418.35	8564669.69	30223628.41	684473.50		
23861775.68	6935813.05	23322764.78	471942.64		
51072372.14	15162504.26	50255547.89	874205.83		
7696761.81	2110076.07	7633238.68	98691.36		
860059.27	216817.24	855962.40	8676.17		
4575422.69	1266656.87	4559285.32	38550.91		
7365341.55	2027675.23	7352912.93	39507.82		
428439195.76	86262549.26	411180422.73	6887553.23		
TOTAL					
OVER \$400000					
\$300001 TO \$400000					
\$200001 TO \$300000					
\$150001 TO \$200000					
\$100001 TO \$150000					
\$90001 TO \$100000					
\$80001 TO \$90000					
\$70001 TO \$80000					
\$60001 TO \$70000					
\$50001 TO \$60000					
\$40001 TO \$50000					
\$30001 TO \$40000					
\$20001 TO \$30000					
\$10001 TO \$20000					
\$0 TO \$10000					
LOSS					
AGI GROUP					

AGI GROUP	N	PCTN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	ITEMIZED DEDUCTIONS	STANDARD DEDUCTIONS
			MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
LOSS	3100	1.17	9122.95	-19878.52	3711.53	2.68	5171.30	7483.68	4340.67
\$0 TO \$10000	59403	22.42	4547.38	5726.77	953.56	1.44	2811.83	3605.83	3295.25
\$10001 TO \$20000	54784	20.68	13299.08	15570.76	7390.81	1.81	3521.81	3947.17	3591.75
\$20001 TO \$30000	39411	14.88	22608.10	26192.07	15832.96	2.23	4355.29	4938.44	3992.81
\$30001 TO \$40000	31031	11.71	33213.57	37138.13	24638.50	2.63	5132.22	6177.63	4274.73
\$40001 TO \$50000	23954	9.04	43120.54	47765.65	33375.43	2.90	5646.48	7432.29	4502.04
\$50001 TO \$60000	17163	6.48	51446.05	58264.17	41835.00	3.02	5871.12	9531.24	4674.46
\$60001 TO \$70000	12206	4.61	60824.36	69255.29	51252.17	3.13	6083.59	10555.84	4701.06
\$70001 TO \$80000	8524	3.22	68995.21	80939.96	61258.71	3.19	6166.89	12010.46	4740.17
\$80001 TO \$90000	5672	2.14	73220.82	93376.91	72465.21	3.17	6049.61	13413.20	4806.93
\$90001 TO \$100000	3549	1.34	79665.47	107539.73	84960.98	3.16	5892.78	15271.19	4881.99
\$100001 TO \$150000	5427	2.05	87271.15	138031.64	113146.26	3.19	5375.42	18073.38	5099.47
\$150001 TO \$200000	470	0.18	100786.91	216902.22	191624.53	2.99	1928.14	22052.21	4966.15
\$200001 TO \$300000	49	0.02	95231.96	369918.17	342601.73	2.37	172.96	26072.05	5066.67
\$300001 TO \$400000	95	0.04	164910.13	487518.73	449299.67	3.57	0.00	36734.85	5837.50
OVER \$400000	83	0.03	212446.16	1026323.79	983154.13	3.08	0.00	41778.10	4766.67
TOTAL	264921	100	28193.59	33654.15	22967.49	2.26	4360.03	6220.29	3777.50

	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY PFD NONTAXABLE	LEAKAGE TO MUNICIPALITI- ES
	MEAN	MEAN	MEAN	MEAN
AGI GROUP				
LO55	313.57	78.02	307.13	4.38
\$0 TO \$10000	82.68	1.82	62.17	0.63
\$10001 TO \$20000	534.59	15.50	479.60	4.29
\$20001 TO \$30000	1090.93	76.28	1023.03	12.28
\$30001 TO \$40000	1611.69	193.29	1543.66	21.56
\$40001 TO \$50000	2113.84	375.78	2037.53	32.01
\$50001 TO \$60000	2640.05	617.11	2555.07	44.12
\$60001 TO \$70000	3349.50	852.55	3234.34	69.81
\$70001 TO \$80000	4330.88	1146.83	4188.14	100.45
\$80001 TO \$90000	5480.15	1509.99	5328.57	120.68
\$90001 TO \$100000	6723.52	1954.30	6571.64	132.98
\$100001 TO \$150000	9410.79	2793.90	9260.20	161.08
\$150001 TO \$200000	16376.09	4489.52	16240.93	209.98
\$200001 TO \$300000	17552.23	4424.84	17468.62	177.06
\$300001 TO \$400000	48162.34	13333.23	47992.48	405.80
OVER \$400000	88739.05	24429.82	88589.31	476.96
TOTAL	1617.23	325.62	1552.09	26.00

TABLE 27
1989 TAX ALTERNATIVE TWO
MODERATE ECONOMIC SCENARIO

AGI GROUP	N	PCTN	WAGE & SALARY SUM	ADJ GROSS INCOME SUM	TAXABLE INCOME SUM	NUMBER OF EXEMPTIONS SUM	VALUE OF EXEMPTIONS SUM	ITEMIZED DEDUCTIONS SUM	STANDARD DEDUCTIONS SUM
LOSS	3006	1.12	28070529.00	-64487886.75	12527197.24	8114.00	16054655.29	23485964.55	9031311.99
0 TO \$10000	56662	21.11	257635640.00	324767512.55	4971681.10	82012.00	164804000.00	201516525.51	183252971.03
\$10001 TO \$20000	54308	20.24	720811102.00	844326250.27	390899175.82	97269.00	194522000.00	221137337.87	180274961.14
\$20001 TO \$30000	39735	14.81	897217379.00	1038269296.78	622489739.02	87008.00	173964000.00	199618758.65	126400873.11
\$30001 TO \$40000	31588	11.77	1055289336.00	1174989186.46	777546279.07	81557.00	162894000.00	196678224.06	84411576.09
\$40001 TO \$50000	24634	9.18	1062494637.00	1175937775.50	818647183.43	70535.00	140867549.44	183764348.07	52882562.28
\$50001 TO \$60000	17785	6.63	913542735.00	1035260965.56	739312225.99	53447.00	106743931.55	170569901.29	28633225.61
\$60001 TO \$70000	13042	4.86	791237713.00	903171006.17	666591012.64	40429.00	80564991.87	138267945.76	16443045.34
\$70001 TO \$80000	9356	3.49	643333916.00	757004148.90	571722995.34	29782.00	59048005.95	112581320.48	9607889.88
\$80001 TO \$90000	6388	2.38	486846827.00	595002356.86	460538317.14	20259.00	39829895.91	85622644.16	5976512.78
\$90001 TO \$100000	4223	1.57	333768399.00	456522662.61	360691218.15	13467.00	26015499.13	63676806.25	3515644.80
\$100001 TO \$150000	6717	2.50	592160693.00	933514844.45	763689792.71	21486.00	37687267.22	122155700.73	5090038.56
\$150001 TO \$200000	658	0.25	67581334.00	143041504.29	125800597.88	1992.00	1608859.59	14708346.82	472561.20
\$200001 TO \$300000	78	0.03	6477017.00	32038015.94	30026468.92	180.00	0.00	1916347.02	39757.20
\$300001 TO \$400000	90	0.03	13946040.00	45523451.28	42368441.86	311.00	346.64	3013262.78	45938.50
OVER \$400000	80	0.03	15339488.00	76761347.92	71342843.07	264.00	0.00	5300106.85	40511.40
TOTAL	1268350	100	7885752785.00	9471642938.98	6503820169.33	608112.00	1203805002.59	1744014638.84	711074730.90

	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY PFD NONTAXABLE	LEAKAGE TO MUNICIPALITI- ES
	SUM	SUM	SUM	SUM
AGI GROUP				
LOSS	1881575.60	278966.99	1860568.93	14367.79
00 TO \$10000	4426568.31	104804.75	3240924.70	35337.05
\$10001 TO \$20000	28495209.89	810030.50	25360323.15	223626.97
\$20001 TO \$30000	43094391.17	3036755.28	40259220.93	484825.70
\$30001 TO \$40000	50874466.40	6238092.11	48640215.71	676183.42
\$40001 TO \$50000	51784155.23	9229498.54	49812111.33	778911.93
\$50001 TO \$60000	46587502.19	10861459.61	44997382.98	771571.41
\$60001 TO \$70000	43413919.92	11066291.84	41835452.94	895708.56
\$70001 TO \$80000	40300429.48	10662287.51	38884676.81	936339.68
\$80001 TO \$90000	34803555.86	9575037.72	33776067.66	764989.03
\$90001 TO \$100000	28723799.22	8332613.20	28035205.67	560911.27
\$100001 TO \$150000	64599783.92	19086128.72	63505698.72	1114595.30
\$150001 TO \$200000	10937780.48	3019728.49	10840637.68	141997.84
\$200001 TO \$300000	1949921.60	532499.81	1941540.40	18455.30
\$300001 TO \$400000	4520717.03	1242162.15	4504698.63	33575.76
OVER \$400000	6690870.40	124951.67	6678165.20	36938.32
TOTAL	462283646.70	95925953.89	443372883.43	7478335.37

	N	PCTN	WAGE & SALARY MEAN	ADJ GROSS INCOME MEAN	TAXABLE INCOME MEAN	NUMBER OF EXEMPTIONS MEAN	VALUE OF EXEMPTIONS MEAN	ITEMIZED DEDUCTIONS MEAN	STANDARD DEDUCTIONS MEAN
AGI GROUP									
LOSS	3006	1.12	9338.17	-21510.30	4167.40	2.70	5340.87	7813.03	4542.91
\$0 TO \$10000	56662	21.11	4546.89	5759.00	877.27	1.45	2894.43	3556.47	3447.67
\$10001 TO \$20000	54308	20.24	13272.65	15582.86	7197.82	1.79	3581.83	4071.91	3734.02
\$20001 TO \$30000	37735	14.81	22580.03	26186.52	15664.02	2.19	4378.10	5023.75	4137.37
\$30001 TO \$40000	31588	11.77	33407.92	37257.48	24615.24	2.58	5156.83	6226.36	4418.99
\$40001 TO \$50000	24634	9.18	43131.23	47798.46	33232.41	2.86	5718.42	7459.79	4652.70
\$50001 TO \$60000	17785	6.63	51365.91	58281.88	41569.43	3.01	6001.91	9590.66	4865.46
\$60001 TO \$70000	13042	4.86	60668.43	69330.70	51111.10	3.10	6177.35	10601.74	4992.55
\$70001 TO \$80000	9356	3.49	68761.64	81058.37	61107.63	3.18	6311.24	12033.06	4955.07
\$80001 TO \$90000	6388	2.38	76212.72	93304.51	72094.29	3.17	6235.11	13403.67	5026.73
\$90001 TO \$100000	4223	1.57	79035.85	108155.10	85411.13	3.19	6160.43	15078.57	5109.95
\$100001 TO \$150000	6717	2.50	88158.51	139060.75	113694.92	3.20	5610.73	18186.05	5374.91
\$150001 TO \$200000	658	0.25	102707.19	217388.30	191186.32	3.03	2445.08	22353.87	5081.30
\$200001 TO \$300000	78	0.03	83038.68	410743.79	384954.73	2.31	0.00	24568.55	4969.65
\$300001 TO \$400000	90	0.03	154956.00	505816.13	470760.47	3.46	3.85	33487.36	6569.79
OVER \$400000	80	0.03	191743.60	959516.85	891785.54	3.30	0.00	66251.31	5930.20
TOTAL	1268350	100	29386.07	35380.50	24236.33	2.27	4485.95	6499.03	3950.49

	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY PFD NONTAXABLE	LEAKAGE TO MUNICIPALITI- ES
	MEAN	MEAN	MEAN	MEAN
AGI GROUP				
LOSS	359.81	92.80	352.82	4.78
\$0 TO \$10000	78.12	1.85	57.20	0.62
\$10001 TO \$20000	524.68	14.92	466.97	4.12
\$20001 TO \$30000	1084.54	76.43	1013.19	12.20
\$30001 TO \$40000	1610.56	197.48	1539.83	21.41
\$40001 TO \$50000	2102.14	374.67	2022.09	31.29
\$50001 TO \$60000	2619.48	610.71	2530.07	43.33
\$60001 TO \$70000	3328.78	848.51	3207.75	68.68
\$70001 TO \$80000	4307.44	1139.62	4156.12	100.08
\$80001 TO \$90000	5448.27	1498.91	5287.42	119.75
\$90001 TO \$100000	6801.75	1973.15	6638.69	132.82
\$100001 TO \$150000	9617.36	2841.47	9454.47	165.94
\$150001 TO \$200000	16622.77	4539.25	16475.13	215.80
\$200001 TO \$300000	24998.99	6326.92	24891.54	236.61
\$300001 TO \$400000	50230.19	13801.80	50052.17	373.06
OVER \$400000	83635.83	23119.96	83477.06	436.73
TOTAL	1722.69	357.47	1652.22	27.87

TABLE 28
1990 TAX ALTERNATIVE TWO
MODERATE ECONOMIC SCENARIO

AGE GROUP	N	PCIN	WAGE & SALARY SUM	ADJ GROSS INCOME SUM	TAXABLE INCOME SUM	NUMBER OF EXEMPTIONS SUM	VALUE OF EXEMPTIONS SUM	ITEMIZED DEDUCTIONS SUM	STANDARD DEDUCTIONS SUM
LOS	2925	1.09	26365568.00	-59283482.17	11337997.98	7950.00	16496112.09	22824015.76	9373639.40
50 TO 610000	51944	20.14	244909721.00	308713792.33	43056710.50	77609.00	162308222.67	199670764.38	183244312.37
610001 TO 620000	52742	19.70	783208749.00	821128107.45	376647855.45	93053.00	194619196.80	220867731.34	186756467.60
620001 TO 630000	39406	14.72	893115999.00	1028639640.14	609644898.11	84237.00	176173376.40	201989236.29	131116493.43
630001 TO 640000	31554	11.78	1062534280.00	1173442339.22	770072221.35	80086.00	167362366.65	198689943.63	8353178.35
640001 TO 650000	24721	9.23	1067862265.00	117443432.09	812942509.28	68072.00	16599525.29	186123844.48	57144337.87
650001 TO 660000	18138	6.77	932249695.00	1056722125.05	75086451.92	53910.00	112595198.69	174443483.61	31564743.03
660001 TO 670000	13563	5.06	822511897.00	939857608.90	69064852.06	41827.00	87163767.72	144311044.92	18607835.21
670001 TO 680000	10073	3.76	695422872.00	816731935.87	611876117.07	31954.00	66362892.92	121687063.56	11260625.10
680001 TO 690000	6963	2.60	532100419.00	64905524.68	500150049.99	22062.00	45426453.82	93618955.43	6986209.03
690001 TO 700000	4660	1.74	370013362.00	506449332.17	397286463.18	14755.00	29914591.71	70727157.77	4649718.93
700001 TO 710000	7947	2.97	701929743.00	1102871983.44	896160155.21	25661.00	47835061.27	14496983.56	619986.20
710001 TO 720000	853	0.32	89488808.00	18064265.47	163004903.63	2641.00	2735090.69	1993389.46	726619.36
720001 TO 730000	1097	0.04	990070.00	42186195.84	39206127.93	276.00	6330.56	2840137.33	104252.06
730001 TO 740000	106	0.04	15989548.00	53490334.51	49946619.07	357.00	105.66	3378409.78	109430.25
OVER 740000	74	0.03	1665666.00	74469794.42	70193242.72	240.00	2091.60	4170232.80	76103.10
TOTAL	267782	100.00	1001818464762.00	19876117409.39	1678647185.41	686492.00	1254996363.75	180938656.80	741175271.60

	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY PFD NONTAXABLE	LEAKAGE TO MUNICIPALITI- ES
	SUM	SUM	SUM	SUM
AGI GROUP				
LOSS	935737.03	237853.17	914902.90	13259.14
90 TO \$10000	3867320.11	91723.07	2803078.17	31091.48
\$10001 TO \$20000	27017331.22	776745.83	24041674.48	219664.31
\$20001 TO \$30000	42134371.87	2964518.40	39372827.47	475261.97
\$30001 TO \$40000	50271861.26	6217708.86	48085139.38	686035.78
\$40001 TO \$50000	51135570.89	9024039.79	49196957.12	769675.23
\$50001 TO \$60000	46956525.11	10923974.29	45368966.05	772112.68
\$60001 TO \$70000	44689728.52	11381565.29	43083899.04	919119.20
\$70001 TO \$80000	42861356.97	11342896.44	41352998.73	992969.53
\$80001 TO \$90000	37718007.15	10369219.70	36598827.91	838679.04
\$90001 TO \$100000	31496523.63	9155554.43	30739304.68	620917.43
\$100001 TO \$150000	76448228.01	22721651.02	75141594.41	1331737.20
\$150001 TO \$200000	14654285.71	4063208.42	14522477.31	194269.12
\$200001 TO \$300000	2595321.11	662832.66	2583517.51	21328.04
\$300001 TO \$400000	5380987.03	1444756.99	5361381.83	44341.04
OVER \$400000	6537864.88	1807322.83	6527923.28	22444.83
TOTAL	484703020.51	183185571.19	465695470.27	7952906.10

[illegible]

	TAX LIABILITY FFD TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY FFD NONTAXABLE	LEAKAGE TO MUNICIPALITI- ES
	MEAN	MEAN	MEAN	MEAN
AGI GROUP				
LOSS	319.91	81.32	312.79	4.53
\$0 TO \$10000	71.69	1.70	91.96	0.98
\$10001 TO \$20000	512.25	14.73	455.84	4.16
\$20001 TO \$30000	1069.18	75.23	999.11	12.06
\$30001 TO \$40000	1593.20	197.05	1523.90	21.74
\$40001 TO \$50000	2068.51	365.04	1990.09	31.13
\$50001 TO \$60000	2588.85	602.27	2501.32	42.57
\$60001 TO \$70000	3294.97	839.16	3176.58	67.77
\$70001 TO \$80000	4255.07	1126.07	4105.33	98.58
\$80001 TO \$90000	5416.92	1489.19	5256.19	120.45
\$90001 TO \$100000	6758.91	1964.71	6596.42	133.24
\$100001 TO \$150000	9619.76	2859.15	9455.34	167.58
\$150001 TO \$200000	17179.70	4763.43	17025.18	227.75
\$200001 TO \$300000	23510.29	6081.03	23702.00	195.67
\$300001 TO \$400000	49823.95	13377.38	49642.42	410.57
OVER \$400000	88376.55	24423.28	88215.18	303.31
TOTAL	1810.07	385.33	1739.08	29.70

TABLE 29
1991 TAX ALTERNATIVE TWO
MODERATE ECONOMIC SCENARIO

	N	PCTN	WAGE & SALARY SUM	ADJ GROSS INCOME SUM	TAXABLE INCOME SUM	NUMBER OF EXEMPTIONS SUM	VALUE OF EXEMPTIONS SUM	ITEMIZED DEDUCTIONS SUM	STANDARD DEDUCTIONS SUM
AGI GROUP									
LOSS	2826	1.05	26151717.00	-58930891.94	11872666.66	7702.00	16712452.69	22784079.67	9613825.57
00 TO \$10000	51193	19.07	233394604.00	292786918.06	36408507.86	74429.00	162795057.60	198011904.68	188677056.95
\$10001 TO \$20000	51365	19.14	406318284.00	799113086.17	348699801.46	90083.00	197027867.60	223647139.26	190566584.05
\$20001 TO \$30000	39219	14.61	889736838.00	1022530539.62	595998716.60	82853.00	181193279.00	205168826.57	136473268.16
\$30001 TO \$40000	31792	11.85	1071210898.00	1181316606.58	768577805.95	79365.00	173430339.69	202249836.33	93983364.12
\$40001 TO \$50000	25107	9.35	1086818033.00	1197238525.45	821357692.71	69920.00	152772111.14	190643183.37	62066212.91
\$50001 TO \$60000	18680	6.96	959615727.00	1087936586.28	767582659.23	55022.00	120208567.00	180798508.82	35065388.29
\$60001 TO \$70000	14172	5.28	862239297.00	983541884.84	717558041.14	43674.00	95213638.27	151635463.79	21077462.14
\$70001 TO \$80000	10701	3.99	734716610.00	866083961.40	647604945.86	33882.00	73706630.40	129320745.22	13229483.90
\$80001 TO \$90000	7572	2.82	576125158.00	705032371.02	541238140.72	23906.00	51677673.59	101179027.58	8368573.74
\$90001 TO \$100000	5223	1.95	412975522.00	565674142.95	463513266.89	16559.00	35189173.36	79515744.94	4880433.00
\$100001 TO \$150000	9204	3.43	813480190.00	1285842525.18	1043039035.46	29707.00	58979616.15	170026835.97	8268331.12
\$150001 TO \$200000	1073	0.40	113944305.00	231801267.08	201633784.26	3371.00	4370942.86	24230939.96	901382.44
\$200001 TO \$300000	143	0.05	15670147.00	52588873.08	48697808.45	349.00	15526.73	3690737.90	134281.32
\$300001 TO \$400000	44	0.02	7005312.00	22124906.06	20646225.25	142.00	0.00	1412280.81	68730.50
OVER \$400000	79	0.03	15733671.00	86653603.57	82178076.31	251.00	0.00	4360327.26	58014.80
TOTAL	268393	100	8505137113.00	103213349051	7096606274.75	611215.00	1323292876.09	1888595502.14	773432893.01

TAX LIABILITY	PFD TAXABLE	PFD FROM	PFD TAX	TAX LIABILITY	LEAKAGE TO
SUM	SUM	SUM	SUM	SUM	SUM
AGI GROUP					
LOSS	1055593.14	270322.34	1036709.11		13723.65
50 TO 910000	3313606.65	85968.51	2377186.00		30487.72
910001 TO 920000	25390554.73	712001.77	22560363.53		206268.59
920001 TO 930000	41266377.95	2920040.45	38346337.04		474539.08
930001 TO 940000	50123231.75	6218305.55	47962929.03		673221.00
940001 TO 950000	51450103.85	9080924.39	49523561.14		766299.12
950001 TO 960000	47732050.89	11003139.22	46128932.31		701126.32
960001 TO 970000	46114937.63	11757630.90	44471054.74		940522.03
970001 TO 980000	44953432.37	11096045.97	43375319.00		1039349.09
980001 TO 990000	40541161.54	11120119.07	39329356.27		899276.75
990001 TO 9100000	35408918.10	10734790.70	34401299.92		686964.56
9100001 TO 9150000	88626002.71	26207406.44	87113010.71		1527391.51
9150001 TO 9200000	18197218.12	5130469.02	18027930.12		249363.57
9200001 TO 9300000	3254277.01	833662.44	3237002.21		30080.94
9300001 TO 9400000	2007614.02	505826.92	2000226.42		9309.03
OVER 9400000	7109793.94	1966911.04	7097705.14		32630.82
TOTAL	508389962.42	110047652.39	487190039.25		8360634.50

AGE GROUP	N	PCPN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	ITEMIZED DEDUCTIONS	STANDARD DEDUCTIONS
LOSS	2024	1.05	9253.97	-20904.09	4201.23	2.73	5913.02	8034.00	5009.01
50 TO 610000	51193	19.07	4559.11	5746.33	711.20	1.45	3100.03	3067.95	3760.72
610001 TO 920000	51365	19.14	13361.59	15592.75	6700.67	1.75	3035.04	4554.00	4020.64
920001 TO 930000	39219	14.61	22686.37	26124.95	15196.60	2.11	4620.04	5231.36	4435.99
930001 TO 940000	31792	11.85	33696.35	37213.05	24175.17	2.50	5455.16	6361.66	4733.01
940001 TO 950000	25107	9.35	43207.48	47742.49	32714.29	2.70	6004.04	7593.23	4972.06
950001 TO 960000	10600	6.96	51371.29	50309.39	41091.15	2.95	6435.15	9670.72	5250.10
960001 TO 970000	14172	5.20	60041.05	69473.09	50632.09	3.00	6710.43	10649.65	5311.06
970001 TO 980000	10701	3.99	60650.69	81094.00	60510.17	3.17	6007.03	12004.92	5373.47
980001 TO 990000	7572	2.02	76006.26	93245.92	71470.09	3.16	6024.04	13362.26	5491.19
990001 TO 9100000	5223	1.95	79008.64	100345.94	84915.43	3.17	6737.35	15224.15	5564.92
910001 TO 9150000	9204	3.43	80303.33	139735.11	113324.54	3.23	6408.04	18473.15	5039.57
9150001 TO 9200000	1073	0.40	106192.27	216031.00	187915.92	3.14	4073.57	22502.42	5704.95
9200001 TO 9300000	143	0.05	109501.45	367754.36	340544.12	2.44	1008.50	25009.36	6103.70
9300001 TO 9400000	44	0.02	159211.64	502030.77	469232.39	3.23	0.00	32007.29	6073.05
9400001 TO 94500000	79	0.03	199160.39	1096001.06	1040220.01	3.18	0.00	55194.02	5001.48
TOTAL	268393	100	31609.12	38541.35	26441.10	2.20	4930.43	7036.60	4300.41

	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX	TAX LIABILITY PFD NONTAXABLE	LEAKAGE TO MUNICIPALITI- ES
	MEAN	MEAN	MEAN	MEAN
AGI GROUP				
LOSS	373.53	98.49	366.88	4.86
\$0 TO \$10000	64.83	1.68	46.44	0.60
\$10001 TO \$20000	494.32	13.86	439.22	4.02
\$20001 TO \$30000	1052.20	74.66	982.93	12.10
\$30001 TO \$40000	1576.60	195.60	1508.65	21.18
\$40001 TO \$50000	2049.23	361.69	1972.50	30.52
\$50001 TO \$60000	2555.25	593.32	2469.27	41.82
\$60001 TO \$70000	3253.95	829.64	3137.95	66.36
\$70001 TO \$80000	4200.86	1111.68	4053.39	97.13
\$80001 TO \$90000	5354.09	1469.64	5194.05	118.76
\$90001 TO \$100000	6748.79	1959.56	6586.62	131.53
\$100001 TO \$150000	9629.08	2847.39	9464.69	165.95
\$150001 TO \$200000	16959.20	4781.42	16801.43	232.40
\$200001 TO \$300000	22757.18	5829.81	22636.94	210.36
\$300001 TO \$400000	45627.59	11496.07	45459.69	213.39
OVER \$400000	89997.39	24897.61	89844.37	413.05
TOTAL	1886.75	410.02	1815.21	31.15

TABLE 30
1992 TAX ALTERNATIVE TWO
MODERATE ECONOMIC SCENARIO

	N	PCTN	WAGE & SALARY SUM	ADJ GROSS INCOME SUM	TAXABLE INCOME SUM	NUMBER OF EXEMPTIONS SUM	VALUE OF EXEMPTIONS SUM	ITEMIZED DEDUCTIONS SUM	STANDARD DEDUCTIONS SUM
AGI GROUP									
LOSS	2782	1.03	25603313.00	-59702639.05	10093941.91	7712.00	17534219.64	23117590.28	10112748.75
00 TO \$10000	48792	18.13	223074635.00	278533905.75	31083547.41	71311.00	163121893.20	196487788.19	187724315.76
\$10001 TO \$20000	50190	18.65	676856501.00	781699606.62	330045403.10	87589.00	200352583.20	223917120.72	194515019.66
\$20001 TO \$30000	38976	14.48	888895439.00	1015967845.12	583680017.10	80948.00	185153768.80	207987386.91	142916341.15
\$30001 TO \$40000	32175	11.96	1106841949.00	1198468641.04	775128730.30	78924.00	180405355.49	205316610.90	99733008.05
\$40001 TO \$50000	25484	9.47	1115540797.00	1217226964.02	830492206.51	70076.00	160127424.80	194024120.63	66688582.03
\$50001 TO \$60000	18908	7.03	972929669.00	1100596817.88	772178558.60	54889.00	125429476.70	183563174.45	38343422.91
\$60001 TO \$70000	14503	5.39	880193746.00	1006003243.51	730736458.78	44089.00	100552474.48	156264946.87	23516550.80
\$70001 TO \$80000	11144	4.14	765860468.00	901551955.07	669984614.85	35168.00	80047845.52	135445269.78	14948299.33
\$80001 TO \$90000	8039	2.99	611409955.00	749701168.29	571757051.78	25269.00	57239380.77	109355337.09	9596233.60
\$90001 TO \$100000	5768	2.14	455260282.00	625050219.33	487649380.69	18361.00	40948603.67	88024673.89	6242568.00
\$100001 TO \$150000	10728	3.99	956129483.00	1494754712.25	1208526139.92	34613.00	72967216.34	197215927.20	10237601.20
\$150001 TO \$200000	1357	0.50	144745472.00	297047438.64	257914997.04	4346.00	6347380.72	30778660.88	1786368.80
\$200001 TO \$300000	170	0.06	16224039.00	62192474.87	57614008.24	449.00	45981.68	4302044.94	156614.40
\$300001 TO \$400000	28	0.01	4277365.00	13337617.96	12565041.78	99.00	0.00	727776.18	23720.00
OVER \$400000	85	0.03	18159817.00	82022574.16	77743067.26	307.00	0.00	4151506.90	60416.00
TOTAL	1269129	100	8862062930.00	10764452545	7407193165.22	614150.00	1390273605.02	1960679975.81	806106810.44

AGI GROUP	TAX LIABILITY PFD TAXABLE	PAID FROM FEDL TAX	TAX LIABILITY PFD NONTAXABLE	LEAKAGE TO MUNICIPALITIES
SUM	SUM	SUM	SUM	SUM
LOS	896306.50	228027.11	876955.29	12828.32
50 TO 610000	2870655.80	89689.65	2839692.84	26801.66
610001 TO 620000	24103632.47	699310.65	21391831.28	202443.26
620001 TO 630000	40347063.75	2880106.27	37687002.60	467983.11
630001 TO 640000	50629199.34	6472611.84	48480037.89	703030.23
640001 TO 650000	51845461.61	9170522.55	49927476.56	782387.69
650001 TO 660000	47634811.23	11035471.55	46047038.39	775903.75
660001 TO 670000	46461027.29	11868295.57	44824693.94	946345.94
670001 TO 680000	46400593.04	12292700.48	44769390.73	1001008.92
680001 TO 690000	42543466.74	11658924.34	41269268.53	933038.43
690001 TO 700000	38599128.25	11217342.28	37664612.27	766018.98
700001 TO 710000	102849627.93	30572553.84	101088336.33	1783178.54
710001 TO 720000	23850469.80	6638896.66	23611243.00	321607.53
720001 TO 730000	4628336.61	1217256.26	4605649.41	39350.21
730001 TO 740000	1380131.80	372735.36	1374979.80	6829.62
OVER 740000	7368541.30	2039368.70	7354566.50	46239.76
TOTAL	532404451.4	118464930.11	513032775.37	8914867.92

	N	PCTN	WAGE & SALARY		ADJ GROSS INCOME		TAXABLE INCOME		NUMBER OF EXEMPTIONS		VALUE OF EXEMPTIONS		ITEMIZED DEDUCTIONS		STANDARD DEDUCTIONS	
			MEAN		MEAN		MEAN		MEAN		MEAN		MEAN		MEAN	
AGI GROUP																
LOSS	2782	1.03	9203.20		-21514.46		3628.30		2.77		6302.74		8309.70		5305.74	
\$0 TO \$10000	48792	18.13	4571.95		5735.52		637.06		1.46		3343.21		4027.05		3931.40	
\$10001 TO \$20000	50190	18.65	13685.88		15811.82		6575.92		1.75		3991.88		4461.39		4174.68	
\$20001 TO \$30000	38976	14.48	22806.23		26120.78		14975.37		2.08		4750.46		5336.29		4575.67	
\$30001 TO \$40000	32175	11.96	34400.68		37302.93		24091.03		2.45		5607.00		6381.25		4877.87	
\$40001 TO \$50000	25684	9.47	43774.16		47822.53		32568.77		2.75		6283.45		7613.57		5128.31	
\$50001 TO \$60000	18908	7.03	51455.98		58278.89		40830.72		2.90		6633.67		9708.23		5455.03	
\$60001 TO \$70000	14503	5.39	60690.46		69451.38		50385.19		3.04		8933.22		10774.66		5521.61	
\$70001 TO \$80000	11144	4.14	68724.02		81038.38		60120.66		3.16		7183.04		12154.10		5630.24	
\$80001 TO \$90000	8039	2.99	76055.47		93409.07		71122.91		3.14		7120.21		13603.10		5698.48	
\$90001 TO \$100000	5768	2.14	78928.62		108402.74		84543.93		3.18		7099.27		15260.87		5796.26	
\$100001 TO \$150000	10728	3.99	89124.67		139384.06		112651.58		3.23		6801.57		18383.29		6072.12	
\$150001 TO \$200000	1357	0.50	106665.79		218900.10		190062.64		3.20		4677.51		22681.40		5983.11	
\$200001 TO \$300000	170	0.06	95435.52		365838.09		338905.93		2.64		270.48		25306.38		6264.58	
\$300001 TO \$400000	28	0.01	152763.04		476343.50		448751.49		3.54		0.00		25992.01		7180.00	
OVER \$400000	85	0.03	213644.91		964971.46		914624.32		3.61		0.00		48841.26		6041.60	
TOTAL	1269129	100	32928.46		40085.70		27522.84		2.28		5165.83		7285.28		4488.90	

TAX LIABILITY PAID FROM FEDERAL TAX	TAX LIABILITY PAID NONTAXABLE	TAX LIABILITY PAID MUNICIPALITY	MEAN	MEAN	MEAN
AGI GROUP					
LOSS			321.46	81.97	314.51
50 TO \$10000			50.83	1.84	41.80
\$10001 TO \$20000			480.25	13.93	426.26
\$20001 TO \$30000			1035.10	74.10	966.93
\$30001 TO \$40000			1573.56	201.17	1506.76
\$40001 TO \$50000			2034.35	360.17	1959.17
\$50001 TO \$60000			2519.29	583.64	2435.32
\$60001 TO \$70000			3203.55	818.33	3090.72
\$70001 TO \$80000			4163.73	1103.00	4017.35
\$80001 TO \$90000			5292.13	1450.30	5133.63
\$90001 TO \$100000			6691.94	1944.75	6529.93
\$100001 TO \$150000			9587.03	2849.79	9422.83
\$150001 TO \$200000			17575.88	4892.33	17414.33
\$200001 TO \$300000			27225.51	7160.33	27092.06
\$300001 TO \$400000			49290.42	13311.94	49106.42
OVER \$400000			86638.72	23992.57	86524.31
TOTAL			1978.25	440.20	1906.27
					33.12
					544.00
					243.91
					231.47
					237.00
					166.22
					132.80
					118.55
					97.01
					65.25
					41.04
					30.70
					21.85
					12.01
					4.03
					0.55
					4.61

Liability to Collections

The projected time pattern generated from 1970 - 1979 accounting data can be used to translate the projected tax year collections presented in the tables below into gross receipts (col. 2), refunds (col. 3), and net receipts (col. 4) by quarter and fiscal year. The U. S. Consumer Price Index (col. 5) is used to deflate or inflate the net receipts in nominal dollars to real 1986 dollars (col. 6) so we can compare estimated 1988 through 1992 projected fiscal year collections to actual collections from 1975 through 1979.

TABLE 31
(PFD TAXABLE)
LIABILITY TO COLLECTIONS
TAX ALTERNATIVE TWO
MODERATE ECONOMIC SCENARIO

FY/Q	GROSS RECEIPTS (\$m nom)	REFUNDS (\$m nom)	NET RECEIPTS (\$m nom)	CPI	NET REC \$86 (\$m real)
86				325.98	
88/1	\$0	\$1	(\$1)		
/2	\$0	\$0	(\$0)		
/3	\$1	\$3	(\$1)		
/4	\$86	\$6	\$80		
TOTAL	\$87	\$9	\$78	338.66	\$75
89/1	\$114	\$5	\$109		
/2	\$150	\$2	\$148		
/3	\$146	\$16	\$130		
/4	\$125	\$36	\$88		
TOTAL	\$534	\$60	\$475	354.17	\$437
90/1	\$123	\$6	\$116		
/2	\$162	\$2	\$160		
/3	\$158	\$20	\$138		
/4	\$132	\$44	\$88		
TOTAL	\$574	\$72	\$502	370.39	\$442
91/1	\$129	\$5	\$124		
/2	\$170	\$2	\$168		
/3	\$165	\$16	\$150		
/4	\$138	\$35	\$103		
TOTAL	\$601	\$57	\$544	387.35	\$458
92/1	\$135	\$5	\$130		
/2	\$177	\$2	\$176		
/3	\$172	\$15	\$157		
/4	\$139	\$34	\$106		
TOTAL	\$623	\$55	\$568	405.09	\$457

**ALTERNATIVE THREE: FLAT RATES/ FEDERAL TAX BASE,
NO EXCLUSIONS OR DEDUCTIONS,
HIGH PERSONAL EXEMPTION**

A true flat tax has two attributes: (1) it applies the same rate of tax to everyone and to each component of the tax base; and (2) to arrive at the tax base there are no deductions from total income except personal exemptions and strictly defined business expenses.

To raise a certain amount of tax revenue it is necessary to make a trade-off between the size of the personal exemption and the marginal tax rate.⁽¹⁷⁾

"A higher exemption may be desirable to secure relief for those at the bottom of the income schedule and to increase progressiveness (with respect to average tax rates). But a higher exemption means that a higher marginal tax rate must be applied to maintain revenues."

Tax Base

As with the previous alternatives, this tax system is tied to the Federal tax law. In this case, however, it is piggybacked to the federal law only for its income inclusion elements. It is not tied to the federal law for exemptions, deductions or income exclusions. The advantage in being tied to the federal system is largely administrative, as discussed previously. The disadvantage is that federal changes can automatically affect state law and revenues dramatically.

The federal law has changed since the Alaska individual income tax was in effect. This proposal assumes that the changes adopted by the federal government will be referenced in Alaska Statute much as they were in 1978-1979, but only for income inclusions. This will result in the expansion of the adjusted gross income; and therefore, the tax base. The specifics of the changes resulting from tax reform at the federal level are available in a number of publications and we will not attempt to discuss those here. The provisions of the new law that we assume would be effective for this proposal are summarized below.

Income Inclusions and Exclusions

Included as total income are wages, salaries, tips, interest income, dividends, income tax refunds, alimony received, business income, capital gains, pensions, IRA and annuity distributions, rents, royalties, partnership, estates, trusts, farm income, unemployment insurance (which we were unable to include in our model), social security benefits and other income. The new Federal law eliminates the \$100 - \$200 exclusion of dividend income and treats the full amount of capital gain as ordinary income. The Alaska Permanent Fund Dividend is included as income.

New restrictions are now included in the Federal law which define passive and active participation in ventures and set limits for higher income taxpayers on offsetting losses of any kind. Passive losses cannot be used to offset other income except for \$25,000 in participatory rental losses. (Passive losses occur particularly in some partnership and rental activities.)

Income Adjustments

Under the new Federal law, only the Keogh plan contributions, savings withdrawal penalties and alimony paid adjustments from income remain. Eliminated is the Two Earner adjustment; while the IRA adjustment is phased out at higher income levels or eliminated if the employer covers the employee with a retirement plan. The moving expense and employee business expense adjustment are now deductions.

Treatment of the Alaska Permanent Fund Dividend

All of the alternatives presented include the Alaska Permanent Fund Dividend as taxable income. The 1988 low case Table 32 indicates a loss of \$14.4 million dollars in tax if the PFD is not taxable (\$399.8 million with PFD included - \$385.5 million with PFD excluded). The taxable income in the tables is with PFD not taxable. Children and other persons not required to file will not pay tax on the PFD. The estimates of the PFD are as follows:

1988	\$750
1989	\$800
1990	\$800
1991	\$800
1992	\$800

These are rounded values from the December 1986 Long Run Fiscal Model of the Department of Revenue.(18)

Nonresident Apportionment

Nonresident workers apportion their income by source state in this proposal. The apportionment ratio is obtained by dividing Alaska adjusted gross income (income earned in this state or attributable to investments in this state) by total adjusted gross income. The ratio obtained from Alaska to total income is used to adjust exemptions also.

Personal Exemption

The personal exemption in this alternative is set high both as a proxy for a subsistence amount and to respond to family size. The high personal exemption helps to make the effective rates of this proposal more progressive. The exemption value for taxpayer, spouse and dependents is \$3,000 each starting in 1988, and is inflation adjusted each year.

Tax Credits

We have not included any tax credits in our proposals. Summaries of the major tax credits effective in Alaska, profiles of the taxpayers and amounts credited have been published previously and are available from this office.(19)

Tax Rates

The tax rate in this alternative was designed to provide a revenue neutral tax compared to alternative one in 1988 only. That is, total revenues are approximately the same as the previous two cases. A six percent tax rate was used for all income. Progressive rates could also be applied to this tax base but it would be difficult to develop a revenue neutral (compared to the other alternatives) case with these rates.

ISSUES

Economic Efficiency

Proponents argue that because a flat tax lowers marginal rates, this reduces the incentive to alter decisions based on tax considerations. Personal, business and investment decisions would be primarily based on economic as opposed to tax considerations. In addition, the lower rates reduce the payoffs to time spent trying to avoid or in some cases evade taxes.

Income Elasticity

Michigan, one state with this type of tax, has found that tax revenues have tended to grow more than in proportion to the growth of income because of the fixed dollar value of exemptions in that state. This responsiveness was found to decrease over time as income rose relative to the value of exemptions. Because the exemption is indexed in this presentation, this source of elasticity is probably not a factor.

Equity

The key to vertical equity or adherence to ability to pay principles in this tax is the size of the personal exemption. The exemption combined with the flat rate determine the progressivity of the system.

In general this type of tax takes the view that income from all sources is equivalent in defining the tax base. Problems of equity arise when certain income flows are excluded from the tax base or are taxed at preferential rates. In Michigan, for instance, there is no subtraction of itemized or standardized deductions. There is however some allowance for tax credits which represents a deviation from this ideal.

The main concerns with a flat rate tax involve its incidence. It may distribute burdens from upper to middle income taxpayers.

Administration and Compliance

The structure of this tax is the simplest of the three presented. The tax base is typically federal adjusted gross income modified by a limited number of additions and subtractions. The use of federal AGI in defining the state tax base simplifies the filing process for individuals as well as the administrative costs involved in tax collection. The fact that deductions or adjustments are very limited means that auditing problems are greatly reduced.

Nonresident Taxpayers

This alternative captures the nonresident worker in the tax base fairly effectively. Alaskan employers submit payroll taxes regardless of the residence of the worker. The potential for avoiding estimated payments remains but is no worse or better for this alternative than any other.

The apportionment of nonresident (or part year resident) income seems fair and is consistent with practice generally used in other states.

Intergovernmental Effects

All state income taxes are deductible from Federal income. This causes a leakage of tax from the federal government to the State. The 1988 low case Table 32 below shows is that for every dollar of Alaska tax paid, the taxpayer pays only 80¢ while the Federal government leaks 20¢ of it to the State (\$81.6 million in Federal tax leakage / \$399.8 million in State tax liability).

Since there are no deductions from this tax, leakage of tax from the State to local government under this alternative is zero. It has been argued that it undermines the ability of local government to levy taxes when they are not deductible from the taxes of higher level governments.

Inflation Effects

Inflation adjustment is present in the exemption amount of this tax alternative. Because the exemption is indexed, this alternative is less distorted by inflation than the previous cases.

TABLE 32
1988 TAX ALTERNATIVE THREE
LOW ECONOMIC SCENARIO

	N	PCTN	WAGE & SALARY SUM	ADJ GROSS INCOME SUM	TAXABLE INCOME SUM	NUMBER OF EXEMPTIONS SUM	VALUE OF EXEMPTIONS SUM	TAX LIABILITY PRD TAXABLE SUM	PAID FROM FEDL TAX SUM
AGI GROUP									
LOSS	2878	1.19	26389170.00	-61678792.91	10925054.91	7805.00	23415000.00	674442.83	160267.36
\$0 TO \$10000	53355	22.06	248499609.00	305293080.85	99873230.57	78669.00	236007000.00	7499842.24	150853.93
\$10001 TO \$20000	49490	20.46	668214244.00	769719577.88	457938010.39	91714.00	275142000.00	30091066.41	1015019.60
\$20001 TO \$30000	36082	14.92	822338578.00	943559133.02	659139490.96	82151.00	246453000.00	41876832.22	3559527.46
\$30001 TO \$40000	28778	11.90	971451140.00	1072829850.36	806086558.39	77343.00	232029000.00	50465208.15	6857070.84
\$40001 TO \$50000	22390	9.26	973365388.00	1068241985.88	842143343.68	65702.00	197106000.00	52281835.36	10616598.85
\$50001 TO \$60000	15856	6.56	815676730.00	923230676.83	756425426.83	48533.00	145599000.00	46667980.61	11449069.15
\$60001 TO \$70000	11225	4.64	683752605.00	777522186.01	656118936.01	35348.00	106844000.00	40294811.16	10444835.94
\$70001 TO \$80000	7883	3.26	542298283.00	636844305.28	550116555.28	25290.00	75870000.00	33667458.32	9081740.13
\$80001 TO \$90000	5208	2.15	398926188.00	485165674.57	428142424.57	16585.00	49755000.00	26128240.47	7710371.74
\$90001 TO \$100000	3243	1.34	256764893.00	349859148.04	314495898.04	10278.00	30834000.00	19142228.88	5775457.18
\$100001 TO \$150000	4837	2.00	425160325.00	668883559.51	616058559.51	15373.00	46119000.00	37367793.57	11060776.36
\$150001 TO \$200000	412	0.17	40720223.00	91310515.75	87109765.75	1223.00	3669000.00	5258490.94	1417698.31
\$200001 TO \$300000	55	0.02	4709336.00	22032721.97	21593221.97	128.00	334000.00	1298923.32	33598.36
\$300001 TO \$400000	93	0.04	15285945.00	44902551.74	43875801.74	297.00	891000.00	2640693.10	710867.51
OVER \$400000	79	0.03	17348776.00	75394772.03	74511272.03	260.00	780000.00	4477066.32	1253578.57
TOTAL	1241864	100	6910821433.00	8173120946.79	6424553550.62	556699.00	1670097000.00	399832913.97	81597931.30

TAX LIABILITY	
PTD NON-	
TAXABLE	
SUM	
AGI GROUP	
LOSS	
50 TO \$10000	5992393.83
\$10001 TO \$20000	27476200.62
\$20001 TO \$30000	39548369.46
\$30001 TO \$40000	48365193.50
\$40001 TO \$50000	50528600.62
\$50001 TO \$60000	45385525.61
\$60001 TO \$70000	39367136.16
\$70001 TO \$80000	33086993.32
\$80001 TO \$90000	25688845.47
\$90001 TO \$100000	18869753.88
\$100001 TO \$150000	36963513.57
\$150001 TO \$200000	5226585.94
\$200001 TO \$300000	1295593.32
\$300001 TO \$400000	2632548.10
OVER \$400000	4470676.32
TOTAL	385473213.04

AGI GROUP	N	PCTN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX
			MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
LOSS	2878	1.19	9141.48	-21498.36	3796.06	2.71	8135.86	234.34	55.90
\$0 TO \$10000	53355	22.06	4657.48	5708.09	1871.86	1.47	4423.33	140.56	2.83
\$10001 TO \$20000	49490	20.46	13502.01	15587.05	9253.14	1.85	5559.55	608.02	20.51
\$20001 TO \$30000	36082	14.92	22790.83	26205.61	18267.82	2.28	6830.36	1160.60	98.65
\$30001 TO \$40000	28778	11.90	33756.73	37330.10	28010.51	2.69	8062.72	1753.60	238.27
\$40001 TO \$50000	22390	9.26	43473.22	47761.87	37612.48	2.93	8803.31	2335.05	474.17
\$50001 TO \$60000	15856	6.56	51442.78	58303.17	47705.94	3.06	9182.58	2943.24	722.07
\$60001 TO \$70000	11225	4.64	60913.37	69341.14	58451.58	3.15	9447.13	3589.74	930.50
\$70001 TO \$80000	7883	3.26	68793.39	80930.78	69785.18	3.21	9624.51	4270.89	1152.07
\$80001 TO \$90000	5208	2.15	76598.73	93283.15	82208.61	3.18	9553.57	5016.94	1480.49
\$90001 TO \$100000	3243	1.34	79175.11	107947.90	96976.84	3.17	9507.86	5902.63	1780.90
\$100001 TO \$150000	4837	2.00	87897.52	138371.65	127363.77	3.18	9534.63	7725.41	2286.70
\$150001 TO \$200000	412	0.17	98835.49	221627.47	211431.47	2.97	8905.34	12763.33	3441.02
\$200001 TO \$300000	55	0.02	85624.29	400594.94	392604.04	2.33	6981.82	23616.79	6065.42
\$300001 TO \$400000	93	0.04	164365.00	482823.14	471782.81	3.19	9580.65	28394.55	7643.74
OVER \$400000	79	0.03	219604.76	966599.64	943180.66	3.29	9873.42	56671.73	15868.08
TOTAL	241864	100	28573.17	33870.36	26562.67	2.30	6905.11	1653.13	337.37

	TAX LIABILITY PFD NON- TAXABLE
	MEAN
AGI GROUP	
LOSS	227.76
\$0 TO \$10000	112.31
\$10001 TO \$20000	555.19
\$20001 TO \$30000	1096.07
\$30001 TO \$40000	1680.63
\$40001 TO \$50000	2256.75
\$50001 TO \$60000	2842.36
\$60001 TO \$70000	3507.89
\$70001 TO \$80000	4187.11
\$80001 TO \$90000	4932.52
\$90001 TO \$100000	5818.61
\$100001 TO \$150000	7641.83
\$150001 TO \$200000	12685.89
\$200001 TO \$300000	23556.24
\$300001 TO \$400000	28396.97
OVER \$400000	56590.84
TOTAL	1593.76

TABLE 33
1989 TAX ALTERNATIVE THREE
LOW ECONOMIC SCENARIO

AGI GROUP	N	PCTN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX
			SUM	SUM	SUM	SUM	SUM	SUM	SUM
LOSS	2727	1.14	24579758.00	-59527626.97	9809884.36	7470.00	23436378.00	606401.48	147025.76
\$0 TO \$10000	49750	20.81	232987396.00	286672325.82	88069777.42	73786.00	231496196.40	6739372.13	129076.45
\$10001 TO \$20000	48252	20.19	656298356.00	751585286.54	435955207.35	89031.00	279325859.40	28828415.35	978169.32
\$20001 TO \$30000	35369	14.80	812405077.00	923763680.84	635086366.03	79515.00	249470361.00	40511958.93	3452780.72
\$30001 TO \$40000	28712	12.01	985741252.00	1070678566.88	795541030.38	76053.00	238608682.20	49942245.23	6333744.51
\$40001 TO \$50000	22522	9.42	989322698.00	1074621071.55	837795094.35	65638.00	205932661.20	52137305.66	10516112.28
\$50001 TO \$60000	15948	6.67	819697745.00	928255468.79	753883625.99	48377.00	151777999.80	46599001.56	11417539.17
\$60001 TO \$70000	11568	4.84	704321793.00	801060959.06	670174890.26	36355.00	114060177.00	41228141.42	10701209.33
\$70001 TO \$80000	8326	3.48	572604837.00	673113198.20	577039540.20	26733.00	83872114.20	35366324.41	9547886.12
\$80001 TO \$90000	5626	2.35	431283215.00	523202734.79	458748457.79	17881.00	56099849.40	28031067.47	8233388.00
\$90001 TO \$100000	3642	1.52	288673205.00	394794853.94	353060972.54	11567.00	36290305.80	21511402.35	6436727.52
\$100001 TO \$150000	5790	2.42	512296742.00	802432875.56	735564018.56	18561.00	58233281.40	44653105.11	13215558.18
\$150001 TO \$200000	541	0.23	56662960.00	119475168.33	113539133.13	1648.00	5170435.20	6858283.99	1867478.62
\$200001 TO \$300000	64	0.03	6216251.00	25806499.57	25266964.37	148.00	464335.20	1520529.86	335680.06
\$300001 TO \$400000	106	0.04	18829475.00	48952894.76	47668780.36	356.00	1116914.40	2870158.82	755239.78
OVER \$400000	90	0.04	17208477.00	94194971.63	93183887.43	285.00	894159.00	5598425.25	1515947.11
TOTAL	239033	100	7129129237.00	8459082929.26	6630387630.47	553404.00	1736249709.59	413002139.01	86187062.92

	TAX LIABILITY PFD NON- TAXABLE
	SUM
AGI GROUP	
LOSS	588593.86
\$0 TO \$10000	5284186.65
\$10001 TO \$20000	26157312.44
\$20001 TO \$30000	38105181.96
\$30001 TO \$40000	47732461.82
\$40001 TO \$50000	50267705.66
\$50001 TO \$60000	45233017.56
\$60001 TO \$70000	40210493.42
\$70001 TO \$80000	34622372.41
\$80001 TO \$90000	27524907.47
\$90001 TO \$100000	21183658.35
\$100001 TO \$150000	44133841.11
\$150001 TO \$200000	6812347.99
\$200001 TO \$300000	1516017.86
\$300001 TO \$400000	2860126.82
OVER \$400000	5591033.25
TOTAL	397823257.83

AGI GROUP	N	PCTN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	TAX LIABILITY PFD TAXABLE	PAID FROM FEEL TAX
			MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
LOSS	2727	1.14	9013.48	-21885.16	3597.32	2.74	8594.20	222.37	53.91
\$0 TO \$10000	49750	20.81	4683.16	5787.85	1770.25	1.48	4653.19	135.46	2.59
\$10001 TO \$20000	48252	20.19	13601.47	15610.54	9034.97	1.85	5788.90	597.46	20.27
\$20001 TO \$30000	35369	14.80	22969.41	26168.20	17956.02	2.25	7053.36	1145.41	97.62
\$30001 TO \$40000	28712	12.01	34332.03	37342.30	27707.61	2.65	8310.42	1739.42	238.01
\$40001 TO \$50000	22522	9.42	43926.95	47771.55	37198.97	2.91	9143.62	2314.95	466.93
\$50001 TO \$60000	15948	6.67	51398.15	58278.22	47271.36	3.03	9517.06	2921.93	715.92
\$60001 TO \$70000	11568	4.84	60885.36	69343.92	57933.51	3.14	9859.97	3563.98	925.07
\$70001 TO \$80000	8326	3.48	68773.10	81019.88	69305.73	3.21	10073.52	4247.70	1146.76
\$80001 TO \$90000	5626	2.35	76658.94	93146.29	81540.79	3.18	9971.53	4982.42	1463.54
\$90001 TO \$100000	3642	1.52	79262.27	108489.93	96941.51	3.18	9964.39	5906.48	1781.09
\$100001 TO \$150000	5790	2.42	88479.58	138637.33	127040.42	3.21	10057.56	7712.11	2282.48
\$150001 TO \$200000	541	0.23	104737.45	220841.35	209869.01	3.05	9557.18	12677.05	3451.90
\$200001 TO \$300000	64	0.03	97128.92	403226.56	394796.32	2.31	7255.24	23758.28	6026.25
\$300001 TO \$400000	106	0.04	177636.56	461819.76	449705.48	3.36	10536.93	27076.97	7153.21
OVER \$400000	90	0.04	191205.30	1070397.40	1035376.53	3.17	9935.10	62204.72	14843.86
TOTAL	1239033	100	29824.87	35468.60	27738.38	2.32	7263.64	1727.80	360.57

TAX LIABILITY	PFD NON-TAXABLE	MEAN	AGI GROUP	LOSS	\$0 TO \$10000	\$10001 TO \$20000	\$20001 TO \$30000	\$30001 TO \$40000	\$40001 TO \$50000	\$50001 TO \$60000	\$60001 TO \$70000	\$70001 TO \$80000	\$80001 TO \$90000	\$90001 TO \$100000	\$100001 TO \$150000	\$150001 TO \$200000	\$200001 TO \$300000	\$300001 TO \$400000	OVER \$400000	TOTAL
				215.84	106.21	542.10	1077.36	1662.46	2231.94	2836.28	3476.01	4158.34	4892.45	5816.49	7622.43	12592.14	23687.78	26982.33	62122.59	1664.30

TABLE 34
1990 TAX ALTERNATIVE THREE
LOW ECONOMIC SCENARIO

AGI GROUP	N	PCTN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX
			SUM	SUM	SUM	SUM	SUM	SUM	SUM
LOSS	2622	1.13	25526126.00	-54911695.16	12631430.57	7222.00	23696104.20	776545.33	192545.25
\$0 TO \$10000	45296	19.52	209413184.00	260591560.84	75902800.74	67414.00	221192075.40	5831094.35	111926.72
\$10001 TO \$20000	44893	19.34	607363524.00	699222851.80	399182024.17	81794.00	268374293.40	26392802.87	871649.76
\$20001 TO \$30000	33958	14.63	775758196.00	886313489.07	605518798.37	74942.00	245892196.20	38606494.81	3102598.82
\$30001 TO \$40000	27907	12.03	956564806.00	1040705076.59	767305794.13	72648.00	238365352.80	48158601.82	6604134.27
\$40001 TO \$50000	22315	9.62	978808639.00	1064817448.92	823665500.45	64267.00	210866453.70	51253641.31	10246684.20
\$50001 TO \$60000	16087	6.93	828475374.00	936611011.46	754856127.46	48500.00	159133350.00	46660471.65	11467762.79
\$60001 TO \$70000	11938	5.14	724824159.00	826709341.16	686994825.26	37315.00	122434246.50	42265561.52	10950401.71
\$70001 TO \$80000	8778	3.78	604631162.00	710172238.27	605107864.37	28093.00	92175942.30	37088439.86	9992461.90
\$80001 TO \$90000	6192	2.67	471880182.00	576217347.26	502273509.56	19739.00	64765632.90	30693402.57	8972187.55
\$90001 TO \$100000	4132	1.78	328407845.00	444702445.62	395385348.32	13145.00	43130059.50	24094736.90	7299516.60
\$100001 TO \$150000	6952	3.00	609539110.00	964848535.81	880548585.81	22506.00	73844436.60	53461427.15	15818060.50
\$150001 TO \$200000	709	0.31	77427061.00	153190549.32	144821128.62	2237.00	7339820.70	8751043.72	2388607.89
\$200001 TO \$300000	79	0.03	8081215.00	27081756.16	26328898.36	198.00	649657.80	1585925.90	410426.81
\$300001 TO \$400000	110	0.05	17519133.00	53161612.12	51767442.92	372.00	1220569.20	3116462.58	830687.85
OVER \$400000	100	0.04	18918257.00	100847567.87	99679945.77	312.00	1023703.20	5989628.75	1677096.05
TOTAL	1232068	100	7243137973.00	8692281137.11	6831970024.84	540704.00	1774103894.39	424726281.07	91136748.66

TAX LIABILITY		
PTD NON-TAXABLE		
SUM		
AGI GROUP		
LOSS	757085.83	
00 TO 010000	4554168.04	
010001 TO 020000	23950921.45	
020001 TO 030000	36331127.90	
030001 TO 040000	46030347.65	
040001 TO 050000	49419930.03	
050001 TO 060000	45291367.65	
060001 TO 070000	41219689.52	
070001 TO 080000	36306471.86	
080001 TO 090000	30136410.57	
090001 TO 0100000	23723128.90	
0100001 TO 0150000	52032915.15	
0150001 TO 0200000	8689267.72	
0200001 TO 0300000	1579733.90	
0300001 TO 0400000	3106046.58	
OVER 0400000	5980796.75	
TOTAL	409910201.49	

AGI GROUP	N	PCTM	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX
			MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
LOSS	2622	1.13	9735.36	-20990.71	4817.48	2.75	9037.42	296.17	73.43
\$0 TO \$10000	45296	19.52	4623.22	5778.60	1675.71	1.49	4883.26	128.73	2.47
\$10001 TO \$20000	44893	19.34	13529.14	15611.83	8891.85	1.82	5978.09	587.90	19.42
\$20001 TO \$30000	33958	14.43	22844.64	26213.99	17831.40	2.21	7241.07	1136.89	97.26
\$30001 TO \$40000	27907	12.03	34276.88	37342.75	27495.10	2.60	8541.42	1725.68	236.65
\$40001 TO \$50000	22315	9.62	43863.26	47773.23	36910.84	2.88	9449.54	2296.82	459.18
\$50001 TO \$60000	16087	6.93	51499.68	58301.34	46923.36	3.01	9892.05	2900.51	712.86
\$60001 TO \$70000	11938	5.14	60715.71	69348.99	57546.89	3.13	10255.84	3540.42	917.27
\$70001 TO \$80000	8778	3.78	68880.29	81005.16	68934.59	3.20	10500.79	4225.16	1138.35
\$80001 TO \$90000	6192	2.67	76208.04	93223.97	81116.52	3.19	10459.57	4956.94	1449.00
\$90001 TO \$100000	4132	1.78	79479.15	107650.07	95688.61	3.18	10438.06	5831.25	1766.58
\$100001 TO \$150000	6952	3.00	87678.24	138827.13	126661.19	3.24	10622.04	7690.08	2275.33
\$150001 TO \$200000	709	0.31	109206.01	216065.65	204261.11	3.16	10352.36	12342.80	3368.98
\$200001 TO \$300000	79	0.03	102293.86	342807.04	333277.19	2.51	8223.52	20075.01	5195.28
\$300001 TO \$400000	110	0.05	159264.85	483287.38	470613.12	3.38	11096.08	28331.48	7551.71
OVER \$400000	100	0.04	189182.57	1018662.30	996799.46	3.12	10237.03	59896.29	16770.96
TOTAL	232068	100	31211.27	37538.41	29439.52	2.33	7644.76	1830.18	392.72

AGI GROUP	TAX LIABILITY PFD NON- TAXABLE
	MEAN
LOSS	289.85
\$0 TO \$10000	100.54
\$10001 TO \$20000	533.51
\$20001 TO \$30000	1069.88
\$30001 TO \$40000	1649.71
\$40001 TO \$50000	2214.65
\$50001 TO \$60000	2815.40
\$60001 TO \$70000	3452.81
\$70001 TO \$80000	4136.08
\$80001 TO \$90000	4866.99
\$90001 TO \$100000	5741.32
\$100001 TO \$150000	7599.67
\$150001 TO \$200000	12255.67
\$200001 TO \$300000	19996.63
\$300001 TO \$400000	28236.79
OVER \$400000	59807.97
TOTAL	1766.37

TABLE 35
1991 TAX ALTERNATIVE THREE
LOW ECONOMIC SCENARIO

	N	PCTN	WAGE & SALARY SUM	ADJ GROSS INCOME SUM	TAXABLE INCOME SUM	NUMBER OF EXEMPTIONS SUM	VALUE OF EXEMPTIONS SUM	TAX LIABILITY PFD TAXABLE SUM	PAID FROM FEDRL TAX SUM
AGI GROUP									
LOSS	2419	1.07	22722616.00	-48966407.45	10987015.69	6664.00	22866849.60	676856.76	163825.43
00 TO \$10000	42107	18.55	193833384.00	241699360.89	67439334.42	62257.00	213628669.80	5197715.70	97522.32
\$10001 TO \$20000	42552	18.74	573637888.00	663765627.54	372797394.86	76780.00	263462892.00	24633228.14	807840.61
\$20001 TO \$30000	32994	14.53	751855480.00	861414298.61	581902572.85	71271.00	244559309.40	37084363.59	3177631.61
\$30001 TO \$40000	27248	12.00	933776569.00	1016421637.12	744495207.88	69442.00	238283278.80	46706478.58	6438839.68
\$40001 TO \$50000	21843	9.62	956248447.00	1042692481.52	801382007.08	61808.00	212087971.20	49852200.42	9887293.86
\$50001 TO \$60000	16104	7.09	828050505.00	938350265.57	751251600.77	47990.00	164672886.00	46432584.05	11396083.00
\$60001 TO \$70000	12292	5.41	746748943.00	851055079.46	702341483.46	38192.00	131052028.80	43210889.01	11198499.43
\$70001 TO \$80000	9227	4.06	634749096.00	745792375.32	631632394.92	29334.00	100656687.60	38718023.70	10404172.79
\$80001 TO \$90000	6585	2.90	504345180.00	613002694.62	531339281.02	20956.00	71908418.40	32472244.86	9474439.52
\$90001 TO \$100000	4516	1.99	358621482.00	489577935.00	433180122.40	14463.00	49628338.20	26397799.34	7960894.27
\$100001 TO \$150000	7982	3.52	707583864.00	1107770863.76	1007468035.96	25739.00	88320804.60	61169474.16	18142980.93
\$150001 TO \$200000	917	0.40	95826032.00	202428533.36	191150630.36	2895.00	9933903.00	11549677.82	3153412.68
\$200001 TO \$300000	91	0.04	8526371.00	34485304.75	33650079.35	211.00	724025.40	2025676.76	508725.98
\$300001 TO \$400000	91	0.04	14471967.00	44541391.74	43349783.34	306.00	1050008.40	2609483.00	709360.36
OVER \$400000	82	0.04	18777337.00	81885809.63	80875477.03	259.00	888732.60	4859824.62	1295762.30
TOTAL	1227050	100	7349775161.00	8885917250.63	6985234421.35	528567.00	1813724803.79	433596520.59	94817284.82

TAX LIABILITY	PTD NON-TAXABLE	SUM
AGI GROUP		
LOSS		
90 TO 100000	4846368.07	
510001 TO 520000	22367843.69	
520001 TO 530000	34914154.37	
530001 TO 540000	44669712.47	
540001 TO 550000	48822928.42	
550001 TO 560000	45875096.05	
560001 TO 570000	42140489.01	
570001 TO 580000	37897943.70	
580001 TO 590000	31880356.06	
590001 TO 610000	25990887.36	
610001 TO 6150000	68447602.16	
6150001 TO 6200000	11469037.02	
6200001 TO 6300000	2019004.76	
6300001 TO 6400000	2600987.00	
OVER 6400000	4852528.62	
TOTAL	419114865.28	

AGI GROUP	N	PCTN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX
			MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
LOSS	2419	1.07	9393.39	-20284.34	4541.97	2.75	9453.02	279.81	67.72
\$0 TO \$10000	42107	18.95	4603.35	5765.59	1601.62	1.48	5073.47	123.44	2.32
\$10001 TO \$20000	42552	18.74	13480.87	15631.26	8760.98	1.80	6191.55	578.90	18.98
\$20001 TO \$30000	32994	14.53	22787.64	26162.92	17636.62	2.16	7412.24	1123.97	96.31
\$30001 TO \$40000	27240	12.00	34269.55	37354.71	27322.93	2.55	8744.98	1714.13	236.31
\$40001 TO \$50000	21843	9.62	43778.26	47788.28	36688.28	2.83	9709.65	2282.30	452.65
\$50001 TO \$60000	16104	7.09	51418.93	58344.23	46650.80	2.98	10225.59	2883.30	707.66
\$60001 TO \$70000	12292	5.41	60750.81	69338.04	57138.10	3.11	10661.57	3515.37	911.04
\$70001 TO \$80000	9227	4.06	68792.58	80950.00	68454.80	3.18	10908.93	4196.17	1127.58
\$80001 TO \$90000	6585	2.90	76590.00	93246.53	80689.34	3.18	10920.03	4931.24	1438.79
\$90001 TO \$100000	4516	1.99	79411.31	108457.67	95921.20	3.20	10989.45	5845.39	1762.82
\$100001 TO \$150000	7982	3.52	88647.44	138853.20	126216.49	3.22	11065.00	7663.43	2272.99
\$150001 TO \$200000	917	0.40	104499.49	220750.85	208452.16	3.16	10833.05	12595.07	3438.84
\$200001 TO \$300000	91	0.04	93696.38	378959.39	369781.09	2.32	7956.32	22260.18	5590.40
\$300001 TO \$400000	91	0.04	159032.60	489465.84	476371.25	3.36	11538.55	28675.64	7795.17
OVER \$400000	82	0.04	228991.91	998607.43	986286.31	3.16	10838.20	59266.15	15801.98
TOTAL	227050	100	32370.73	39219.30	30765.10	2.33	7988.22	1909.70	417.61

TAX LIABILITY	PFD NON-TAXABLE	MEAN
AGI GROUP		
LOSS		
98 TO 100000		96.10
810001 TO 920000		525.66
620001 TO 830000		1050.20
430001 TO 640000		1639.30
240001 TO 450000		2201.30
50001 TO 660000		2799.00
660001 TO 870000		3420.29
870001 TO 980000		4107.29
980001 TO 990000		4041.30
990001 TO 9100000		5755.27
9100001 TO 9150000		7572.99
9150001 TO 9200000		12507.13
9200001 TO 9300000		22106.07
9300001 TO 9400000		20502.27
OVER 9400000		59127.10
TOTAL		1045.91

TABLE 36
1992 TAX ALTERNATIVE THREE
LOW ECONOMIC SCENARIO

AGI GROUP	N	PCTN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX
			SUM	SUM	SUM	SUM	SUM	SUM	SUM
LOSS	2264	1.03	21510055.00	-48921117.13	9130408.10	6330.00	22712040.00	563093.07	135264.50
\$0 TO \$10000	38092	17.35	173424469.00	218101755.25	57470317.42	56474.00	202620712.00	4445953.22	85154.95
\$10001 TO \$20000	39603	18.04	531457697.00	618621308.98	343148419.14	70160.00	251762784.00	22656168.33	730792.86
\$20001 TO \$30000	31514	14.35	715441887.00	822644758.59	558069431.56	66914.00	240887432.00	35042972.27	2992348.87
\$30001 TO \$40000	26099	11.89	884436553.00	969951666.68	704216004.82	65254.00	234131352.00	44172335.36	6043637.36
\$40001 TO \$50000	21295	9.78	925620350.00	1017112468.21	775788676.01	59416.00	213184608.00	48252359.64	9463318.93
\$50001 TO \$60000	16056	7.31	824716113.00	935551453.61	743421985.61	47366.00	169949208.00	45947975.14	11265020.14
\$60001 TO \$70000	12422	5.66	752396329.00	862414743.02	707250543.02	38291.00	137388108.00	43510424.58	11296425.56
\$70001 TO \$80000	9564	4.36	657913473.00	773528676.35	650079116.35	30524.00	109520112.00	39552138.98	10685663.71
\$80001 TO \$90000	7028	3.20	536363704.00	655823705.91	565534173.91	22269.00	79901172.00	34561810.43	10016987.31
\$90001 TO \$100000	4866	2.22	385216038.00	526313960.95	462990468.95	15613.00	56019444.00	28218532.14	8524256.47
\$100001 TO \$150000	9346	4.26	835105299.00	1304899322.58	1102252238.58	30255.00	108554940.00	71783246.31	21395259.61
\$150001 TO \$200000	1171	0.53	126341782.00	258367717.96	243296309.96	3716.00	13333008.00	1470282.60	4003960.49
\$200001 TO \$300000	143	0.07	13834587.00	50797706.62	49248642.62	378.00	1356264.00	296486.56	773822.74
\$300001 TO \$400000	37	0.02	5966913.00	17275554.88	16825674.88	110.00	394680.00	1012852.49	283598.70
OVER \$400000	84	0.04	16066422.00	77910048.33	76798548.33	275.00	986700.00	4615400.90	1253467.45
TOTAL	1219584	100	7405811671.00	9060393730.75	7137520959.23	513353.00	1841910563.99	442303832.01	98953979.66

	TAX LIABILITY PFD NON- TAXABLE
	SUM
AGI GROUP	
LOSS	547824.49
00 TO 010000	3440219.05
010001 TO 020000	20588905.15
020001 TO 030000	33004165.89
030001 TO 040000	42252960.29
040001 TO 050000	46547320.56
050001 TO 060000	44605319.14
060001 TO 070000	42435032.50
070001 TO 080000	39004746.90
080001 TO 090000	33932050.43
090001 TO 0100000	27779420.14
0100001 TO 0150000	70935134.31
0150001 TO 0200000	14597770.60
0200001 TO 0300000	2954910.56
0300001 TO 0400000	1009540.49
OVER 0400000	4607912.90
TOTAL	420751257.55

AGI GROUP	N	PCTN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	TAX LIABILITY PFD TAXABLE	PAID FROM FEEDL TAX
			MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
LOSS	2264	1.03	9500.91	-21656.09	4032.87	2.80	10031.82	248.72	59.75
00 TO \$10000	38092	17.35	4552.78	5750.26	1508.72	1.48	5319.46	116.72	2.24
\$10001 TO \$20000	39603	18.04	13419.63	15652.98	8664.71	1.77	6357.16	572.08	18.45
\$20001 TO \$30000	31514	14.35	22702.35	26162.22	17454.76	2.12	7618.44	1111.95	94.95
\$30001 TO \$40000	26099	11.89	33887.76	37219.94	26982.49	2.50	8970.89	1692.49	231.76
\$40001 TO \$50000	21295	9.70	43666.56	47816.86	36430.56	2.79	10011.02	2265.90	444.39
\$50001 TO \$60000	16056	7.31	51364.98	58340.70	46301.82	2.95	10584.78	2861.73	701.61
\$60001 TO \$70000	12422	5.66	60569.66	69515.94	56935.32	3.08	11060.06	3502.69	909.39
\$70001 TO \$80000	9564	4.36	68790.62	81006.25	67971.47	3.19	11451.29	4166.89	1117.28
\$80001 TO \$90000	7028	3.20	76318.11	93462.12	80468.72	3.17	11368.98	4917.73	1425.30
\$90001 TO \$100000	4866	2.22	79164.82	108206.00	95148.06	3.21	11512.42	5799.12	1751.80
\$100001 TO \$150000	9346	4.26	89354.30	139680.94	126498.21	3.24	11615.12	7650.64	2289.24
\$150001 TO \$200000	1171	0.53	107892.21	220638.53	207767.98	3.17	11386.00	12555.15	3419.27
\$200001 TO \$300000	143	0.07	96745.36	355228.72	344396.10	2.64	9484.56	20744.66	5411.35
\$300001 TO \$400000	37	0.02	161267.92	466906.89	454747.97	2.97	10667.03	27374.39	7664.83
OVER \$400000	8	0.04	191266.93	927500.58	914268.43	3.27	11746.43	54945.25	14922.23
TOTAL	219584	100	33726.55	41346.55	32504.74	2.34	8388.18	2014.25	450.64

TAX LIABILITY	PTD MIN-TAXABLE	MEAN	AGI GROUP	LOSS
				90.52
				519.83
				1847.29
				1618.95
				2185.83
				2778.11
				3416.12
				4078.29
				4828.12
				5708.88
				7589.89
				12466.08
				20663.77
				27284.88
				54856.11
				1958.28
				TOTAL

Liability to Collections

The projected time pattern generated from 1970 - 1979 accounting data can be used to translate the projected tax year collections presented in the tables below into gross receipts (col. 2), refunds (col. 3), and net receipts (col. 4) by quarter and fiscal year. The U. S. Consumer Price Index (col. 5) is used to deflate or inflate the net receipts in nominal dollars to real 1986 dollars (col. 6) so we can compare estimated 1988 through 1992 projected fiscal year collections to actual collections from 1975 through 1979.

TABLE 37
(PFD TAXABLE)
LIABILITY TO COLLECTIONS
TAX ALTERNATIVE THREE
LOW ECONOMIC SCENARIO

-----USING HISTORICAL DATA-----										
FY/Q	GROSS RECEIPTS (\$m nom)	NET REFUNDS (\$m nom)	NET RECEIPTS (\$m nom)	CPI	NET REC \$86 (\$m real)	FY/Q	GROSS RECEIPTS (\$m nom)	NET REFUNDS (\$m nom)	NET RECEIPTS (\$m nom)	NET REC \$86 (\$m real)
86				325.98		86				325.98
75/1	\$18	\$1	\$17			88/1	\$0	\$1	(\$1)	
/2	\$25	\$0	\$25			/2	\$0	\$0	(\$0)	
/3	\$27	\$2	\$25			/3	\$1	\$3	(\$1)	
/4	\$34	\$14	\$21			/4	\$80	\$6	\$74	
TOTAL	\$104	\$16	\$87	155.16	\$184	TOTAL	\$81	\$9	\$72	338.66 \$69
76/1	\$36	\$2	\$34			89/1	\$106	\$5	\$101	
/2	\$46	\$1	\$45			/2	\$140	\$2	\$138	
/3	\$47	\$13	\$34			/3	\$136	\$16	\$120	
/4	\$50	\$16	\$34			/4	\$113	\$36	\$76	
TOTAL	\$178	\$31	\$147	166.17	\$288	TOTAL	\$495	\$60	\$435	354.17 \$401
77/1	\$53	\$3	\$50			90/1	\$110	\$6	\$103	
/2	\$62	\$1	\$61			/2	\$145	\$2	\$143	
/3	\$77	\$15	\$63			/3	\$141	\$20	\$121	
/4	\$60	\$22	\$38			/4	\$116	\$44	\$72	
TOTAL	\$252	\$41	\$210	175.80	\$390	TOTAL	\$511	\$72	\$439	370.39 \$386
78/1	\$46	\$3	\$43			91/1	\$113	\$5	\$108	
/2	\$43	\$1	\$42			/2	\$149	\$2	\$147	
/3	\$42	\$6	\$36			/3	\$145	\$16	\$129	
/4	\$50	\$25	\$25			/4	\$119	\$35	\$84	
TOTAL	\$181	\$36	\$146	187.62	\$253	TOTAL	\$525	\$57	\$468	387.35 \$394
79/1	\$43	\$10	\$33			92/1	\$115	\$5	\$110	
/2	\$42	\$1	\$41			/2	\$152	\$2	\$150	
/3	\$42	\$15	\$27			/3	\$148	\$15	\$132	
/4	\$47	\$31	\$16			/4	\$119	\$34	\$84	
TOTAL	\$174	\$57	\$117	205.22	\$186	TOTAL	\$534	\$55	\$478	405.09 \$385

TABLE 3B
1988 TAX ALTERNATIVE THREE
MODERATE ECONOMIC SCENARIO

	N	PCTN	WAGE & SALARY SUM	ADJ GROSS INCOME SUM	TAXABLE INCOME SUM	NUMBER OF EXEMPTIONS SUM	VALUE OF EXEMPTIONS SUM	TAX LIABILITY PFD TAXABLE SUM	PAID FROM FEDRL TAX SUM
AGI GROUP									
LOSS	3100	1.17	28281141.00	-61444490.96	13050612.80	8295.00	24885000.00	802867.07	192509.44
50 TO \$10000	59403	22.42	270128023.00	338555016.00	112263277.23	85667.00	257001000.00	8426346.28	156500.00
\$10001 TO \$20000	54784	20.68	728576500.00	851035482.00	513731088.97	98951.00	296853000.00	33682409.78	1117048.92
\$20001 TO \$30000	39411	14.88	891007933.00	1030107863.38	725125986.45	88043.00	264129000.00	46011697.89	3884640.59
\$30001 TO \$40000	31031	11.71	1030650179.00	1150799371.58	868683323.79	81746.00	245238000.00	54352999.43	7342828.55
\$40001 TO \$50000	23954	9.04	1032909499.00	1142649829.99	903678937.79	69458.00	200374000.00	56073826.01	11329421.42
\$50001 TO \$60000	17163	6.48	882968616.00	998647869.19	820618869.19	51769.00	155307000.00	50611612.15	12440614.93
\$60001 TO \$70000	12206	4.61	742422172.00	844152753.33	712851753.33	38244.00	114732000.00	43774065.20	11356004.34
\$70001 TO \$80000	8524	3.22	588115204.00	688799061.32	595524561.32	27190.00	81570000.00	36442563.68	9553284.13
\$80001 TO \$90000	5672	2.14	432324512.00	528886838.01	467107838.01	17988.00	53904000.00	28503290.28	8394351.00
\$90001 TO \$100000	3549	1.34	282732742.00	381335884.95	342742384.95	11218.00	33654000.00	20861993.10	6307408.58
\$100001 TO \$150000	5427	2.05	473620536.00	748821667.34	689442667.34	17285.00	51855000.00	41819080.04	12371937.27
\$150001 TO \$200000	470	0.18	47369847.00	101944043.67	97122293.67	1404.00	4212000.00	5863922.62	1574844.83
\$200001 TO \$300000	49	0.02	4666366.00	18125990.20	17725490.20	116.00	348000.00	1066679.41	263407.07
\$300001 TO \$400000	95	0.04	15666462.00	46314279.44	45156279.44	339.00	1017000.00	2717836.77	753860.43
OVFR \$400000	83	0.03	17633031.00	85184874.61	84301374.61	256.00	768000.00	5065012.48	1353182.02
TOTAL	264921	100	7469072843.00	8893916334.10	7009126739.06	597949.00	1793847000.00	436076202.17	88691044.41

	TAX LIABILITY PFD NON- TAXABLE
	SUM
AGI GROUP	
LOSS	783036.77
\$0 TO \$10000	6735796.63
\$10001 TO \$20000	30823865.34
\$20001 TO \$30000	43507559.19
\$30001 TO \$40000	52120999.43
\$40001 TO \$50000	54220736.27
\$50001 TO \$60000	49237132.15
\$60001 TO \$70000	42771105.20
\$70001 TO \$80000	35731473.68
\$80001 TO \$90000	28026470.28
\$90001 TO \$100000	20564543.10
\$100001 TO \$150000	41366560.04
\$150001 TO \$200000	5827337.62
\$200001 TO \$300000	1063529.41
\$300001 TO \$400000	2709376.77
OVER \$400000	5058082.48
TOTAL	420547604.34

AGI GROUP	N	PCTN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	TAX LIABILITY PPD TAXABLE	PAID FROM FEDRL TAX
			MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
LOSS	3100	1.17	9122.95	-19878.52	4209.88	2.68	8027.42	258.99	62.10
\$0 TO \$10000	59403	22.42	4547.38	5726.77	1089.86	1.44	4326.40	141.85	2.63
\$10001 TO \$20000	54784	20.68	13299.08	15570.76	9377.39	1.81	5418.61	614.82	20.39
\$20001 TO \$30000	39411	14.86	22608.10	26192.07	18399.08	2.23	6701.91	1167.48	98.57
\$30001 TO \$40000	31031	11.71	33213.57	37138.13	27994.05	2.63	7903.00	1751.57	236.63
\$40001 TO \$50000	23954	9.04	43120.54	47765.65	37725.60	2.90	8698.92	2360.90	472.97
\$50001 TO \$60000	17163	6.48	51446.05	58264.17	47813.25	3.02	9048.94	2948.88	724.85
\$60001 TO \$70000	12206	4.61	60824.36	69255.29	58401.75	3.13	9399.64	3586.27	930.36
\$70001 TO \$80000	8524	3.22	68995.21	80939.96	69864.45	3.19	9569.45	4275.29	1155.95
\$80001 TO \$90000	5672	2.14	76220.82	93376.91	82353.29	3.17	9503.53	5025.26	1479.96
\$90001 TO \$100000	3549	1.34	79665.47	107539.73	96574.35	3.16	9482.67	5878.27	1777.24
\$100001 TO \$150000	5427	2.05	87271.15	138031.64	127039.37	3.19	9555.00	7705.75	2279.70
\$150001 TO \$200000	470	0.18	100786.91	216902.22	206643.18	2.99	8961.70	12476.43	3350.73
\$200001 TO \$300000	49	0.02	95231.96	369918.47	361744.70	2.37	7102.04	21768.97	5175.65
\$300001 TO \$400000	95	0.04	164910.13	487518.73	475329.26	3.57	10705.26	28608.81	7926.95
OVER \$400000	83	0.03	212446.16	1026323.79	1015679.21	3.08	9253.01	61824.25	16303.40
TOTAL	264921	100	28193.59	33654.15	26457.62	2.26	6771.25	1646.06	514.78

TAX LIABILITY	PFD NON-TAXABLE	MEAN
AGI GROUP		
LOSS		
50 TO \$10000	113.39	252.59
\$10001 TO \$20000	562.64	
\$20001 TO \$30000	1103.94	
\$30001 TO \$40000	1679.64	
\$40001 TO \$50000	2263.54	
\$50001 TO \$60000	2868.80	
\$60001 TO \$70000	3504.10	
\$70001 TO \$80000	4191.87	
\$80001 TO \$90000	4941.20	
\$90001 TO \$100000	5794.46	
\$100001 TO \$150000	7622.36	
\$150001 TO \$200000	12398.59	
\$200001 TO \$300000	21704.68	
\$300001 TO \$400000	28519.76	
OVER \$400000	60940.75	
TOTAL	1587.45	

TABLE 39
1989 TAX ALTERNATIVE THREE
MODERATE ECONOMIC SCENARIO

	N	PCTN	WAGE & SALARY SUM	ADJ GROSS INCOME SUM	TAXABLE INCOME SUM	NUMBER OF EXEMPTIONS SUM	VALUE OF EXEMPTIONS SUM	TAX LIABILITY PFD TAXABLE SUM	PAID FROM FEDPL TAX SUM
AGI GROUP									
LOSS	3006	1.12	28070529.00	-64487886.75	14005505.36	8114.00	25456863.60	860898.06	214771.75
00 TO 010000	56662	21.11	257635640.00	324767512.55	101609692.50	82012.00	257304448.00	7761324.73	149267.74
010001 TO 020000	54308	20.24	720811102.00	844326250.27	497945908.19	97269.00	305171760.60	32849617.72	1059389.00
020001 TO 030000	39735	14.81	897217379.00	1038269296.78	722179079.67	87008.00	272978899.20	45930920.39	3894861.32
030001 TO 040000	31588	11.77	1055289336.00	1174989186.46	879729725.79	81557.00	255876931.80	55169643.99	7535060.00
040001 TO 050000	24634	9.18	1062494637.00	1175937775.50	921387941.12	70535.00	221296509.00	57297692.47	11523910.16
050001 TO 060000	17785	6.63	913542735.00	1035260965.56	842592591.76	53447.00	167684617.80	52065875.51	12770933.05
060001 TO 070000	13042	4.86	791237713.00	903171006.17	757480894.97	40429.00	126841944.60	46587461.70	12095129.78
070001 TO 080000	9356	3.49	643333916.00	757004148.90	649899883.50	29782.00	93438046.80	39325449.01	10752217.50
080001 TO 090000	6388	2.38	486846827.00	595002856.86	522019467.06	20259.00	63560586.60	31892560.02	9347484.76
090001 TO 0100000	4223	1.57	333768399.00	456522662.61	407971046.41	13467.00	42251365.80	24857030.78	7481700.80
0100001 TO 0150000	6717	2.50	592160693.00	933514844.65	856114317.05	21486.00	67410176.40	51968539.02	15358197.96
0150001 TO 0200000	658	0.25	67581334.00	143041504.29	135868603.49	1992.00	6249700.80	8207508.21	2212744.60
0200001 TO 0300000	78	0.03	6477017.00	32038015.94	31378083.94	180.00	564732.00	1888397.04	496919.05
0300001 TO 0400000	90	0.03	13946040.00	45523451.28	44406919.88	311.00	975731.40	2672863.19	735332.89
OVER 0400000	80	0.03	15339488.00	76761347.92	75814674.32	264.00	828273.60	4555984.46	1262938.77
TOTAL	1268350	100	7885752785.00	9471642938.98	7460407534.96	608112.00	1907890588.79	464441766.29	96908859.12

TAX LIABILITY	PTD NON-TAXABLE	SUM
AGI GROUP		
LOSS		
50 TO \$10000	6096501.55	040330.32
\$10001 TO \$20000	29076754.49	
\$20001 TO \$30000	43330744.70	
\$30001 TO \$40000	52703703.55	
\$40001 TO \$50000	55203276.47	
\$50001 TO \$60000	50555555.51	
\$60001 TO \$70000	45449045.70	
\$70001 TO \$80000	30993993.01	
\$80001 TO \$90000	31321160.02	
\$90001 TO \$100000	24470262.70	
\$100001 TO \$150000	51366059.02	
\$150001 TO \$200000	0152116.21	
\$200001 TO \$300000	1882605.05	
\$300001 TO \$500000	2664415.19	
OVER \$500000	4540000.46	
TOTAL	447624452.10	

	N	PCTN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	TAX LIABILITY PFD TAXABLE	PAID FROM FEDERAL TAX
			MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
AGI GROUP									
LOSS	3006	1.12	9338.17	-21510.30	4659.18	2.70	8468.68	286.39	71.45
00 TO \$10000	56662	21.11	4546.89	5759.00	1793.26	1.45	4541.84	136.98	2.63
\$10001 TO \$20000	54308	20.24	13272.65	15582.86	9168.92	1.79	5619.28	604.88	19.51
\$20001 TO \$30000	39735	14.81	22588.03	26186.52	18174.89	2.19	6869.99	1157.19	98.02
\$30001 TO \$40000	31588	11.77	33407.92	37257.48	27850.32	2.58	8100.45	1746.54	238.54
\$40001 TO \$50000	24634	9.18	43131.23	47798.46	37403.10	2.86	8983.38	2325.96	467.81
\$50001 TO \$60000	17785	6.63	51365.91	58281.88	47376.59	3.01	9428.43	2927.52	719.20
\$60001 TO \$70000	13042	4.86	60668.43	69330.70	58080.36	3.10	9725.65	3572.11	927.40
\$70001 TO \$80000	9356	3.49	68761.64	81058.37	69463.43	3.18	9936.97	4256.67	1149.23
\$80001 TO \$90000	6388	2.38	76212.72	93304.51	81718.76	3.17	9950.00	4992.57	1463.27
\$90001 TO \$100000	4223	1.57	79035.85	108155.10	96606.93	3.19	10005.06	5886.11	1771.66
\$100001 TO \$150000	6717	2.50	88158.51	139060.75	127454.86	3.20	10035.76	7736.87	2286.47
\$150001 TO \$200000	658	0.25	102707.19	217388.30	206487.24	3.03	9498.03	12473.42	3362.83
\$200001 TO \$300000	78	0.03	83038.68	410743.79	402283.13	2.31	7240.15	24210.22	6345.12
\$300001 TO \$400000	90	0.03	154956.00	505816.13	493410.22	3.46	10341.46	29698.48	8170.37
OVER \$400000	80	0.03	191743.60	959516.85	947683.43	3.30	10353.42	56949.81	15756.73
TOTAL	1268350	100	29386.07	35380.50	27801.03	2.27	7109.71	1730.71	341.13

AGI GROUP	TAX LIABILITY PFD NON- TAXABLE
	MEAN
LOSS	279.55
00 TO \$10000	107.60
\$10001 TO \$20000	550.14
\$20001 TO \$30000	1090.49
\$30001 TO \$40000	1671.01
\$40001 TO \$50000	2244.19
\$50001 TO \$60000	2842.60
\$60001 TO \$70000	3484.82
\$70001 TO \$80000	4167.81
\$80001 TO \$90000	4903.13
\$90001 TO \$100000	5706.42
\$100001 TO \$150000	7647.29
\$150001 TO \$200000	12389.23
\$200001 TO \$300000	24136.99
\$300001 TO \$400000	29604.61
OVER \$400000	56861.01
TOTAL	1668.06

TABLE 40
1990 TAX ALTERNATIVE THREE
MODERATE ECONOMIC SCENARIO

	N	PCTN	WAGE & SALARY SUM	ADJ GROSS INCOME SUM	TAXABLE INCOME SUM	NUMBER OF EXEMPTIONS SUM	VALUE OF EXEMPTIONS SUM	TAX LIABILITY FED TAXABLE SUM	PAID FROM FEDERAL TAX SUM
AGI GROUP									
LOSS	2925	1.09	26365568.00	-59283482.17	12785719.14	7950.00	26084745.00	787526.79	192237.83
0 TO \$10000	53944	20.14	244905721.00	308713792.33	92333065.77	77609.00	254642889.90	7075103.24	133916.20
\$10001 TO \$20000	52742	19.70	703208749.00	821126187.45	478190844.15	93055.00	305322760.50	31520753.19	1022498.69
\$20001 TO \$30000	39408	14.72	893115999.00	1028639440.14	710315166.03	84237.00	276390020.70	45200539.41	3848250.88
\$30001 TO \$40000	31554	11.78	1062534280.00	1173442339.22	871851394.21	80088.00	262776736.80	54660124.73	7491232.92
\$40001 TO \$50000	24721	9.23	1067862265.00	1177443432.09	915177720.65	69872.00	229257019.20	56909383.24	11317667.49
\$50001 TO \$60000	18138	6.77	932249695.00	1056722125.05	854613776.65	53910.00	176884101.00	52803274.60	12963993.69
\$60001 TO \$70000	13563	5.06	822511897.00	939857608.90	783153088.70	41827.00	137238569.70	48166001.32	12439144.91
\$70001 TO \$80000	10073	3.76	695422872.00	814731935.87	695239337.97	31954.00	104844269.40	42606056.28	11493425.54
\$80001 TO \$90000	6963	2.60	532100419.00	649054524.68	566389491.68	22062.00	72387628.20	34606313.50	10117572.39
\$90001 TO \$100000	4660	1.74	370013362.00	504648932.17	449283663.87	14755.00	48412630.50	27374571.83	8244947.66
\$100001 TO \$150000	7947	2.97	701929743.00	1102871983.44	1006764962.94	25661.00	84196307.10	61121721.78	18150334.29
\$150001 TO \$200000	853	0.32	89488808.00	186064265.47	176168480.37	2641.00	8665385.10	10643932.82	2872000.80
\$200001 TO \$300000	101	0.04	9900570.00	42186195.84	41153574.44	274.00	899021.40	2677230.47	627972.21
\$300001 TO \$400000	108	0.04	15989348.00	53490334.51	52147781.81	357.00	1171352.70	3139138.91	844963.32
OVER \$400000	74	0.03	14865466.00	74469794.42	73576011.52	240.00	787464.00	4421136.69	1225128.64
TOTAL	1267782	100	8182464762.00	9874179407.39	7779144079.85	406492.00	1989960901.19	483512308.79	103035187.44

TAX LIABILITY	
PFD NON-TAXABLE	
SUM	
AGI GROUP	
LOSS	767143.15
50 TO 510000	5539903.95
510001 TO 520000	20691450.65
520001 TO 530000	42618909.96
530001 TO 540000	52311003.65
540001 TO 550000	54910663.24
550001 TO 560000	51276026.60
560001 TO 570000	46909105.32
570001 TO 580000	41714360.20
580001 TO 590000	33903369.50
590001 TO 6100000	26957019.03
6100001 TO 6150000	60405097.70
6150001 TO 6200000	10570108.02
6200001 TO 6300000	2469214.47
6300001 TO 6400000	3120366.91
OVER 6400000	4414560.69
TOTAL	1466740644.79

AGI GROUP	N	PCTN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	TAX LIABILITY PRD TAXABLE	PAID FROM FED'L TAX
			MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
LOSS	2925	1.09	9013.87	-20309.52	4371.19	2.72	8917.86	269.24	65.72
\$0 TO \$10000	53944	20.14	4540.00	5749.72	1711.65	1.44	4720.50	131.16	2.48
\$10001 TO \$20000	52742	19.70	13332.99	15603.35	9066.60	1.76	5788.99	597.64	19.39
\$20001 TO \$30000	39408	14.72	22663.32	26149.41	18024.64	2.14	7013.55	1146.99	97.65
\$30001 TO \$40000	31554	11.78	33673.52	37239.13	27630.46	2.54	8327.84	1732.27	237.41
\$40001 TO \$50000	24721	9.23	43196.56	47687.15	37820.25	2.83	9273.78	2302.07	457.82
\$50001 TO \$60000	18138	6.77	51397.60	58337.32	47117.31	2.97	9752.13	2911.20	714.74
\$60001 TO \$70000	13563	5.06	60643.80	69377.55	57741.88	3.08	10118.60	3551.28	920.87
\$70001 TO \$80000	10073	3.76	69038.31	81043.66	69020.09	3.17	10408.45	4229.73	1141.01
\$80001 TO \$90000	6963	2.60	76418.27	93375.70	81342.74	3.17	10396.04	4970.03	1453.05
\$90001 TO \$100000	4660	1.74	79602.01	108317.01	96412.80	3.17	10383.98	5374.37	1769.30
\$100001 TO \$150000	7947	2.97	88326.38	138813.34	126684.91	3.23	10594.73	7691.17	2283.93
\$150001 TO \$200000	853	0.32	104910.68	218129.27	206528.11	3.10	10158.72	12478.23	3366.94
\$200001 TO \$300000	109	0.04	90830.92	387029.32	377555.73	2.51	8247.90	22726.89	5761.21
\$300001 TO \$400000	108	0.04	148049.52	495280.88	482849.83	3.31	10545.86	29066.10	7873.73
OVER \$400000	74	0.03	208884.68	1020134.17	994270.43	3.24	10641.41	59745.09	16556.60
TOTAL	267782	100	30556.44	36956.06	29050.29	2.26	7431.27	1805.62	384.77

	TAX LIABILITY FID NON- TAXABLE
	MEAN
AGI GROUP	
LOSS	262.27
\$0 TO \$10000	102.70
\$10001 TO \$20000	544.00
\$20001 TO \$30000	1081.48
\$30001 TO \$40000	1657.83
\$40001 TO \$50000	2221.22
\$50001 TO \$60000	2827.04
\$60001 TO \$70000	3464.51
\$70001 TO \$80000	4141.21
\$80001 TO \$90000	4880.56
\$90001 TO \$100000	5784.77
\$100001 TO \$150000	7601.09
\$150001 TO \$200000	12391.69
\$200001 TO \$300000	22653.34
\$300001 TO \$400000	28970.99
OVER \$400000	59656.23
TOTAL	1743.02

TABLE 41
1991 TAX ALTERNATIVE THREE
MODERATE ECONOMIC SCENARIO

AGI GROUP	N	PCTN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX
			SUM	SUM	SUM	SUM	SUM	SUM	SUM
LOSS	2826	1.05	26151717.00	-58930891.94	13232457.15	7702.00	26428642.80	812253.74	206797.43
\$0 TO \$10000	51193	19.07	233394604.00	292786918.06	82582252.75	74429.00	255395670.60	6357076.19	122147.60
\$10001 TO \$20000	51365	19.14	686318284.00	799113086.17	456133304.79	90083.00	309110806.20	30075759.46	960092.44
\$20001 TO \$30000	39219	14.61	889736838.00	1022530539.62	697377972.92	82853.00	284301784.20	44376170.30	3799309.46
\$30001 TO \$40000	31792	11.85	1071210898.00	1181316606.58	870469704.91	79365.00	272333061.00	54562460.60	7476603.34
\$40001 TO \$50000	25107	9.35	1086818833.00	1197238525.45	924169008.81	69920.00	239923483.00	57457212.53	11392842.50
\$50001 TO \$60000	18680	6.96	959615727.00	1087936586.28	873345010.88	55022.00	188802490.80	53960604.65	13257555.05
\$60001 TO \$70000	14172	5.28	862239297.00	983541884.84	813410134.24	43674.00	149862963.60	50030000.05	12980124.62
\$70001 TO \$80000	10701	3.99	734716610.00	866083961.40	734339276.20	33882.00	116262694.80	45002452.57	12088821.85
\$80001 TO \$90000	7572	2.82	576125158.00	705032371.02	611844727.42	23906.00	82031048.40	37386647.65	10876714.54
\$90001 TO \$100000	5223	1.95	412975522.00	565674142.95	501083315.95	16559.00	56820552.60	30532038.96	9204619.46
\$100001 TO \$150000	9204	3.43	813480190.00	1285842525.18	1170104913.78	29707.00	101936599.80	71035590.83	20994394.11
\$150001 TO \$200000	1073	0.40	113944305.00	231801267.08	218668417.68	3371.00	11567249.40	13214041.06	3616777.24
\$200001 TO \$300000	143	0.05	15670147.00	52588873.08	51206514.48	349.00	1197558.60	3083478.87	804847.81
\$300001 TO \$400000	44	0.02	7005312.00	22124906.06	21571247.26	142.00	487258.80	1298258.84	337590.66
OVER \$400000	79	0.03	15733671.00	86653603.57	85677122.17	251.00	861291.40	5147539.33	1428488.94
TOTAL	1268393	100	8505137113.00	10321334905	8125220381.34	611215.00	2097373150.99	504331613.67	109547127.07

	TAX LIABILITY PFD NON- TAXABLE
	SUM
AGE GROUP	
LOSS	793947.43
00 TO \$10000	4954935.17
\$10001 TO \$20000	27368298.29
\$20001 TO \$30000	41842678.38
\$30001 TO \$40000	52228182.29
\$40001 TO \$50000	55450140.53
\$50001 TO \$60000	52400700.65
\$60001 TO \$70000	48804600.05
\$70001 TO \$80000	44060356.57
\$80001 TO \$90000	36710683.65
\$90001 TO \$100000	30064998.96
\$100001 TO \$150000	70206294.83
\$150001 TO \$200000	13120105.06
\$200001 TO \$300000	3072390.87
\$300001 TO \$400000	1294274.84
OVER \$400000	5140627.33
TOTAL	487513222.88

AGI GROUP	N	PCTN	WAGE & SALARY	ADJ GROSS INCOME	TAXABLE INCOME	NUMBER OF EXEMPTIONS	VALUE OF EXEMPTIONS	TAX LIABILITY PFD TAXABLE	PAID FROM FEDRL TAX
			MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
LOSS	2826	1.05	9253.97	-20904.89	4682.40	2.73	9351.96	287.42	73.18
\$0 TO \$10000	51193	19.07	4559.11	5746.33	1613.16	1.45	4988.88	124.18	2.39
\$10001 TO \$20000	51365	19.14	13361.59	15592.75	8880.33	1.75	6017.93	585.53	18.69
\$20001 TO \$30000	39219	14.61	22686.37	26124.95	17781.64	2.11	7249.08	1131.50	96.87
\$30001 TO \$40000	31792	11.85	33694.35	37213.05	27380.15	2.50	8566.09	1716.23	235.17
\$40001 TO \$50000	25107	9.35	43207.48	47742.49	36809.22	2.78	9556.04	2288.49	453.77
\$50001 TO \$60000	18680	6.96	51371.29	58309.39	46752.94	2.95	10107.20	2888.68	709.72
\$60001 TO \$70000	14172	5.28	60841.05	69473.89	57395.58	3.08	10574.58	3530.20	915.90
\$70001 TO \$80000	10701	3.99	68658.69	81094.00	68623.43	3.17	10864.66	4205.44	1129.69
\$80001 TO \$90000	7572	2.82	76086.26	93245.92	80803.58	3.16	10833.47	4937.49	1436.44
\$90001 TO \$100000	5223	1.95	79068.64	108345.94	95937.84	3.17	10878.91	5845.69	1762.32
\$100001 TO \$150000	9204	3.43	88383.33	139735.11	127130.04	3.23	11075.25	7717.90	2281.01
\$150001 TO \$200000	1073	0.40	106192.27	216031.00	203791.63	3.14	10780.29	12315.04	3370.24
\$200001 TO \$300000	143	0.05	109581.45	367754.36	358087.51	2.44	8374.54	21562.79	5628.34
\$300001 TO \$400000	44	0.02	159211.64	502838.77	490255.62	3.23	11074.06	29505.88	7558.88
OVER \$400000	79	0.03	199160.39	1096881.04	1084520.53	3.18	10902.30	65158.73	18083.40
TOTAL	268393	100	31689.12	38541.35	30273.59	2.28	7814.37	1379.03	408.14

	TAX LIABILITY PFD NON- TAXABLE
	MEAN
AGI GROUP	
LOSS	288.94
\$0 TO \$10000	96.79
\$10001 TO \$20000	532.82
\$20001 TO \$30000	1066.90
\$30001 TO \$40000	1642.81
\$40001 TO \$50000	2208.55
\$50001 TO \$60000	2805.18
\$60001 TO \$70000	3443.73
\$70001 TO \$80000	4117.41
\$80001 TO \$90000	4848.21
\$90001 TO \$100000	5756.27
\$100001 TO \$150000	7627.80
\$150001 TO \$200000	12227.50
\$200001 TO \$300000	21485.25
\$300001 TO \$400000	29415.34
OVER \$400000	65071.23
TOTAL	1816.42

TABLE 42
1992 TAX ALTERNATIVE THREE
MODERATE ECONOMIC SCENARIO

	N	PCIN	WAGE & SALARY SUM	ADJ GROSS INCOME SUM	TAXABLE INCOME SUM	NUMBER OF EXEMPTIONS SUM	VALUE OF EXEMPTIONS SUM	TAX LIABILITY PFD TAXABLE SUM	PAID FROM FEDRL TAX SUM
AGI GROUP									
LOSS	2782	1.03	25603313.00	-59702639.05	11455782.37	7712.00	27670656.00	785950.06	173310.50
00 TO \$10000	48792	18.13	223074635.00	278533905.75	74264960.12	71311.00	255863868.00	5737763.75	120369.43
\$10001 TO \$20000	50190	18.65	676856501.00	781699606.62	437070798.72	87589.00	314269332.00	28825677.70	925686.31
\$20001 TO \$30000	38976	14.48	888895439.00	1015967845.12	685925171.17	80948.00	290441424.00	43635169.17	3766836.16
\$30001 TO \$40000	32175	11.96	1106841949.00	1198468641.04	876834833.99	78924.00	283179312.00	54912236.59	7650592.62
\$40001 TO \$50000	25484	9.47	1115540797.00	1217224964.02	932556988.44	70076.00	251432688.00	57968584.39	11463229.55
\$50001 TO \$60000	18908	7.03	972929669.00	1100596817.88	877852717.88	54889.00	196941732.00	54233083.07	13325054.77
\$60001 TO \$70000	14503	5.39	880193746.00	1006003243.51	827274559.51	44089.00	158191332.00	50878617.57	13233723.88
\$70001 TO \$80000	11144	4.14	745860468.00	901551955.07	759264427.07	35168.00	126182784.00	46535497.62	12522147.69
\$80001 TO \$90000	8039	2.99	611409955.00	749701168.29	647265148.29	25269.00	90665172.00	39550340.42	11447838.10
\$90001 TO \$100000	5768	2.14	455240282.00	625050219.33	550579703.33	18361.00	65879268.00	33551118.20	10111182.61
\$100001 TO \$150000	10723	3.99	956129483.00	1494754712.25	1354509524.25	34613.00	124191444.00	82236379.45	24404433.93
\$150001 TO \$200000	1357	0.50	144745472.00	297047438.64	279447598.64	4346.00	15593448.00	16887239.44	4572845.90
\$200001 TO \$300000	170	0.06	16224039.00	62192474.87	60351062.87	449.00	1611012.00	3634887.77	947458.93
\$300001 TO \$400000	28	0.01	4277365.00	13337617.96	12937605.96	99.00	355212.00	778944.36	210569.82
OVER \$400000	85	0.03	18159817.00	82022574.16	80793058.16	307.00	1101516.00	4855263.49	1346759.61
TOTAL	1269129	100	8862002930.00	10764452545	8468383924.77	614150.00	2203570199.99	524956755.05	116222039.81

TAX LIABILITY	
FID NON-	
TAXABLE	
SUM	
AGI GROUP	
LOSS	
50 TO 910000	4455097.61
910001 TO 920000	26224247.92
920001 TO 930000	41155510.27
930001 TO 940000	52610090.04
940001 TO 950000	55953419.31
950001 TO 960000	52671163.07
960001 TO 970000	49636473.57
970001 TO 980000	45555065.62
980001 TO 990000	38035900.42
990001 TO 9100000	33034702.20
9100001 TO 9150000	01270571.45
9150001 TO 9200000	16766055.44
9200001 TO 9300000	3621063.77
9300001 TO 9400000	776256.36
OVER 9400000	4847503.49
TOTAL	508133035.40

AGI GROUP	N	PCTN	WAGE & SALARY		ADJ GROSS INCOME		TAXABLE INCOME		NUMBER OF EXEMPTIONS		VALUE OF EXEMPTIONS		TAX LIABILITY PFD TAXABLE		PAID FROM FEDRL TAX	
			MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN	MEAN
LOSS	2782	1.03	9203.20	-21514.46	4117.82	2.77	9946.32	253.76	62.30							
50 TO \$10000	48792	18.13	4571.95	5735.52	1522.07	1.46	5243.97	117.60	2.47							
\$10001 TO \$20000	50190	18.65	13485.88	15611.82	8708.32	1.75	6241.59	574.33	18.44							
\$20001 TO \$30000	38976	14.68	22806.23	26120.78	17598.65	2.08	7451.80	1119.54	96.65							
\$30001 TO \$40000	32175	11.96	34400.68	37302.93	27232.05	2.45	8801.22	1707.61	237.78							
\$40001 TO \$50000	25484	9.47	43774.16	47822.53	36593.82	2.75	9866.30	2274.71	449.82							
\$50001 TO \$60000	18908	7.03	51455.98	58278.89	46427.58	2.90	10415.79	2868.26	704.73							
\$60001 TO \$70000	14503	5.39	60690.46	69451.38	57061.62	3.04	10907.49	3508.14	912.48							
\$70001 TO \$80000	11144	4.14	68724.82	81038.38	68132.13	3.16	11322.93	4175.83	1123.67							
\$80001 TO \$90000	8039	2.99	76055.47	93409.87	80515.63	3.14	11278.17	4919.81	1424.04							
\$90001 TO \$100000	5768	2.14	78928.62	108402.74	95454.18	3.18	11421.51	5816.77	1752.98							
\$100001 TO \$150000	10728	3.99	89124.67	139384.06	126259.28	3.23	11576.38	7665.58	2274.84							
\$150001 TO \$200000	1157	0.50	106665.79	218900.10	205910.43	3.20	11491.12	12444.54	3369.82							
\$200001 TO \$300000	170	0.06	95435.52	365838.89	355006.25	2.64	9476.54	21381.69	5573.29							
\$300001 TO \$400000	28	0.01	152763.04	476343.50	462037.36	3.54	12886.14	27819.44	7520.35							
OVER \$400000	85	0.03	213644.91	964971.46	950506.57	3.81	12959.01	57120.75	15844.23							
TOTAL	269129	100	32928.46	40085.70	31465.89	2.28	8187.78	1950.58	431.85							

AGI GROUP	TAX LIABILITY PD NON- TAXABLE
	MEAN
LOSS	247.07
\$0 TO \$10000	91.32
\$10001 TO \$20000	522.50
\$20001 TO \$30000	1055.92
\$30001 TO \$40000	1635.12
\$40001 TO \$50000	2195.63
\$50001 TO \$60000	2785.65
\$60001 TO \$70000	3422.50
\$70001 TO \$80000	4087.93
\$80001 TO \$90000	4830.94
\$90001 TO \$100000	5727.25
\$100001 TO \$150000	7575.56
\$150001 TO \$200000	12355.83
\$200001 TO \$300000	21300.38
\$300001 TO \$400000	27723.44
OVER \$400000	57030.39
TOTAL	1887.95

Liability to Collections

The projected time pattern generated from 1970 - 1979 accounting data can be used to translate the projected tax year collections presented in the tables below into gross receipts (col. 2), refunds (col. 3), and net receipts (col. 4) by quarter and fiscal year. The U. S. Consumer Price Index (col. 5) is used to deflate or inflate the net receipts in nominal dollars to real 1986 dollars (col. 6) so we can compare estimated 1988 through 1992 projected fiscal year collections to actual collections from 1975 through 1979.

TABLE 43
(PFD TAXABLE)
LIABILITY TO COLLECTIONS
TAX ALTERNATIVE THREE
MODERATE ECONOMIC SCENARIO

FY/Q	GROSS RECEIPTS (\$m nom)	REFUNDS (\$m nom)	NET RECEIPTS (\$m nom)	CPI	NET REC \$86 (\$m real)
86				325.98	
88/1	\$0	\$1	(\$1)		
/2	\$0	\$0	(\$0)		
/3	\$1	\$3	(\$1)		
/4	\$87	\$6	\$82		
TOTAL	\$89	\$9	\$79	338.66	\$76
89/1	\$116	\$5	\$111		
/2	\$153	\$2	\$151		
/3	\$149	\$16	\$132		
/4	\$126	\$36	\$89		
TOTAL	\$543	\$60	\$483	354.17	\$445
90/1	\$123	\$6	\$117		
/2	\$163	\$2	\$161		
/3	\$158	\$20	\$138		
/4	\$132	\$44	\$88		
TOTAL	\$576	\$72	\$504	370.39	\$443
91/1	\$128	\$5	\$123		
/2	\$169	\$2	\$168		
/3	\$165	\$16	\$149		
/4	\$137	\$35	\$103		
TOTAL	\$600	\$57	\$543	387.35	\$457
92/1	\$134	\$5	\$129		
/2	\$177	\$2	\$175		
/3	\$172	\$15	\$157		
/4	\$139	\$34	\$105		
TOTAL	\$621	\$55	\$566	405.09	\$455

METHOD

General Description of the Modelling Process

Alaska repealed its individual income tax beginning with tax year 1979. Because no data on state tax collections is available after that time the first task of this analysis was the development of a data base. These data sources were examined:

1. Statistics of Income data for years 1964-81.
2. Federal tape data for years 77, 78 and 81 to 85.
3. State income tax tapes for years 76 - 79.

The second step in the analysis was to conveniently and accurately summarize the information in these data bases. Tax analysis needs to consider both the aggregate level of income and the distribution across income classes of that income. Income distributions are frequently analyzed with some variant of lognormal or Pareto frequency distributions. This analysis used the lognormal distribution to analyze and summarize the information in the various available data bases.

The third step in this study was to examine how the parameters describing these income distributions varied over time as economic conditions changed. These historical relationships were then used to forecast how the income distribution might look in future years given a forecast of key economic variables. In addition to the distribution a forecast of the number of joint and non-joint returns was developed, again based on historical relationships to key economic variables.

At this point the analysis can predict the number of returns likely to be received in future years and the distribution of these returns across income classes. In the next step we sampled returns from the most recent federal tape in proportion to the estimated frequencies with adjustments made to reflect probable relationships between state and federal filings. Each return selected in the sample has information on income, exemptions and deductions.

The predicted distribution and the sampled returns provides a characterization of the state income tax base in future years. Tax structures can be varied by changing rates, exemption amounts and deductions. Revenue impacts are determined by running different tax structures against this base of tax returns.

The inflation rates used to index tax structure elements were those in the Petroleum Revenue forecast produced in December 1986.(20)

Data Description, Limitations and Use

Statistics of Income Data

Source: Statistics of Income Individual Income Tax Returns Department of the Treasury Internal Revenue Services

Period of Availability: 1964-81

Type of Information: For all returns and joint returns by adjusted gross income class:

- Number of returns
- Adjusted Gross Income less deficit
- Salaries and wages - number of return and amount
- Total number of exemptions
- Total income tax - number of returns and amount

Description: This series of reports presents information based on a stratified sample of unaudited individual income tax returns filed by U.S. citizens and residents. Estimates in a given year's report are primarily based on returns for that income year but may reflect a small number of late filings from prior years. Data at the state level is based on the state address reported on the tax return.

Limitations:

The sample used to generate the reports is quite small and estimates are subject to some sampling error. While the sampling design insures that a minimum number of returns are selected from a small state like Alaska the presence of variation among possible samples needs to be recognized.

A second problem involves the level of detail presented in the reports. For instance about 80 percent of Federal Income tax paid by Alaskan residents in 1981 came from returns in two income classes \$30,000 to 50,000 and \$50,000 to 100,000. Given such broad groupings it is difficult to develop summary measures such as means or percentiles to characterize the returns in the income group. For tax estimating purposes it is important to know how returns are distributed within an income class and as a consequence this distribution needs to be estimated.

A final problem is that the data provides no information on persons earning income in Alaska but paying federal tax as a resident of another state.

Alaska Individual Income Tax Data

Source: Alaska Individual Income Tax Computer Tapes Department of Revenue, State of Alaska

Period of Availability: 1976-81, previous years lack complete information

Type of Information: For all returns:

- Adjusted Gross Income Federal
- Adjusted Gross Income Alaska
- Taxable income
- Total number of exemptions
- Total income tax

Description: The Alaska individual income tax data was collected to help administer the individual income tax program. These tapes include returns from persons owing income tax to the State, regardless of residence. The tapes have information on individual income tax returns submitted during the transaction year, regardless of the tax year of the return.

We combined the records from the same tax year into data sets, assuming that late filers tended to resemble the other records. This assumption was made with all the return data bases and is discussed above in the section on the Federal Income Tax Tapes.

Limitations: The short time span of this data limited its usefulness. The data was collected primarily to account for refunds and payments; and therefore, the accuracy of the basic income information was never verified.

Use: This data was used in a 1977 match with the 1977 Federal data base, as described above. It was also used to develop an out-of-state filer data base. This was used in addition to records from the Statistics of Income and Federal Income Tax analysis as both these are limited to returns filed from Alaskan addresses.

The out-of-state filers are migrants (in or out), non-resident workers, Alaska residents temporarily out of state (such as students or patients), and Alaskans at military stations or with delegations representing the State in various locations (such as Washington D. C.). Non-residents and part-year residents apportion their income, deductions and exemptions based on either percentage of income earned in this state compared to elsewhere, the source of deduction expenditures, or site of property which is the basis for deductions. These records do not resemble the in-state filers and have to be modelled separately.

Federal Income Tax Tapes

Source: Federal Individual Income Tax Computer Tapes, Department of Treasury, Internal Revenue Service

Period of Availability: 1977-84, (1979 and 1980 non-available)

Type of Information: For all returns:
Most fields on the Form 1040 and attached schedules

Description: The Federal individual income tax data was collected to help administer the individual income tax program. The state receives these tapes under the federal information exchange program. These tapes include returns from persons submitting their returns from Alaskan addresses. The tapes have information on individual income tax returns submitted during the transaction year and the previous tax year. Before the data is used, all identifying information such as name, social security number, address and character codes was removed from the data set.

Use: The tape data was then used as a benchmark for testing the accuracy of the SOI sample data (see description above). This data was used in a 1977 match with the 1977 Alaska data base, described above.

This was done to identify characteristics of the two groups of taxpayers whose status on the federal tape is inaccurate for state tax purposes: (1) filers who would owe state income tax but do not appear on the federal tax tape, and (2) filers who appear on the federal tape but file no state tax return.

The first group is composed mostly on nonresidents who earn part (or all) of their income in Alaska but file their federal income tax return from an address in another state. This group can also contain both immigrants and outmigrants, as well as residents temporarily living out of the state (such as students, elected federal officials and their staffs, and Alaskans serving in the military). This group has been significant enough that it was estimated and included in the study data.

The second group is composed mostly of nonresident military living in the state whose income is taxed by the federal government but was not taxed by the state under old law. It also includes people whose only source of income is interest on federal government obligations. This group is small and has relatively small average adjusted gross income, thus no adjustment was made for them.

The latest year of the federal data (1984) was used to estimate the income tax liability generated by different income tax structures. The method for this is described above (see the first page of the METHOD section of this report).

Limitations: The short time span of this data limited its usefulness. The data is compiled on the assumption that late filers from the previous year adequately represent late filers for the current year. This same assumption is made when the IRS compiles its Statistics of Income publications. Since the SOI data was used to estimate the income distribution used in this study, the assumption was maintained.

This assumption has two primary disadvantages. First, it only allows for one year of late filers, while state income tax data prior to 1979 shows that multiple year late and amended filing are plentiful. Second, this assumption implies that one year late filers have roughly the same characteristics year to year. Analysis of the data suggests that this has been a fairly reasonable approximation of the past; however, whether this will remain true in an economic downturn or with a change in tax law is not known.

Cash Flow Data

Source: Cash Flow Computer Tapes Department of Revenue, State of Alaska

Period of Availability: 1970-86, (1980 is missing)

Type of Information: For all receipts:

Tax type
Tax amount received
Tax submitter
Date received

Description: The Department of Revenue Cash Flow data is an accounting system used to keep track of all monies that flow through the department.

Use: This data was used to determine the time pattern of payment for each tax year. From this pattern, we can translate the liability information in quarterly gross collections.

PBA Reports

Source: Monthly Revenue Journal, Department of Administration, State of Alaska

Period of Availability: 1969-86

Type of Information: For each month:

Tax type
Tax total received
Tax total refunded

Description: The PBA system was the State's automated accounting system until very recently (1986).

Use: We were unable to use the data tapes but used summary reports on receipts and refunds of individual income taxes to estimate the time pattern of collections. No information on the individual, individual amounts or tax year was available from these summary reports. The total receipts were used to compare and verify Cash Flow System totals. The refund information was the only good information we had on outflows, and as noted before was not identifiable by tax year. It was used to estimate a relationship between refunds and prior tax year receipts and to develop a quarterly refund pattern.

FOOTNOTES

- (1) Petroleum Revenue, Alaska Department of Revenue, December 1986
- (2) Ibid.
- (3) 1982 Tax Capacity of the Fifty States, Advisory Commission on Intergovernmental Relations, May 1985.
- (4) Ibid.
- (5) Guide to the New Tax Reform Law, Price Waterhouse, October 1986.
- (6) Ibid. p. vii.
- (7) Ibid. p. ix.
- (8) Ibid.
- (9) See data description in the METHOD section of this report.
- (10) The Book of the States (1986-87 edition), The Council of State Governments, 1986.
- (11) "The Impact of Collapse of the World Oil Market on the Alaska Economy", Scott Goldsmith, Institute for Social and Economic Research, University of Alaska, March 1986.
- (12) Revenue Sourcebook, Alaska Department of Revenue, (January 1987).
- (13) Fuel, Conservation, & Individual Credits Relative to the Individual Income Tax, Alaska Department of Revenue, (January 1980 and July 1981).
- (14) Guide to the New Tax Reform Law, Price Waterhouse, October 1986.
- (15) Revenue Sourcebook, Alaska Department of Revenue, (January 1987).
- (16) Fuel, Conservation, & Individual Credits Relative to the Individual Income Tax, Alaska Department of Revenue, (January 1980 and July 1981).
- (17) Public Finance, Rosen, 1985.
- (18) Revenue Sourcebook, Alaska Department of Revenue, (January 1987).
- (19) Fuel, Conservation, & Individual Credits Relative to the Individual Income Tax, Alaska Department of Revenue, (January 1980 and July 1981).
- (20) Petroleum Revenue, Alaska Department of Revenue, December 1986

SECTION II

REVENUE POTENTIAL OF A GENERAL SALES TAX

**Revenue Potential
of a
General Sales Tax
December 1986**

**Prepared by
Alaska Department of Revenue
Research Section
Vincent Wright, Chief**

**Mary Ellen Frank, Economist
Al Zangri, Economist
Dave Tonkovich, Economist**

INTRODUCTION AND PURPOSE OF STUDY

Current revenue projections for fiscal years 1988 through 1992 indicate that revenues generated by petroleum related activities (Oil and Gas Corporate Net Income Tax, Oil and Gas Property Tax, Oil and Gas Severance Tax and Oil and Gas Royalties) will comprise over 81.5 percent of total unrestricted General Fund Revenues for the period. Therefore, state government is presently very dependent on these sources of revenue. Finding sources of additional revenue is becoming increasingly important.

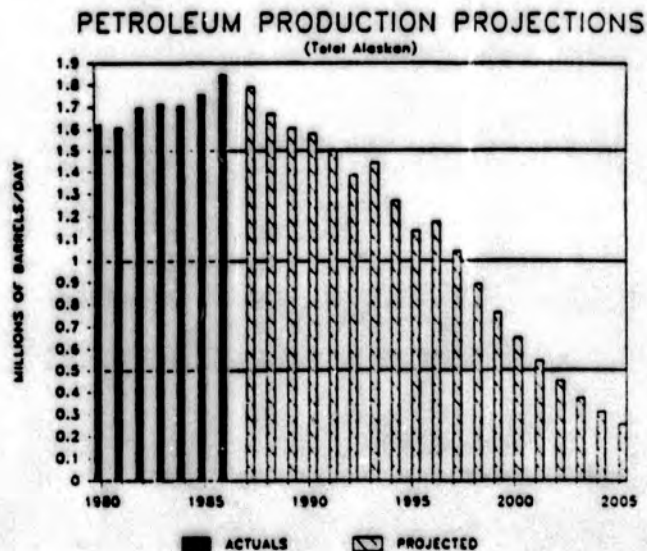
Prudhoe Bay oil production has already peaked. Total Alaskan production is currently projected to decline from over 1.848 million b/d in fiscal year 1986 to under 400,000 b/d by fiscal year 2005. This represents a compound annual average rate of decline of 7.9 percent.⁽¹⁾ Other North Slope fields which are currently projected to begin producing will only partially offset this decline. These projections are based only on the development of presently known and economically developable reserves. Additional discoveries may be made in the future, but their development as well as the development of some currently known but high cost reserves is highly dependent on the future growth of real oil prices. In addition, these future discoveries may be made on federal OCS lands from which the state would receive little or no revenues. Future petroleum revenues are therefore both exhaustible and highly uncertain.

TABLE 1

PETROLEUM PRODUCTIONS PROJECTIONS
(Millions of Barrels/Day)

FISCAL YEAR	TOTAL ALASKAN
1980	1.621
1981	1.609
1982	1.696
1983	1.714
1984	1.704
1985	1.714
1986	1.848
1987	1.842
1988	1.738
1989	1.687
1990	1.558
1991	1.499
1992	1.384
1993	1.287
1994	1.257
1995	1.237
1996	1.098
1997	1.182
1998	1.020
1999	0.898
2000	0.775
2001	0.674
2002	0.593
2003	0.515
2004	0.450
2005	0.284

FIGURE 1



Alaska North Slope oil prices, meanwhile, have dropped from a high in 1981 of \$33.67 per barrel to a 1987 low of \$8.50 (the average is projected to be \$12.59 for the year). These prices have become extremely volatile and difficult to predict. Even if production wasn't declining, this volatility in oil prices and riskiness of oil related revenues could undermine the major source of revenue for this state. To a large extent, this has already happened.

TABLE 2

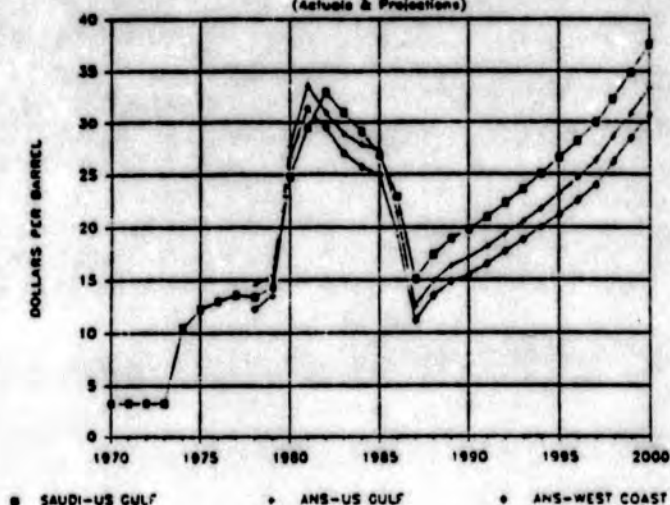
ACTUAL & PROJECTED CRUDE OIL PRICES
(Dollars per barrel)

FISCAL YEAR	SAUDI US GULF	ANS US GULF	ANS WEST COAST
1970	3.25		
1971	3.25		
1972	3.25		
1973	3.25		
1974	10.45		
1975	12.50		
1976	13.04		
1977	13.61		
1978	13.46	14.60	12.30
1979	14.41	15.50	12.70
1980	24.75	27.60	26.50
1981	29.45	33.67	31.42
1982	22.99	21.07	29.50
1983	21.05	20.87	27.00
1984	29.10	27.82	25.68
1985	26.80	27.25	24.92
1986	22.90	21.28	19.76
1987	15.15	12.59	11.19
1988	17.29	14.97	12.57
1989	10.95	16.77	14.90
1990	19.77	17.10	15.52
1991	20.96	18.16	16.52
1992	22.21	19.27	17.70
1993	23.62	20.52	18.82
1994	25.03	21.09	20.02
1995	26.55	22.18	21.20
1996	20.10	21.67	22.57
1997	29.95	26.20	24.01
1998	22.26	20.60	24.18
1999	24.91	20.95	20.46
2000	27.62	22.45	20.07

FIGURE 2

CRUDE OIL PRICES

(Actuals & Projections)



The purpose of this study is to develop a model that will allow us to evaluate the revenue potential and burden of general sales tax proposals presented by Legislative and Executive policy makers. We have presented alternative structures here primarily for illustrative purposes, and in no way wish to suggest these are proposals of this Department or section. The value of these alternatives is comparative, illustrating the way different structural elements in a tax can be altered to obtain various results, and to show what scope of information it is possible to generate in response to a proposal. We have evaluated the advantages and disadvantages, as well as preliminary estimates of fiscal impact, for each of our illustrative general sales tax alternatives in order to suggest what kinds of questions could be asked about various proposals.

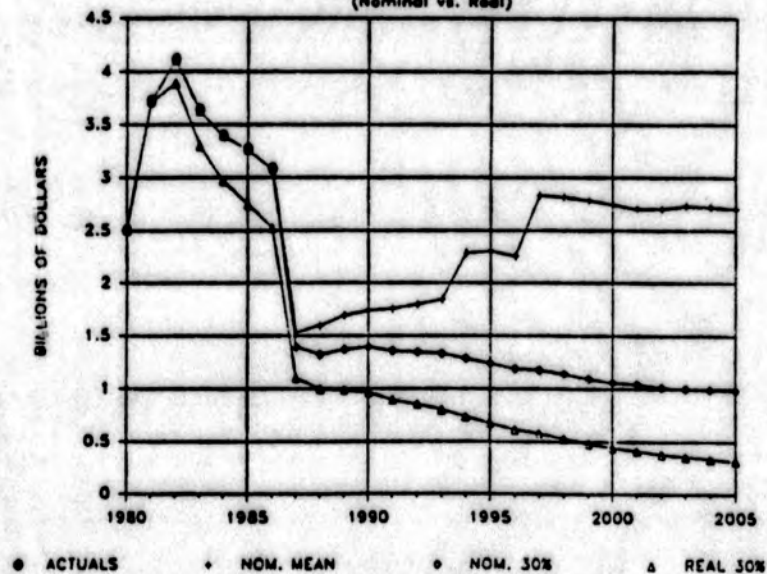
It should be noted at the outset, that it will be practically impossible to replace petroleum revenues with taxes on individuals or other industrial sectors given the present structure of the Alaskan economy. In fiscal year 1984 the gross wellhead value of North Slope oil production was approximately \$10.6 billion⁽²⁾ while the estimated gross production of all other nongovernmental industrial sectors was only \$8.7 billion and total disposable personal income was \$6.8 billion. In addition, oil production has been high profit sector and thus supported much higher levels of taxation than other more marginal industrial sectors. Also, many other industries are currently supported, directly and indirectly through state government spending of oil revenues.

TABLE 3

GENERAL FUND UNRESTRICTED REVENUE PROJECTIONS
(Nominal vs. Real)

FISCAL YEAR	ACTUALS	ESTIMATES MEAN CASE (NOMINAL \$)	ESTIMATES 50 % CASE (NOMINAL \$)	ESTIMATES 50 % CASE (REAL \$/1981)
1980	2.501			
1981	3.718			3.718
1982	4.108			3.891
1983	3.631			3.298
1984	3.390			2.948
1985	3.260			2.746
1986	3.076			2.522
1987		1.525	1.299	1.105
1988		1.601	1.325	1.000
1989		1.697	1.374	0.992
1990		1.748	1.398	0.965
1991		1.763	1.359	0.897
1992		1.802	1.349	0.851
1993		1.851	1.324	0.800
1994		2.290	1.287	0.722
1995		2.207	1.241	0.672
1996		2.254	1.191	0.612
1997		2.830	1.178	0.576
1998		2.810	1.143	0.520
1999		2.779	1.090	0.482
2000		2.728	1.062	0.444
2001		2.690	1.045	0.414
2002		2.699	1.020	0.382
2003		2.720	1.004	0.358
2004		2.718	0.997	0.327
2005		2.699	0.989	0.317

FIGURE 3

GENERAL FUND UNRESTRICTED REVENUES
(Nominal vs. Real)

TAX CAPACITY AND TAX BURDEN ON ALASKANS

The assessment of the burden of taxation is a complicated problem. Statutes determine who is legally responsible for a tax. In contrast the economic incidence of a tax is the change in the distribution of private real income brought about by a tax. Different taxes can be shifted to differing extents from the person or business legally responsible to other individuals or businesses.

In less rigorous terms, concepts such as burden are examined by resorting to state-by-state comparisons of taxes paid usually on a per capita basis or in relation to some measure of revenue capacity. Because measures such as per capita income are poor measures of revenue capacity alternative concepts have been developed. One such measure involves the concept of a representative tax system (RTS).⁽³⁾

"The RTS is designed to answer this question: what would be the total revenue of each of the 50 states if every state applied identical tax rates - national averages - to each of 26 commonly used tax bases?"

Tax effort is a companion concept that indicates the overall tax burden placed on the base as defined by the tax capacity concept. A tax effort index is created by dividing the state's actual tax collections by its estimated tax capacity and multiplying by 100.

"The result may be interpreted as a measure of how much a state chooses to exploit all its potential tax bases relative to other states. If a state has a tax effort beneath the national norm, it will have an effort index under 100. Conversely, if a state has a tax effort in excess of the national average, it will have an effort index over 100."

The most current estimates of these ratios is in an Advisory Commission on Intergovernmental Relations publication Tax Capacity of the 50 States. Dated May 1985, the book is based on tax data for 1982. While aged, the numbers are indicative of Alaska's state and local tax burden relative to other states.⁽⁴⁾

Indexes of this sort can often hide subtleties in the underlying relationships. For instance the effort variables are developed using per capita measures which hide the fact that a substantial portion of the tax may be paid by out-of-state visitors or seasonal workers. Alaska, for instance, shows a high effort for hunting and fishing licenses. Although care has to be exercised in their interpretation, the figures indicate that Alaska residents are taxed at relatively low levels on income and sales when compared to residents of other states.

Overall Alaska shows a high tax effort because of our resource based taxes. However, effort measures are considerably below national norms for several major taxes commonly found in other states. Column two below shows the relative importance of major taxes and column three shows Alaska's effort index for these taxes.

<u>Tax</u>	<u>State-Local Tax Collections as % of U.S. Total</u>	<u>Alaska Effort Index 1982</u>
General Sales	23.5%	29.1
Selected Sales	11.7%	102.0
License Taxes	3.5%	118.0
Individual Income	19.7%	.7
Corporate Income	5.6%	95.0
Property	31.8%	105.0
Estate and Gift	.9%	22.9
Severance	3.4%	278.8

GENERAL DESCRIPTION AND STRUCTURE OF RETAIL SALES TAXES

General Sales Tax

A general sales tax could be enacted at the State level. Alaska currently has no sales tax at the State level, however seven boroughs and at least fifty-two smaller municipalities do levy some form of sales tax. The rates levied range from one percent to five percent. The base upon which these rates are levied also varies with different exemptions being allowed in various communities. If a sales tax were enacted at the State level it would be in addition to the tax at the local level, however, it should be noted that Anchorage and Fairbanks, the two most populous municipalities in the State currently have no sales tax.

Currently forty-five of the fifty states levy some form of sales tax at the state level. Sales taxes are a significant source of state government revenues in most of the states which levy them. Sales taxes account for 48.8 percent of all State tax collections. The sales tax base varies considerably as to exemptions allowed and the degree to which services are taxed from one state to another. Food purchases, except restaurant meals and alcohol, are exempt in twenty-eight of the forty-five states. Prescription drug purchases are exempt in forty-three states. Gas and electric utility bills are exempt to some degree in thirty-two states. Five states exempt clothing purchases to some degree. Also, four states allow some credit for sales taxes paid against state income tax liability. These various exemptions and credits are meant to ameliorate the regressive incidence of the sales tax.

Services are taxed very comprehensively including all personal and professional services in only three states. Twenty-five states either tax no services or tax services very narrowly and selectively such as laundry and cleaning or advertising and selected business services. The remaining seventeen states tax services to a considerable degree although not comprehensively with most exempting professional services.

The rates levied on taxable purchases of goods and services also varies considerably from state to state with a low of three percent to a high of seven and one half percent. The median rate levied by states which exempt food is five percent and by those which do not exempt food is four percent.

Retail sales taxes tax consumer expenditure, thereby taxing income at its use, in contrast to income taxes, which taxes income at its source. The basic elements of any tax structure apply to the retail sales tax. These are tax base, rate(s) and credits against tax owed.

Tax Base

Tax base is characterized by what is included, excluded, and deductible from the base. It is also affected by the presence of exemptions from the tax.

Retail sales are the primary base of state and local sales taxes. Sales for resale generally are excluded to avoid problems of multiple taxation. While a general retail sales tax can logically cover services, in most cases services are excluded. Thus, a substantial portion of consumer expenditure is not taxed. A few services are, however, included in the tax bases of some states. These include admissions, lodging and public utility services.

Equity considerations lead some state to exclude particular retail sales from the tax base. The most common exclusions are prescription drugs and food for consumption at home. Some taxing states allow non resident visitors to obtain exemption certificates for sales tax. All sales tax states have use taxes as part of their sales tax structure. These use provisions apply to goods bought outside the state and brought into the state for consumption.

Tax Rates

Tax rates are applied to the tax base. They can be separated into rate groups for various consumer goods. This can be done to help make the tax more equitable, (i. e. taxing goods more highly that are consumed by higher income taxpayers (luxuries and non health services) or taxing subsistence items (basic food purchases, children's clothing or utilities) at low rates or not at all . The tax rate can also be applied differentially for other social policy goals, i. e. to tax goods with high social cost associated with them, such as alcohol, at higher rates, or to tax goods associated with low tax capacity at low rates or not at all, eg. medications and health services.

Tax Credits

Tax credits against tax owed are deducted after the rate is applied to the tax base. Tax credits are available for special expenditures and can be effective in avoiding penalties for or encouraging those qualifying expenditures. Credits can also be used to offset amounts paid to other government; thereby preventing double taxation of the same transactions.

EVALUATION OF ALTERNATIVES

The tables presented in this report summarize only the projected quantitative impacts of two sales tax proposals. Other issues do arise, however. Each of the elements of the tax structure can be tailored to affect different taxpayers differently (or to try and affect them identically). The alternative tax structures we present will each be analyzed briefly on a number of issues including how they affect taxpayer groups, how easily administered they are and how politically palatable they might be.

In general, the issues which should be considered with respect to measures to increase revenues are as follows.

Economic Efficiency: What effect does the proposed tax have on incentives and economic decision making? How does the tax alter consumption, production or resource allocation decisions?

Equity: Who bears the burden of the tax and how does that burden compare with ability to pay or benefits received? Is the tax progressive or regressive with respect to income and/or wealth?

Elasticity: What is the sensitivity of the tax revenue yield to changes in economic or demographic conditions? As income or population increase or decrease, does tax revenue increase or decrease in greater, lesser or equal proportion?

Administrative Efficiency: How costly is the tax to administer in terms of resources devoted to administration and compliance relative to the revenue yield of the tax? Who bears the burden of administrative cost, the taxpayer, the State or the tax collector (if different from the State)?

Political Feasibility: How acceptable is the proposed tax to the legislature and/or the electorate given existing social, political, and economic conditions? Who benefits, who loses, and who has the most political power?

Additionally, we are concerned with three other issues.

Interstate Capture: How much of the tax owed by nonresident taxpayers who work or travel in Alaska is it possible to capture?

Intergovernmental Effects: Does the tax erode the tax base of higher level (federal) or lower level (local) governments? If such erosion should be mitigated, how can it be done? Do higher level or lower level government taxes erode the State tax base? If such erosion should be mitigated, how can it be done?

Inflation Effects: What is the effect of inflation on the elements of the tax structure and the burden on the taxpayer? If this should be mitigated, how can it be done?

Efficiency

As is the case with many other taxes it is difficult to make definitive statements on how different types of sales taxes influence consumer welfare. The public finance literature suggests that it is unlikely that efficiency will require a general sales tax with the same tax rate for each commodity but recognizes the problems involved in differentiating rates among different commodities.

Elasticity

It is difficult to determine precisely how the sales tax will vary over time as income and disposable income changes. An increase in income will have different implications for revenues depending on the distribution of that increase. An increase which goes primarily to high income households may have a significantly different impact than a similar increase distributed mostly to low income groups. The reason is that high income households may at the margin spend only a small fraction of their income on taxable commodities.

With this caveat in mind it can be stated that a broad based retail sales tax is generally a fairly stable source of revenue. Consumption expenditures do not fluctuate as widely as personal income as individuals may alter savings while maintaining consumption over the short term. The yield from the tax should move roughly in proportion to movements in income, population and prices and will likely be less elastic than an individual income tax.

Equity

The conventional view of the distributional effects of a general sales tax is that it is regressive. As annual income rises, the proportion of household income devoted to consumption falls. Hence the amount of tax paid is a higher proportion for low income households.

Two arguments are commonly invoked against this conventional reasoning. First, some argue that the proportion of lifetime (as opposed to annual) income that is devoted to consumption is roughly the same at all income levels. Second, the regressivity argument implicitly assumes that the taxes on a good are borne entirely by the consumers of the good while in reality some shifting does occur.

In an attempt to deal with the regressivity concern some sales tax systems tax certain items consumed intensively by the poor at low rates or exempt these items completely. This is not without problems. For instance, while food expenditures are a large item in the budget of poor people they can also comprise a high proportion of income at higher levels. In addition such selective treatment causes administrative problems such as whether certain items (e.g. soft drinks) are in the favored category (e.g. food). Some states with both income and sales taxes utilize a sales tax credit against income tax liability as a device for dealing with equity concerns.

Administrative Compliance

The main attraction of sales taxes is probably its ease of administration. It is collected from sellers at the retail level which means fewer individuals to deal with than is the case with income taxes.

The main administrative complexities arise when it is unclear if some type of transaction creates a tax liability. Arbitrary distinctions are often made such as taxing food consumed at a restaurant but exempting the same meal if taken home for consumption. Also, tax evasion remains a problem.

In many states which have both state and local general sales taxes some efficiencies are achieved by piggybacking the local tax onto the state system. Compliance costs fall mostly on retailers with some states compensating stores for costs by allowing them to keep some percentage of their tax obligation.

Nonresident Taxpayers

Sales taxes will be paid by nonresident workers and tourists to the extent that they consume goods in the state. Some states such as Washington reduce this payment through issuance of tax exempt cards which apply to purchases which are ultimately consumed out-of-state.

Intergovernmental Effects

Under the new federal tax law state and local sales taxes are no longer deductible. This weakens the sales tax as an alternative to a state income tax as the latter retains its deductible status.

Some concern needs to be given to the effect of a state sales tax on those municipalities which have sales taxes or might adopt such taxes in the future. For instance, the imposition of a four percent state tax on top of a four percent local tax adds substantially to the cost of in-state purchases. Such rates would create incentives for consumers to avoid Alaska taxes by catalogue ordering or combining shopping with vacation or business trips.

Political Acceptability

In terms of political acceptability, sales taxes have been traditionally supported by higher income groups fearing increased property or income taxation. They have been opposed by labor organizations primarily on equity grounds and retailers who feared loss of business and compliance costs. Sales taxes are not as visible as income taxes in that the tax is levied in small bits each time a purchase is made rather than in larger amounts through payroll withholding or payments at year end. Since Alaska has never had a state sales tax, it is questionable whether the legislature would enact such a major new tax on individuals until oil revenues decline significantly.

Discussion of Estimates

The data presented in the table provides an approximation of the revenues which might be realized by a sales tax on differently configured tax bases. Examination of 1985 provides a good bench mark as the next several years will likely show lower levels of receipts and sales because of the economic slow down caused by lower oil revenues.

A one percent tax on retail sales in 1985 would have raised about \$40 million. If all services were taxed, the same one percent rate would generate an additional \$14 million. Finally, a one percent tax on electric utility sales for both residential and commercial customers would realize in the neighborhood of \$3 million. In total then a very broad based sales tax in a good year would have raised about \$57 million. This figure would not include revenues from a use tax and is most certainly an upper bound in the sense that virtually all retail and service transactions are covered. Exclusions of various items would correspondingly lower revenues. For instance, if all sales of food stores were excluded nearly \$9 million less in revenue would be realized. Note that some sales of food stores would likely remain taxable. However, we do not have the data to separate food and non-food sales for such establishments.

Higher tax rates would of course increase revenues. It is probably not valid to assert that a four percent rate would raise four times as much revenue because individuals will make some adaptations to the additional cost of purchased goods and services. Bartering, catalogue purchases and substitution of second hand purchases for new cars or appliances would likely occur.

The second table projects sales tax revenues for a tax based on retail sales. The analysis assumes that retail sales are a constant percentage of personal income for the years covered in the table.

ESTIMATED YIELD OF 1 % SALES TAX
VARIOUS TAX BASES 1985

SIC CODE FOR INDUSTRY	INDUSTRY	ESTIMATED RECEIPTS OR SALES \$	YIELD FROM 1 % TAX \$
RETAIL TRADE:			
52	BUILDING MATERIALS	\$387,270,000	\$3,872,700
53	GENERAL MERCHANDISE	\$462,926,000	\$4,629,260
54	FOOD STORES	\$990,572,000	\$9,905,720
55	AUTO DEALERS (EXCL 554)	\$600,134,000	\$6,001,340
554	GASOLINE SERVICE STATIONS	\$215,048,000	\$2,150,480
56	APPAREL & ACCESSORIES	\$137,886,000	\$1,378,860
57	FURNITURE	\$172,315,000	\$1,723,150
58	EATING & DRINKING	\$547,137,000	\$5,471,370
59	MISC RETAIL (EXCL 591)	\$439,277,000	\$4,392,770
591	DRUG & PROPRIETARY STORES	\$157,031,000	\$1,570,310
	TOTAL RETAIL TRADE	\$4,009,596,000	\$40,095,960
SERVICES:			
70	HOTELS AND LODGING	\$184,503,000	\$1,845,030
72	PERSONAL SERVICES	\$64,985,000	\$649,850
73	BUSINESS SERVICES	\$270,034,000	\$2,700,340
75	AUTO REPAIR GARAGES	\$105,228,000	\$1,052,280
76	MISC REPAIR SERVICES	\$61,727,000	\$617,270
78	MOTION PICTURES	\$12,871,000	\$128,710
79	AMUSEMENT & RECREATION	\$28,092,000	\$280,920
80	HEALTH SVCS EXCEPT HOSPITALS	\$232,111,000	\$2,321,110
81	LEGAL SERVICES	\$136,933,000	\$1,369,330
82	EDUCATIONAL SERVICES	\$8,786,000	\$87,860
83	SOCIAL SERVICES	\$13,099,000	\$130,990
891	ENGR ARCHIT SURVEY	\$247,033,000	\$2,470,330
992	ACCTG AUDIT BOOKKEEPING	\$56,979,000	\$569,790
	TOTAL SERVICES	\$1,422,371,000	\$14,223,710
ELECTRIC UTILITIES			
	RESIDENTIAL	\$150,605,000	\$1,506,050
	COMMERCIAL	\$147,987,000	\$1,479,870

PROJECTED SALES TAX REVENUES
WITH AND WITHOUT SALES OF FOOD STORES
APPROXIMATE YIELD FOR EACH 1 % OF TAX

YEAR	ESTIMATED SALES OF ALL RETAIL ESTABLISHMENTS	YIELD OF 1 % TAX	ESTIMATED SALES IF FOOD STORES EXEMPTED	YIELD OF 1 % TAX
1985	\$4,009,600,000	\$40,096,000	\$3,119,000,000	\$31,190,000
1986	\$3,945,500,000	\$39,455,000	\$3,066,700,000	\$30,667,000
1987	\$3,762,000,000	\$37,620,000	\$2,924,100,000	\$29,241,000
1988	\$3,835,500,000	\$38,355,000	\$2,981,200,000	\$29,812,000
1989	\$3,929,600,000	\$39,296,000	\$3,054,400,000	\$30,544,000
1990	\$4,072,600,000	\$40,726,000	\$3,165,600,000	\$31,656,000
1991	\$4,174,300,000	\$41,743,000	\$3,244,600,000	\$32,446,000
1992	\$4,325,600,000	\$43,256,000	\$3,362,200,000	\$33,622,000

DATA DESCRIPTION, LIMITATIONS AND USE

CENSUS OF RETAIL TRADE

Description of data used in estimates

Each five years the U.S. Department of Commerce undertakes a series of economic censuses. The last census available is that done for 1982. The next census will occur in 1988 for the year 1987. The censuses for Retail Trade and Service Industries for 1982 provided the data for this analysis. While these publications are dated they provide the best available information on level of receipts and sales by industry groupings. The industry groupings are important as they provide a framework for projecting sales and receipts to current levels and also for approximating the impact of excluding particular sales (e.g. food, drugs) from the tax base.

Data for these reports is compiled from administrative records of various federal agencies and from mail surveys. Data is presented for each kind of business or operation classified (unless disclosure rules apply) and includes:

1. Number of establishments
2. Annual sales or receipts
3. Annual payroll
4. First quarter payroll
5. Paid employees for pay period including March 12th

METHOD

GENERAL DESCRIPTION OF MODELLING OR ESTIMATING PROCESS

Methodology for Estimates

Because the census data applies to 1982 it was necessary to develop a procedure which would both update the information and also provide a basis for forecasting future levels of sales and receipts. The procedure involved two steps:

1. Extrapolation to 1985. Because 1985 is the last year with complete data on many major economic variables it serves as the starting point for this analysis. The Alaska Department of Labor prepares the Statistical Quarterly, a publication which presents industry specific data (SIC codes) on a number of reporting units, payroll and average wages. After some refinements for differences in census and labor coverage, labor data for the period 1982-85 was used to estimate 1985 levels of census variables.
2. Projection to future years. The level of retail sales estimated for 1985 was expressed as a percentage of personal income in that year. A separate forecast of personal income for future years was used along with this percentage to approximate the level of retail sales for the forecast period. This approach assumes that the relationship of retail sales to personal income will not vary dramatically. Because there is considerable variation among sales tax states in the treatment of services these values were not projected forward. An examination of the 1985 levels provides an indication of potential revenues obtainable from taxes on various categories of services.

FOOTNOTES

- (1) Petroleum Revenue. Alaska Department of Revenue, December 1986
- (2) Ibid.
- (3) 1982 Tax Capacity of the Fifty States. Advisory Commission on Intergovernmental Relations, May 1985.
- (4) Ibid.

SECTION III

ELF REPORTS AND PAPERS

ANALYSIS OF ELF ALTERNATIVES

**State of Alaska
Department of Revenue
December 4, 1986**

The Effect of Four Possible Changes in the ELF on State of Alaska Severance Tax Revenues

The purpose of this brief note is to examine the effect of changing the relationship of the Economic Limit Factor (ELF) to State of Alaska Severance taxes. The ELF is a number with a value of between zero and one which is multiplied by the nominal severance tax rate or the cents per barrel tax floor to reduce the severance taxes paid as an oil or gas producing lease approaches its economic breakeven point. This analysis will specifically examine how changes in the application of the ELF and in the ELF itself impact oil revenues and production. The focus will be on the North Slope. Cook Inlet production will be considered separately since the economics of these producing fields are dominated by costs associated with the shutdown and abandonment of older low productivity oil wells located on expensive offshore production facilities.

Specifically the following four possible changes are investigated.

1. Eliminate application of the ELF to the current \$.80 per barrel tax floor.
2. Change the ELF formula to one similar to that proposed in HB545 and modified by OMB in which the exponent is modified to raise the tax rate on fields with total field productivity in excess of roughly 100,000 barrels per day and lower the tax rate on fields with production less than this amount.
3. Establish a new severance tax floor at \$1.50 not subject to the ELF and index it for inflation.
4. Eliminate the ELF entirely.

These hypothetical changes in the severance tax law are analysed using the Department of Revenue Petroleum Revenue Forecasting Simulation Model. All assumptions concerning oil prices, transportation costs, and market deliveries are the same as were used in preparing the Department's December 1986 forecast of petroleum production revenues.

The simulation model is used because it can show the changes in average expected revenues and oil production due to a change in the tax law over a wide range of price and transportation cost assumptions. Further, since it is the model used to make the official State forecast of severance tax revenues it conveniently illustrates how the current forecast would change if the severance tax law were changed.

As a general principle, any of the changes in the severance tax mentioned above will increase the average expected taxes levied on the oil producers in the State. Since higher taxes make producing oil a more costly enterprise it is likely that in some instances this higher cost will make production unprofitable. In a broad sense then, it would be nice to know the tradeoff between the increased tax revenue to the State and the reduced investment in oil production and consequently reduced tax base due to the increased cost of producing oil.

Such an investigation is possible but since so many assumptions have to be made, the results will always be subject to dispute. As a practical matter oil producing companies are not a homogenous group with respect to risk preference or financial capacity. One has only to look at the companies producing on Alaska's North Slope to appreciate this distinction i.e. Amerada Hess as compared to Exxon. It is also important to stress that the companies are the one's who make the decisions affecting production and any financial model such as the one used in this analysis can only make reasonable assumptions about the parameter values the companies themselves would choose (price, discount rate, or capital outlay). Further this analysis can only examine the relative merits of oil production in the State of Alaska, since we do not have accurate data on oil production prospects globally. Finally this analysis is done without examining the issue of budget constraints which obviously all in the oil business are facing given the current depressed price situation.

There too many unknowns for this analysis to delve in depth into the relative regional economic impact of public expenditure vs.

private expenditure in the State of Alaska so the discussion will be limited to the effect of changes in ELF on State petroleum revenues and barrels of oil and not on whether those changes make sense for the Alaskan economy.

Eliminate the application of the ELF to the cents per barrel tax floor

This would essentially guarantee the State a minimum severance tax payment for every barrel of oil produced in the State (currently \$. 80 per barrel). Tables 1 and 2 show the change in average expected revenues and production for each of the North Slope oil fields assumed to be in production between the present and 2005. Fixing the severance tax floor would increase average expected revenues between 1987 and 2005 by \$135.42 million in nominal dollar terms or \$95.98 million discounted at 8%. The disincentive to produce created by the fixed floor results in a decrease in average expected production of over 19 million barrels of oil. One way of looking at it is that the State gains an average of roughly \$7.00 for every barrel of oil production foregone.

Prudhoe Bay production is effected the most by this change in the severance tax. This is primarily because after primary recovery Prudhoe will still have a tremendous amount of oil in the ground which may be recoverable with additional investment. On the other hand Kuparuk and some of the other more marginal fields can be seen to provide the lion's share of the average expected revenue increase. This is because these fields currently have calculated ELF's which are much lower than Prudhoe so that at prices which trigger the cents per barrel tax these fields will experience a relatively larger increase in their tax bill.

Modify the ELF Exponent to Reflect Total Field Production

This proposed change in the ELF is contained in a bill submitted in the Alaska House of Representatives in the Spring of 1986. In

Table 1

Production Impact of Fixed Severance Tax Floor = \$.80/bbl
(Millions Bbls.)

Year	Prudhoe	Kuparuk	Milne	Endicott	Lisburne	West Sak	Pt. Thomson	Seal Island	Total North Slope
1986	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	-.04	0	0	0	-.04
1988	-.77	-1.01	-.08	-.08	-.08	0	0	0	-2.02
1989	-.68	-.12	-.11	-.26	-.10	0	0	0	-1.27
1990	-.60	-.12	-.16	-.29	-.13	0	0	0	-1.30
1991	-.56	-.12	-.11	-.31	-.20	0	0	0	-1.30
1992	-.52	-.09	-.11	-.27	-.20	0	0	0	-1.19
1993	-.48	-.09	-.12	-.26	-.24	0	0	0	-1.19
1994	-.45	2.22	-.21	-.19	-.24	0	0	0	1.13
1995	-.40	1.42	-.22	-.11	-.23	0	0	0	.46
1996	-.50	1.18	-.17	-.04	-.26	0	0	0	.21
1997	-.34	-.73	-.11	-.01	-.31	0	0	-2.99	-4.49
1998	-.64	-.72	-.05	.02	-.44	0	0	-1.50	-3.33
1999	-.59	-.49	-.03	.05	-.25	0	0	-.03	-1.34
2000	-.42	-.38	0	.05	-.16	0	0	-.20	-1.11
2001	-.40	-.31	0	.06	-.06	0	0	-.15	-.86
2002	-.02	-.32	0	.05	-.04	-.02	0	-.03	-.38
2003	-.02	-.25	0	.03	-.03	0	0	-.09	-.36
2004	-.01	-.23	0	.03	-.02	-.03	0	-.57	-.83
2005	-.01	-.20	0	.01	-.01	-.02	0	-.02	-.25
Total	-7.41	-.36	-1.48	-1.52	-3.04	-.07	0	-5.58	-19.16

Table 2

Revenue Impact of Fixed Severance Tax Floor = \$.80/bbl
(Millions \$)

Year	Prudhoe	Kuparuk	Milne	Endicott	Lisburne	West Sak	Pt. Thomson	Seal Island	Total North Slope
1986	0	0	0	0	0	0	0	0	0
1987	.10	29.66	1.70	0	.50	0	0	0	31.96
1988	9.50	8.92	.11	1.38	.27	0	0	0	20.18
1989	5.16	5.37	0	2.66	.64	0	0	0	13.83
1990	2.74	3.83	-.03	1.51	.30	0	0	0	8.35
1991	3.35	4.37	-.02	1.45	.58	0	0	0	9.73
1992	2.21	4.14	-.03	.84	.38	0	.01	0	7.55
1993	2.71	3.53	-.03	-.01	.66	0	.02	0	6.88
1994	3.12	19.80	.13	-.05	.96	0	.07	0	24.03
1995	2.70	17.43	.10	-.02	1.02	.09	.03	0	21.35
1996	1.75	15.58	.05	.04	.87	.09	.02	0	18.10
1997	1.34	-1.42	.03	.07	.66	-.01	0	0	.67
1998	.30	-2.50	.03	.09	.34	-.02	-.01	0	-1.77
1999	-.53	-3.17	.05	.14	.22	-.02	0	0	-3.31
2000	-.13	-3.51	.07	.13	.13	-.03	-.01	0	-3.35
2001	.13	-3.76	.06	.13	.13	-.06	-.01	0	-3.38
2002	.05	-3.95	.05	.10	.07	-.13	-.01	0	-3.82
2003	.01	-4.09	.05	.08	.05	-.10	0	0	-4.00
2004	-.07	-3.97	.04	.05	.04	-.14	-.01	0	-4.06
2005	-.08	-3.68	.04	.03	.03	-.16	0	0	-3.82
Total Revenue									
Nominal	34.36	82.58	2.40	8.62	7.85	-.49	.10	0	135.42
10% disc	20.07	57.69	1.63	5.21	3.64	-.06	.05	0	88.24
8% disc	22.15	62.23	1.73	5.71	4.18	-.09	.06	0	95.98

this example the formula specification is the one used in the presentation by Dr. Tom Chester at the Tax Committee's September meeting. The formula used in HB545 raises the tax rate on fields with production in excess of roughly 80,000 barrels per day and lowers the rate for lower production rates. The modification presented by Dr. Chester changes the trigger to roughly 100,000 barrels. The purpose of this change is to increase the effective tax rate over current law for "large oil fields" while at the same time keeping severance taxes from discouraging investment in smaller oil fields. Practically speaking it effectively increases revenues to the State through the impact on the prolific Prudhoe Bay field.

Tables 3 and 4 illustrate the field by field impact on revenue and production of this change in the severance tax law. Average expected revenues through the year 2005 increase \$2270.52 million in nominal dollar terms (\$1073.67 million discounted at 8%). As might be expected because of the upside potential of the higher effective tax rate on large fields, should oil prices grow over time the large reserves of Prudhoe contribute the most to this revenue increase. Average expected production would decrease by 28.41 million barrels under this tax regime. Once again the disincentive to produce additional barrels from the large Prudhoe Bay field accounts for the largest share of estimated production decrease. However because the tax burden is lowered for some fields, West Sak and Seal Island actually show greater average expected production. This ELF alternative increases State revenues by roughly \$80 for every barrel of oil production foregone.

Establish a New Severance Tax Floor at \$1.50 Not Subject to the ELF and Index it for Inflation.

Tables 5 and 6 show the field by field effect of this alternative on average expected production and average expected revenues. Indexing the severance tax floor from a \$1.50 base results in an increase of revenues of \$1797.17 million through 2005 in nominal dollar terms (\$1195.04 discounted at 8 percent). This alternative has a devastating impact on average expected

Table 3

Production Impact of OMB Altered Exponent
(Millions Bbls.)

Year	Prudhoe	Kuparuk	Milne	Endicott	Lisburne	West Sak	Pt. Thomson	Seal Island	Total North Slope
1986	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	-.01	-.01	0	0	-.02
1988	-.71	-.05	0	-.02	-.01	0	0	0	-.79
1989	-.63	-.12	0	-.04	-.01	0	0	0	-.8
1990	-.57	-.12	-.01	-.04	-.01	0	0	0	-.75
1991	-.55	-.11	-.01	-.05	-.02	0	0	0	-.74
1992	-.47	-.09	-.01	-.07	-.02	0	-.13	0	-.79
1993	-.45	.09	-.02	-.07	-.03	0	-.23	0	-.71
1994	-2	.23	-.43	-.06	-1.31	0	-.24	0	-3.81
1995	-1.73	.17	-.35	-.06	-1.09	.79	-.3	0	-2.57
1996	-2.37	.15	-.28	-.05	-.9	.72	-.31	0	-3.04
1997	-3.05	-.33	.05	-.05	-.86	.77	-.29	2.99	-.77
1998	-3.19	-.2	.04	-.04	-.68	.7	-.24	1.4	-2.21
1999	-2.72	-.21	.05	-.04	-.57	.62	-.32	-.09	-3.28
2000	-2.18	-.16	.05	-.03	-.49	.61	-.26	.01	-2.45
2001	-2.04	-.13	.06	-.02	-.39	.61	-.2	.05	-2.06
2002	-1.62	-.09	.05	-.02	-.28	.77	-.17	-.07	-1.43
2003	-1.32	-.07	.03	-.01	-.22	.81	-.09	-.03	-.9
2004	-1.06	-.09	.03	-.02	-.2	.73	-.06	.45	-.22
2005	-1.17	-.08	.02	-.01	-.15	.48	-.03	-.13	-1.07
Total	-27.83	-1.21	-.73	-.7	-7.25	7.6	-2.87	4.58	-28.41

Table 4

Revenue Impact of OMB Altered Exponent
(Millions \$)

Year	Prudhoe	Kuparuk	Milne	Endicott	Lisburne	West Sak	Pt. Thomson	Seal Island	Total North Slope
1986	0	0	0	0	0	0	0	0	0
1987	5.94	29.29	-.35	0	-3.35	0	0	0	31.53
1988	93.85	38.51	-.7	-2.18	-5.84	0	0	0	123.64
1989	106.32	49.2	-1.92	1.06	-4.8	0	0	0	149.86
1990	114.56	55.31	-2.31	1.08	-5.18	0	0	0	163.46
1991	117.43	40.61	-2.38	1.14	-1.45	0	0	0	155.35
1992	121.4	21.83	-3.43	1.26	-1.61	0	-2.76	0	136.69
1993	124.53	17.32	-4.07	1.71	2.49	0	-3.42	0	138.56
1994	124.27	14.59	-7.22	-3.66	8.69	0	-3.35	0	133.32
1995	122.99	11.42	-7.32	-2.74	6	2.56	-3.53	0	129.38
1996	121.97	5.22	-7.15	-5.63	.76	5.32	-3.83	0	116.66
1997	121.16	2.47	-4.86	-6.91	1.21	15.03	-5.19	0	122.91
1998	123.22	-2.01	-4.39	-6.67	-6.63	17.42	-5.89	-2.87	112.18
1999	123.31	-5.48	-3.66	-5.19	-13.47	20.38	-6.2	-1.7	107.99
2000	123.55	-8.42	-2.85	-3.65	-17.84	27.9	-8.1	-1.26	109.33
2001	118.02	-9.7	-1.81	-2.21	-18.53	31.67	-8.17	-2.3	106.97
2002	112.28	-7.83	-1.49	-1.19	-16.1	41.71	-8.97	-2.37	116.04
2003	106.24	-5.79	-.61	-.45	-12.2	46.2	-10.48	-3.11	119.80
2004	99.26	-4.25	-.2	-.02	-7.99	34.3	-10.51	-4.04	106.55
2005	91.89	-3.1	.17	.06	-5.27	17.56	-9.72	-1.29	90.30
Total Revenue									
Nominal	2072.19	239.19	-56.55	-34.19	-101.11	260.05	-90.12	-18.94	2270.52
10% disc	781.96	166.60	-22.23	-9.90	-28.72	56.40	-22.67	-3.96	917.48
8% disc	927.72	179.68	-26.39	-12.54	-35.58	75.37	-29.26	-5.33	1073.67

Table 5

Production Impact of Indexed Fixed Floor
(Millions Bbls.)

Year	Prudhoe	Kuparuk	Milne	Endicott	Lisburne	West Sak	Pt. Thomson	Seal Island	Total North Slope
1986	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	-.21	0	0	0	-.21
1988	-15.79	-2.93	-.32	-.69	-.44	0	0	0	-20.17
1989	-14.15	-2.4	-.45	-2.18	-.61	0	0	0	-19.79
1990	-12.48	-2.4	-.49	-1.97	-.79	0	0	0	-18.13
1991	-11.77	-2.17	-.44	-1.87	-1.18	0	0	0	-17.43
1992	-10.74	-1.9	-.44	-1.84	-1.18	0	.25	0	-15.85
1993	-9.35	1.68	-.45	-1.86	-1.42	0	.43	0	-10.97
1994	-8.24	-.77	-.47	-1.34	-1.44	0	.42	0	-11.84
1995	-7.15	.04	-.51	1.09	-1.43	.06	.46	0	-7.44
1996	-7.23	.1	-.45	.82	-1.45	.03	.49	0	-7.69
1997	-6.87	-1.95	-.29	.63	-1.64	0	.5	2.99	-6.63
1998	-5.93	-1.65	-.27	.47	-1.28	-.01	.52	1.5	-6.65
1999	-5.46	-1.02	-.31	.37	-.79	-.04	.54	.03	-6.68
2000	-4.12	-.93	-.21	.36	-.57	-.04	.43	.2	-4.88
2001	-3.43	-.91	-.18	.35	-.37	-.06	.36	.15	-4.09
2002	-1.93	-.79	-.08	.08	-.23	.02	.32	.03	-2.58
2003	-1.84	-.91	-.04	-.02	-.25	.03	.27	.09	-2.67
2004	-2.12	-.94	0	-.02	-.32	.06	.2	.57	-2.57
2005	-1.88	-.67	0	-.01	-.36	.06	.16	.02	-2.68
Total	-130.48	-20.52	-5.4	-7.63	-15.96	.11	5.35	5.58	-168.95

Table 6

Revenue Impact of Fixed Indexed Floor
(Millions \$)

Year	Prudhoe	Kuparuk	Milne	Endicott	Lisburne	West Sak	Pt. Thomson	Seal Island	Total North Slope
1986	0	0	0	0	0	0	0	0	0
1987	223.91	80.84	5.87	0	2.27	0	0	0	312.89
1988	180.5	58.65	2.21	8.56	7.33	0	0	0	257.25
1989	109.65	44.29	6.21	32.07	14.94	0	0	0	207.16
1990	77.65	37.84	7.34	32.63	16.36	0	0	0	171.82
1991	76.29	36.51	7.13	34.7	26.88	0	0	0	181.51
1992	55.19	30.8	5.4	33.15	25.8	0	4.68	0	155.02
1993	43.17	24.46	5.27	23.42	29.17	0	5.72	0	131.21
1994	34.04	36.88	4.44	17.49	27.57	0	4.36	0	124.78
1995	24.57	30.63	3.56	13.49	25.57	5.28	3.4	0	106.50
1996	15.6	25.97	2.67	9.99	22.87	5.05	2.43	0	84.58
1997	10.22	6.09	2.04	7.53	20.46	5.51	0	0	51.85
1998	1.43	2.25	1.39	5.39	14.16	3.78	-.71	.07	27.76
1999	-2.09	.32	.8	3.76	10.22	2.46	-1.18	.04	14.33
2000	-1.79	-1.03	.42	2.2	7.62	.98	-.92	.04	7.52
2001	-1.61	-2.26	.02	-.1	5.84	.86	-.87	.02	1.90
2002	-2.19	-3.08	-.05	-.15	4.29	.39	-.98	.01	-1.76
2003	-5.34	-4.78	-.07	.1	2.71	.2	-.95	0	-8.13
2004	-8.9	-5.29	.03	.07	.61	.01	-.76	-.01	-14.24
2005	-8.95	-4.84	.05	.04	-.33	-.12	-.63	0	-14.78
Total Revenue									
Nominal	821.35	394.25	54.73	224.34	264.34	24.4	13.59	.17	1797.17
10% disc	562.83	247.88	30.11	117.70	117.13	7.82	7.57	.05	1091.10
8% disc	604.33	270.22	33.57	132.65	135.90	9.72	8.60	.06	1195.04

production which is reduced by nearly 170 million barrels. This impact on production is a direct result of the increased likelihood that such a tax would cause a premature shutdown in the already producing oil fields or would make additional investment uneconomic. This alternative has a most dramatic effect on Prudhoe Bay production because it significantly increases the probability that Prudhoe Bay shuts down prematurely. As will be seen, eliminating the ELF entirely results in much greater expected revenue without as severe an effect on production. This is because with the percent of value tax the State shares in the high oil price value cases and also shares the loss in the low oil price case (down to the current \$.80/bbl floor). The fixed indexed floor fails to reflect the relative change in profitability of falling oil prices. The indexed floor increases State revenue by roughly \$10 for every barrel of production foregone.

Eliminate the ELF Entirely

This alternative would remove entirely the severance tax relief given to low productive oil wells.

Tables 7 and 8 show the revenue and production effect on a field by field basis. Total average expected revenues through the year 2005 increase by \$5082.43 million, \$2111.87 million discounted at 8 percent, while average expected production falls by 84.67 million barrels. Prudhoe Bay because it dominates North Slope production over the next ten years accounts for over half of the increased revenue. Kuparuk one of North America's largest fields because its current ELF is roughly .6 accounts for the largest relative increase.

Prudhoe Bay with its large reserves accounts for a 28 million barrels of the production loss, while the West Sak field with its relatively low productive high cost wells accounts for another 21 million barrels of the average expected decline in production. Eliminating the ELF increases State revenue by roughly \$19 for every barrel of oil production foregone.

Table 7

Production Impact of Eliminating the ELF
(Millions Bbls.)

Year	Prudhoe	Kuparuk	Milne	Endicott	Lisburne	West Sak	Pt. Thomson	Seal Island	Total North Slope
1986	0	0	0	0	0	0	0	0	0
1987	0	0	0	0	-.05	0	0	0	-.05
1988	-1.1	-1.01	-.08	-.15	-.09	0	0	0	-2.43
1989	-.96	-.18	-.11	-.51	-.12	0	0	0	-1.88
1990	-.85	-.18	-.16	-.55	-.15	0	0	0	-1.89
1991	-.8	-.17	-.12	-.58	-.22	0	0	0	-1.89
1992	-.72	-.14	-.12	-.6	-.22	0	-.3	0	-2.1
1993	-.67	-.13	-.13	-.62	-.27	0	-.5	0	-2.32
1994	-1.19	-.52	-.67	-.49	-4.76	0	-.5	0	-8.13
1995	-.99	-.87	-.61	-2.49	-3.9	-1.41	-.55	0	-10.82
1996	-3.2	-.73	-.5	-1.98	-3.23	-1.71	-.57	0	-11.92
1997	-2.97	-.8	-.14	-1.56	-.48	-2.13	-.58	-2.99	-11.65
1998	-2.65	-.7	-.08	-.19	-.44	-1.97	-.6	-1.92	-8.55
1999	-1.63	-.47	-.09	-.07	-.2	-1.69	-1.75	-.64	-6.54
2000	-.79	-.39	-.08	-.16	-.09	-1.55	-1.45	-.74	-5.25
2001	-1.01	-.37	-.1	-.21	.06	-1.3	-1.23	-.69	-4.85
2002	-1.75	-.39	-.08	-.1	.19	-2.93	-.34	-.55	-5.95
2003	-2.61	-.5	-.06	-.02	.17	-2.63	-.27	-.62	-6.54
2004	-2.15	-.64	-.03	.01	.05	-2.49	-.2	-1.06	-6.51
2005	-2.04	-.58	-.05	-.08	-.06	-1.15	-.14	-.8	-4.9
Total	-28.08	-8.77	-3.21	-10.35	-13.81	-20.96	-8.98	-10.01	-104.17

Table 8

Revenue Impact of Eliminating the ELF
(Millions \$)

Year	Prudhoe	Kuparuk	Milne	Endicott	Lisburne	West Sak	Pt. Thomson	Seal Island	Total North Slope
1986	0	0	0	0	0	0	0	0	0
1987	5.76	30.42	2.03	0	.58	0	0	0	38.79
1988	100.45	38.53	1.17	3.19	.57	0	0	0	143.91
1989	114.81	49.32	3.08	13.28	7.21	0	0	0	187.7
1990	125.23	55.31	3.9	14.88	13.53	0	0	0	212.85
1991	129.21	56.02	4.01	15.87	21.39	0	0	0	226.5
1992	134.94	59.97	5.59	17.84	23.66	0	3.2	0	245.2
1993	140.42	59.92	6.48	24.57	33.16	0	4.07	0	268.62
1994	148.74	62.93	3.18	24.04	3.76	0	3.93	0	246.58
1995	148.9	59.93	2.92	9.4	13.16	10.7	4.29	0	249.3
1996	152.12	63.71	2.91	11.01	21.54	14.22	4.86	0	270.37
1997	162.67	60.9	5.07	11.81	46.78	28.35	6.7	0	322.28
1998	167.04	60.34	4.95	22.4	47.85	33.54	7.66	-2.04	341.74
1999	169.48	58.82	4.63	22.23	47.02	39.63	-6.57	3.12	338.36
2000	171.87	57.33	4.11	20.46	46.3	55.66	-2.08	4.45	358.1
2001	167.58	54.07	3.56	15.26	45.39	64.29	2.72	5.41	358.28
2002	163.87	50.23	3.11	11.19	44.26	48.56	14.08	6.66	341.96
2003	159.23	30.89	2.54	10.03	41.89	60.19	13.48	9.99	328.24
2004	154.36	19.41	1.87	7.3	37.3	72.01	13.56	11.64	317.45
2005	147.21	12.71	.32	4.91	33.15	67.92	13.51	6.47	286.2
Total Revenue									
Nominal	2663.89	940.76	65.43	259.67	528.5	495.07	83.41	45.7	5082.43
10% disc	948.54	383.01	26.18	98.23	157.56	107.91	20.72	8.45	1750.61
8% disc	1137.24	448.57	30.79	116.89	196.10	143.89	26.70	11.68	2111.87

Summary and Analysis

All four of the proposed changes in the severance tax result on average in increased State revenues. Average expected oil production, however, is lower due to the negative impact of potentially higher taxes on expected profitability.

The effect of each of these proposed changes is analysed using the Monte Carlo simulation model. This type of model evaluates many possible combinations of variables effecting oil production revenues including high prices where taxes are not so important in determining development feasibility and low prices where taxes may be an important consideration in deciding whether or not a project is viable. The output of the model is determined not only by the scenarios of the prices and costs and quantities entered as input into the model but also by the probability assigned to each scenario. The model results, in this case State petroleum production revenue by year to the year 2005, are depicted as the probability distribution of possible outcome. Another way of looking at the output is to say many possible outcomes are evaluated and this is what to expect on average will occur. The analysis of these changes in severance tax law is of course only as good as the input into this model. Department of Revenue analysts have weighted the inputs into the model which may or may not correspond to the way in which the different producing oil companies would weight them. Further the feasibility part of the model uses a hurdle rate 8% real and assumes no budget constraints and no competing global investment alternatives. Those caveats aside the results of this analysis are summarized as follows.

1. Fixing the severance tax floor at \$0.80 per barrel has the least impact on expected State revenues and has the least negative impact on expected North Slope production.

2. Eliminating the ELF entirely, generates the largest average expected increase in State revenue.
3. Increasing the fixed floor to \$1.50 and indexing it to account for inflation has the greatest negative effect on average expected production.
4. Because the real upside potential for State revenue continues to depend on the share of the value of Prudhoe Bay production taken by the State, modifying the ELF to reflect total field productivity is the most efficient alternative in terms of dollars gained for every barrel foregone (\$80 per barrel as opposed to \$7 per barrel for the fixed \$.80 per barrel ELF alternative). This is because this tax increases revenues while at the same time mitigating the negative effect on average expected production. The ranking of ELF alternatives using this type of revenue maximizing criteria is as follows.

1) Modified Exponent ELF	\$80/bbl
2) Eliminate ELF	\$49/bbl
3) Indexed Floor	\$10/bbl
4) Fixed \$.80/bbl Floor	\$7/bbl

5. The production disincentives are generally associated with development of the so called marginal fields, and enhanced recovery investment in Prudhoe Bay and Kuparuk although in some very low price cases no doubt potentially higher taxes cause even these already producing fields to be shut-in.

The above analysis says nothing about the impact of any of these hypothetical tax changes on Cook Inlet. Currently Cook Inlet production is roughly 50 thousand barrels per day. Because much of current production is from a large number of wells with average daily production less 300 barrels, the ELF under current law is zero or nearly zero for most oil producing leases. As a result FY 1986 oil severance collections are estimated to be less than \$2 million or roughly \$.12 per barrel. If a minimum tax of \$.80 per barrel were levied, assuming no fields were abandoned,

severance taxes would increase to \$12.73 million. Although there is a considerable difference in terms of well productivity and profitability among the Cook Inlet fields, given the economics of field abandonment it is likely that the bulk of production would continue even with higher taxes burden. On the other hand additional investment in further production would no doubt be much much lower than it would be under the current tax regime. It may be important to note that Cook Inlet oil production is an integral part of the regional economic base on the Kenai Peninsula. Eliminating the ELF would probably shutin Cook Inlet production. The modified exponent ELF would have no negative impact on Cook Inlet because all these fields produce much less than 100,000 bbls/day.

TRANSCRIPT OF PRESENTATION ON ELF
given by Gregg Erickson
TAX POLICY COMMITTEE MEETING - September 11, 1986

TAPE 2, SIDE 1, COUNTER #238

The ELF was established in 1977 and as Mr. Monkman told you, the ELF is a tax break. The purpose of the ELF as it was established in 1977 was to reduce the tax rate. Oil producers like the ELF. Any proposal to [increase] the ELF is [not] going to win favor with the oil producers and give them more money, allow them to keep more of the proceeds of the production of oil than they keep now.

The ELF can reduce the tax rate by a lot or it can reduce the tax rate by a little depending on one major factor. And that is the average per well productivity. If the average well in a field produces 300 B per day, that field will pay a lower tax rate under the ELF, other things being equal, than if the average per well productivity in the field is 1000 B per day. The average per well productivity is always the major factor in establishing the ELF and it needs to be kept in mind. We'll be coming back to that again later.

The ELF is always a number, and the number is always between zero and one. If you like, you can think of the ELF as a percentage that's applied to the regular nominal percentage tax rate. That's another important concept.... Right now, Alaska has a nominal percentage severance tax rate of 15% for some fields and 12.25% for some fields, and some fields change around from 15 to 12.25% because of amendments to the severance tax law that were adopted in 1981 and we'll talk about those later. That nominal tax rate gets reduced by the ELF by multiplication of this number (between zero and one, remember) times the nominal percentage rate. So, if the ELF is .5 (one-half) then the nominal tax rate is reduced by a half. So, [if] the ELF is .5 and our nominal percentage rate is 15%, the effective percentage rate is half of 15%, or 7.5%. Oil companies like the ELF, it reduces their tax rate.

I think that we can understand how this works best now by taking you to the never-never land of charts and graphs. (*) I know that it's a hard thing for some people to grasp the kind of geometric concepts we are going to be dealing with, so, Mr. Chairman, if it's alright with you, I'd be appreciative if people would interrupt me and say that they don't understand a particular concept that I'm trying to get across.

This is a picture of the Economic Limit Factor. Start out by looking at the two axes here, the two lines. The lower axis right here is...daily output per well. [It] starts out here at 50, but you can imagine it going even further down here, to zero. That means 50 B of oil per day, per well. It goes way on up here to 2500, 2800 B per day per well. The other axis on this chart is the ELF. And as I told you before, if you recall, it's a number between zero and one. [Y]ou see those numbers here, starting at 0 at the bottom, .5 in the middle and 1 at the top. If you have an oil field and the ELF is 1.0, you get no tax reduction because your nominal tax rate is multiplied times 1 which means it's not changed at all. If your ELF is .5, it's multiplied by one-half, it means you pay half of the nominal tax rate. If your ELF is 0, you pay no tax at all. Oil companies like the ELF.

You notice that fields have different average daily production, some fields have very high productivity in comparison to others. Prudhoe Bay field has, or had, because this graph was originally made about nine months ago, an average

(* Refer to charts attached to transcript.)

daily productivity as calculated for the ELF of around 2500 B per day per well. Milne Point, on the other hand, has a lower productivity and Kuparuk has a lower productivity still. If we applied the ELF in exactly the same manner to Prudhoe Bay, to Milne Point, and Kuparuk, it affects them differently. Prudhoe Bay, because it has the highest productivity, gets the least tax break. Kuparuk, because it has the lowest per well productivity, gets the biggest tax break from the ELF. And if we had a field down in this region, it would get an even bigger tax break from the ELF.

Now we say that the ELF is a function. [T]hat means it depends on the daily output per well. That means that if you know the daily output per well you can, or at least you have been able to in the past, determine what the ELF is going to be, what number between zero and one gets multiplied times that nominal tax rate to produce the effective tax rate, which is what Mr. Nelson and his oil company people are really concerned about, the effective tax rate. And it's really what the State of Alaska is concerned about too. In terms of all the factors that we're concerned about on severance taxes, it's the effective rate that people have to pay that makes the difference, not whether the nominal rate is 15% or 30% or 2%.

Now, you'll notice that this curve has a shape that puts every point out here as we move to the right along this lower axis, we also move at every point up on the fractions of the ELF axis. Except for this region down here at the bottom, we'll be coming back to this as we calculate the ELF, but that region is the economic limit region.

The framers of the legislation in 1977, that christened the ELF, that created the ELF, decided that they wanted to insure that fields of relatively low productivity such as they expected to develop among the Cook Inlet fields at that time, would not be forced to shut down before the cost of [operating] the fields exceeded the value of the oil that was being produced. And there was a problem that Milton Lipton and many others spoke to the Legislature about and they called it the premature shut-down effect. If you had too high a tax burden at these low productivity, and presumably low profitability fields,...those fields would shut down, even though they could continue to make profits if the taxes were reduced and continue to make, at least if not profits, at least enough money to bear their operating costs and to keep the jobs and keep the economic activity represented by those fields. Economist and experts and business people alike agreed that it didn't make much sense to shut a field down before the actual cost of production exceeded the value of the oil. Taxes, and royalties too, were dead weight that had to be carried by the production of those fields and so this device was created to, at least as far as the severance tax is concerned, eliminate that dead weight drag on those fields that might otherwise shut [them] down.

We'll come back to that concept so it's not necessary that everybody grasp that in its entirety. But, I'd like to stop right now while we've got this graph in front of us and ask any member of the committee, with your permission, Mr. Chairman, if they have any questions or if there's anything I've covered so far that doesn't compute.

COUNTER #377

(QUESTION from Sen. Eliason: Just a general question, the lower level of production, there, and in fact what they're paying is only 7½% or is it the 15%, is that what we're saying.)

We're saying that Prudhoe Bay, under these assumptions, which are a little bit out of date right now, is paying 83% of, in the case of Prudhoe Bay, 15%. And Tom Chester, our expert, or maybe Mr. Nelson who probably knows a lot about Prudhoe Bay too, can give you the exact number.

(QUESTION from Sen. Eliason: The question of course, or the point was, in other words, that's the 7½%, that low production field is paying 7½% rather than the 15.)

If the nominal rate on Kuparuk was 15% that would be true. However, the nominal rate on Kuparuk is, if I am correct, 12.25%. [They're] paying half of that, that's correct.

(COMMENT from George Nelson: I want to make one correction because in Prudhoe Bay we're paying, based on one, 15% simply because of the fact that for the first ten years, by the law, the factor cannot, if it calculates out above .7, it's always going to be 1. So it's July 1987 before Prudhoe Bay can really use ELF to the advantage of reducing that percent.)

Mr. Nelson is absolutely correct. The reason, and I'm sorry I gave the misrepresentation if I did, that Prudhoe Bay's actual tax rate was reflected by this calculation, because as he says, there's a special exception in the law for Prudhoe Bay which was established in the 1981 tax amendments. But, the ELF by itself works this way, and if the ELF applies, which it does not right now to Prudhoe Bay, Prudhoe Bay would be paying 83% of whatever its nominal rate would be.

(QUESTION from Rep. Grussendorf: The ELF is based on the output per well, or site. What are advantages or disadvantages if we went by field?)

The output per well was chosen, it's my opinion anyhow, that in 1977, it was chosen by the legislature as the factor to determine the ELF because they believed that that was the most readily measurable indicator of field profitability and they wanted to have lower taxes for fields that had lower profits and higher taxes for fields that had a higher profit. But they wanted to retain the concept of a severance tax, as Mr. Monkman mentioned to you. They didn't want to create an income tax here and call it a severance tax, although, they in effect got a little bit close to that perhaps at times.

They chose this one factor recognizing, I think, that there were a lot of other factors that affect profits as well. And for example, we have here Kuparuk, which may well be a more profitable field than Milne Point, and yet the Milne Point has a very small number of relatively high productivity wells, or at least was anticipated to have that situation. And Kuparuk has a relatively larger number of lower productivity wells. As a consequence, Kuparuk gets a bigger tax break than Milne Point. That shows in effect, the arbitrariness, if you will, of just using daily output per well as the indicator of relative profitability. Because if the situation I just described is true, if Kuparuk is a more profitable field than Milne Point, then this ELF factor has not produced the results that I think the framers of the legislation in 1977 wanted to produce. And it might well be that that problem is a consequence of the failure of this ELF factor to reflect total field size. [T]here are a number of factors, indeed, besides daily output per well and total field size, that could be taken account of in an ELF kind of calculation. And the framers chose daily output per well.

(QUESTION from Rep. Sund: How is the curve generated?)

We're going to take you all through that, in excruciating detail, I'm afraid.

(QUESTION from Sen. Eliason: Could also the ELF be construed as an incentive to put more wells in a field?)

Indeed, it could be. However, there are technical provisions in the law which say that you really don't look at number of wells, you look at the number of days that a well operates multiplied. So, it's really well days that are used to try to prevent the incentive, or eliminate any incentive for gold-plating or over-drilling a field. Now, I don't know that any studies have been made to indicate whether or not there is any residual incentive or not. My

suspicion is that its minor if it is. You'll see those technical provisions when we go through the actual translation of the ELF which is coming next.

(QUESTION from Bart Garber: On your graph, the figures on the bottom line, those are constants for the formula, they don't ever change?)

The figures on the bottom line change for every field, from day to day.

(QUESTION from Bart Garber: No, I understand that, what I'm saying is as far as the formula itself goes, to determine the ELF rate, the number of barrels pumped per well don't change?)

[I don't] know if I understand your question correctly. Let me rephrase it and tell me if I'm getting back to you. Does a well this year pumping at 1300/bbl per day get exactly the same ELF this year as it will five years from now if the law doesn't change?

(QUESTION from Bart Garber: No, that's not what I meant. My question is are those figures constant there. Will you always use those figures. In other words, if a well is pumping at 1300/bbl daily output per day, I'm not saying will that well remain constant, I'm saying will that figure remain constant at wherever you're at on ELF?)

Like at .7. If you'd asked me that question last year, or 13-14 months ago, I would have said yes, absolutely. But, I would have been wrong because, as Mr. Monkman mentioned, there is a provision in the law which [was never] really thought [much about], to change this production-at-the-economic-limit number. You'll see how that enters into it later on. And it's nobody's fault but my own that I would have misanswered your question, but I think there were a lot people who would have made the same mistake a year and a half ago.

(QUESTION from Gordon Harrison: I see a question, Gregg, to follow up on, Sen. Eliason's question about the number of wells. Is well spacing regulated, the number of wells that is, by the Oil and Gas Conservation Commission?)

Yes it is. Indeed, the Alaska Oil and Gas Conservation Commission establishes regulations and when the oil companies wish to change the average spacing, they need to get permission. However, the Commission grants or withholds that permission based on generally a reference to engineering practice rather than economic analysis. Or at least that is to my understanding.

COUNTER #523

(QUESTION from Rep. Grussendorf: Gregg, that was the concept of the formula?)

We go from the general, and that can be called general, to the formula itself. Now folks, don't automatically assume that you can't figure this out. This is the formula, the ELF here equals this mathematical construction. We're going to take you through this mathematical construction and it's not nearly as complicated as it seems. The only thing that you may find unfamiliar, and I think most of you will have had some familiarity with it, is the use of the exponent. This little 'exp' in the formula means that the expression following it is, taken together, an exponent. If you recall what any...exponent says, you raise the number to a power, and if the exponent is two, that means you multiply the number by itself. So, four squared ([a four] with a little two above it) means four times four, and that's all we're doing here, but a little more complex than that because we use fractional exponents. But, that's the principle.

The formula has in it abbreviations because if you wrote the whole thing out it would just be too long. And one of those abbreviations, the first one,... ELF,... is an abbreviation [that] stands for Economic Limit Factor. The second abbreviation is PEL. It stands for Production at the Economic Limit. Now you recall the graph we showed you just a moment ago, had a zero tax rate at [an] average daily per well production of from zero to 300 B. The concept

behind that was that it would probably take about, it's a real rough and arbitrary kind of number, but nevertheless, take about 300 B a day for an average well in the average field to make its expenses. Now there's all sorts of things that vary. [O]bviously the cost of the well can vary enormously. [A]s we've discovered, the amount of money you get from the oil can vary enormously, and all these affect how many barrels you have to produce to just cover your operating expenses. Incidentally, the operating expenses in the statute were defined very, very narrowly. But, as a rough approximation...the law says you will take 300 B unless a showing is made otherwise. And up to now, everyone has calculated their ELF using 300 B, so we use it here today in our calculation. [I]t's defined in the law as times the number of wells and times the number of days the well is operating, actually defined as well days. So that the production at the economic limit for this month for this hypothetical field which is similar to Prudhoe Bay,...would be 4,869,000 B. The concept there is that if the Prudhoe Bay owners could get 4,869,000 barrels [per month], they would at least make their expenses. So we plug that number, 4,869,000, into the formula at this point, and at the bottom down here....

The second factor in the formula is the total production for the field for the month. Since we're talking about 300 B per day, and yet the tax gets paid on a monthly basis, we have to calculate in the total number of barrels in the field per the whole month. And that's just simply the monthly production, but we've also shown it here as the result of multiplying the average number of operating wells during the month times the number of days of production for the month times the average daily production per well. And in the example here, we show 541 wells, assuming each of them operated for 30 days, and the average per well productivity was 2,477 B per well, that means they actually produced forty million barrels in that month. So, they actually produced, if this example is correct, roughly 20-25 times as much oil as is necessary under this very rough calculation to meet their operating expenses that we calculated up here in this calculation.... Remember this may not actually be enough to meet their operating expenses, or maybe much more. [I]t's what the statute says you use, and I'm explaining not anything that's in the statute when I say operating expenses, but the concept. Well, actually it is in the statute elsewhere, but it's the concept here that we're talking about.

Then we have to plug in the number of well days in the exponent, and that's calculated simply as the number of operating wells during the month times the number of days each well operates. For example, in our case here,...541 wells [times] thirty days gives us [about] 16,000 well days.

Now we come to the calculation. But let me stop right here and talk about these definitions.... Does anybody have anything that they don't understand about these definitions so far?

END OF TAPE 2, SIDE 1, COUNTER #638

TAPE 2, SIDE 2, COUNTER #001

(Beginning of tape unintelligible.)

...show us that it should be more. Up to now, it has been 300 B a day because the operators have either not come in, or if they have, have not satisfied the requirements that they satisfy.

(QUESTION from Sen. Abood: Where do the numbers (tape unintelligible) to break even?)

Three hundred. It's in the statute itself. It says "it shall be presumed to be 300/bbl per day per well, unless..." etc.

(QUESTION from Rep. Martin: Is it possible to look at this formula as a disincentive for oil production. To me, the more they produce, the more tax burden that they have. In a way, it may be worthwhile for production companies

to say let's keep it at a certain level, and therefore we know that our tax factor will be decreased.)

That's entirely possible. The formula is based, however, on the assumption that these more productive fields are more profitable. Now if that assumption doesn't hold or the higher profits are not more than enough to counterbalance the higher taxes, then your supposition could be correct.

(QUESTION from Rep. Martin: Especially at the lower price market, I can see where they want to produce as much as they want at the high prices, because they get more and more percentage of the profit. But in this flexibility we have now, what's to say that a company won't say hey, now it's our turn to pay less taxes and get more profit at the lower price market?)

Well, if I was an oil company, I [c]ould certainly say that.

Now, we have to go and plug these numbers in where...these acronyms [were]. Let's go back up and look at the formula again one more time.

* * *

[There are] two parts to the ELF formula: the exponent, which is everything within these parentheses starting here and going over to here, and the inverse function, which is everything within these parentheses starting here and going over to here.

In calculating, let's go through the inverse function first. We plug in the PEL right here, the Production at the Economic Limit, which we calculated up here, and that's 4,800,000 some barrels. We plug in the Total Production here, and that's 40 million, and we divide 40 million into 4,800,000. Now, 4,800,000 is a lot smaller number than 40 million, so the result is less than 1. It's a fraction and in this case it's .12, a little over 1/10th. After we make this division, we plug that number in right there.

Now the formula says that you take that little fraction and subtract it from 1. So we do that here, and we get the result of .8789. Now if there was no exponent, that would be the ELF. And indeed, as you will see, as we go back over the history of the 1977 session, that as originally proposed...was all there was to the ELF, was just that calculation we just made. And if that had been the case, and the ELF applied to this particular field, then the nominal tax rate would be multiplied times .8789 to produce the effective tax rate. The effective tax rate would be 88 percent, roughly, [of] the nominal rate. But for reasons that we'll come back to later, the exponent got added.

The exponent is calculated by a constant here, which is 460 (that's a dimensionless constant, it's in the formula, it's in the statute, it's plugged into anything you do with the ELF under this current law) times the number of well days, and that's 16,230, so we plug that in right there, times the PEL, which we calculated up here as some 4,800,000. We can multiply or divide these in any order we want. And [when] we do that,...divide the 16,000 by the formula, and you get a very small number, and you multiply it by 460, it gets large enough so it's always generally over 1. And the results here, if you'd want to take a calculator and do it, multiply 460 times 16,000, and divide the results by some 4,800,000, you get this number. Let me stop right there and see if people have followed me so far.

COUNTER #59

(QUESTION from Rep. Sund: Where does the 460 come in and what's the theory behind it?)

I'd like to defer that until we get into the discussions in the free conference committee in 1977, because I think that's the easiest place to bring that in, but I'll tell you right now that it was a means of...changing the shape of this curve, and it was a means basically of pushing this curve this way. We'll get back to that.

So we've got now this inverse function which has been reduced down to .87, and if it wasn't for the exponent, that would be the ELF, and we've got this exponent. Now normally, this exponent is written just a little bit above the number to which it applies, but because the exponent is so large, we use this different notation, this 'exp'. And if you look in the statute, 43.55, you will find that formula just exactly as we've written it here. The number comes out to 1.5 and probably most of you are not familiar with raising a number to a fractional power, but you can think of it like this. Suppose this exponent was 2, that would look a lot more familiar. It would say .87 squared, with a little tiny 2 right above here and that would be the same thing as we've got written here, except with this being a 2 instead of a 1.5.

Well now what happens when you multiply, usually you think when you square a number it gets bigger, like 4 squared, raised to the second power is 16, that's a bigger number than 4. Now if the number being raised to the power is less than 1 however, you're multiplying a fraction times a fraction and when you multiply a fraction times a fraction you get a number that is smaller. And, in fact, if you multiplied, if the number here was just .8, and the exponent here was 2, you would be multiplying 8 times 8, which is 64, which would make this number here not 64, but .64. In other words, it would reduce it. And that's indeed what happens here. Because this exponent is greater than one, and so if the exponent was one, it would have no effect on this number, and if it was smaller than this number it would make it bigger. But we don't have to worry about that. Basically, if you've got a calculator, plug it in and press the exponent button and it will do it for you.

The result of raising .8789 to the 1.5 power is .82. It's higher than it would be if we were raising .8 to, squaring it, and you can see how that relationship goes, I hope. This is the one part that involves mathematics that most people probably aren't familiar with, but fortunately we have calculators now [so] we [don't] have to be familiar with it.

Does anybody have any questions about the basic calculation about the ELF.

Okay, what happens when we change some of these numbers. Well I ran through three examples here just to show you quickly the results of some adjustments to this ELF calculation. [I]n this case we've increased the exponential constant. It was 460, [and] it is 460 in the statute. What if that number were 1000. Well, we've run through here, and I won't take you through it at any length because you have in front of you the printed copy of this. I've highlighted with bold numbers every number that has changed from our previous example. This number is changed, this number is changed, and this number is changed.

The result of an increase in the exponential constant is a decrease in the tax. The exponent gets larger, you take a larger exponent and apply it to the same basic ELF and the result is a smaller number. Like raising a number to the third power instead of to the second power. So, just to go over it again, if the exponential constant is increased, the tax gets decreased, and in 1977, as you'll see, this was one of things that the free conference committee which met for almost two weeks argued and argued and argued about.

COUNTER #119

(QUESTION from Sen. Abood: Was that where your 460 came in?)

The 460 was the number that previously took the place of 1000. Yes, the answer to your question is yes.

(QUESTION from Sen. Abood: I understand that. In the free conference they argued this 1000 to 460?)

Well, 1000 wasn't one of their options, but they argued the difference between 750 and 300.

(QUESTION from Sen. Abood: This was an arbitrary figure that they were trying to work out?)

They wanted this curve, as you'll see, to look the way they wanted it to. And that number, this 1000 or 460 or 300, makes a significant difference on how that curve looks and who gets hit with a tax jab and who doesn't.

(COMMENT from Sen. Abood: So more is less.)

In this case, more is less. An increase in the exponential constant means a decrease in the tax. And you may not be surprised to learn that the Senate, in 1977, wanted a bigger exponent and the House wanted a smaller one.

(COMMENT from Sen. Abood: I wasn't there at the time.)

(QUESTION from Sen. Eliason: Do you have the names of the free conference committee members?)

I certainly do. (Pause) Let's take a look here at the results if the exponential constant is reduced. [It's] just the opposite, I've run it here from 460 down to 300. I've run through the calculations in exactly the same way. The exponent here becomes 1. And if you recall our earlier discussion, an exponent of 1 means that the number to which it is applied is unchanged. The result is an increase in the taxes you would expect. What happens if, remember there's another constant in the calculation, and that was the PEL here, the 300/bbl per day in our other calculation, here I show in Case 4, the results of changing that 300 to 400. Now this change could come about as...a consequence of the law being changed. The law currently says the production at the economic limit is assumed to be this calculation right here with 300. If they change the law to make it 400, the result would be as we'll show you here now. It could also come about as a consequence of the oil companies petitioning and the Dept. of Revenue approving a higher PEL allowance for a particular field. The result, I won't carry you all the way through this, just go down to the bottom, is in this case, a very small decrease in the tax. Basically we're saying here this is the amount of oil you get for free, and naturally that reduces the tax.

Now if this had been, the result here is reduction from .822, I believe, to .816, a very small reduction. But if this had been a much smaller field, and if this factor in the calculation right here had been smaller, the result could have been much more significant in terms of a tax reduction. But the principle [still] holds, and that is when the PEL constant is increased, the tax decreases. And that tends to be more important for the smaller fields, but it holds true for all fields. And I won't show you another example, because it's just the other way around. If the PEL constant is decreased, the tax increases.

That is how the tax is calculated and now it seems like the best way is to run this sort of backwards to show you how [the legislature got to this point] ([though] nobody really knows what went through the collective collegial bodies' minds when they make a decision like this). [W]hat was in the minds of the legislators who grappled with these problems in 1976 and 1977, [what were] some of things that they were thinking about? [T]o do that, I'd like to start with the tax law as it existed in 1977. This chart is actually from the 1977 session, and the axes here are the average barrels per day, the same axes that we had on our other chart, and the percentage tax rates, not the ELF here, this is the total percentage tax paid. So it's similar to what the ELF is but in this case we didn't have an ELF at the time and we're looking at the effective tax rate which, in the case of the '77 law, was the same as the nominal rate.

Let's focus on this scalloped curve right here. This is the law as it existed in 1977. It had been adopted in the 1973 special session. Some people call it the pipeline session. The law provided that the first 300/bbl of oil produced from a well during a day were taxed at 5%. And with what's an increasing block structure, which is very similar to the kind of structure that

you pay [on] your electric bills in most areas, except reversed. With electric bills, you usually pay less for the higher consumption, and in this case, the more you produce, the higher was your tax rate. Now those blocks produced this kind of scalloped appearance when they're applied to the average daily production and the rate that you're actually paying. For the next 700 B the rate was 6%. So you paid 5% on the first 300 B and 6% on the next 700 B, which meant that the average rate, which is what we're talking about here, never quite got up to 6%, because you always had this low price block down here. The next block, the final block, which was everything over 1000 B was taxed at 8% flat tax. So that if you've got it way, way out here, you eventually got close to 8%, and it was about 7.5% here around 3,500 B per day. That was the tax as it stood, so the effective rate, if you had 4,000 B per day of production, was about 7.6%. The top marginal block was 8%. Nobody was taxed more than 8%. If you were very, very productive in terms of average daily per well production, your tax rate was approaching 8%.

COUNTER #206

Okay, what was wrong with that? Why did the legislature want to change it? Well, I think there were two things in the minds of this special oil and gas and pipeline impact committee when they proposed what became known as House Bill 144. They wanted to reduce the tax rate for low productivity fields. This is the same kind of declining block structure under the bill that was introduced by the special committee that was formed to study this. And that bill reduced the tax rate for fields with productivities of less than about 1200-1300 B per day and increased the tax rate, substantially increased the tax rate for the high productivity fields. It was a device, a proposal that would have increased the taxes for the fields that have high average daily production and would have decreased the taxes for fields with low average daily production. Why did they want to do that? Well, clearly one thing that was in their mind and that they said in their report was that they were fearful that a 5% rate on these low blocks would cause Cook Inlet fields to shut down in some future year. They were seeing the gradual decline in productivity of the Cook Inlet fields and there was concern that that was something that they didn't want to see, they didn't want to see those jobs lost, and they didn't want to see the dead weight economic loss of shutting down a field when it was actually producing enough oil to make its cost. So they proposed that the first 100 B of oil paid absolutely no tax at all, and the next 200 B pay tax at the rate of 3% and so on, on up, so that the maximum tax rate was, if I recall correctly, 12%, it may be 12½%, I don't recall the top block. But as you can see, this was a very hefty tax increase for these more productive fields.

The Dept. of Revenue had, through 1976 and 1977, been conducting a major study of oil and gas taxes and it to this day remains a very, very useful piece of work. I have a copy with me in my briefcase back there right today in case questions come up that I can't answer, because it is even now, though somewhat out of date, a very useful document. It is primarily authored by John Messenger and his associate Tom Williams. As a result of that study and discussions within the administration and the Dept. of Law and the Dept. of Revenue, and Governor Hammond at that time, they came forward and introduced a proposed legislation that would have looked, had it been adopted, like this curve shown here. It contained an Economic Limit Factor without the exponent. Remember, in most cases, the exponent was a factor that when raised, reduces the tax.

The problem, I think, that some people saw with that was that it created too high a tax, too soon. In other words, a field here with, let's say 300/bbl of productivity would be paying tax of around 7%. That was even higher than the existing tax here and it was exactly those kinds of fields that the special oil

and gas committee was concerned with in terms of providing some tax breaks for them. Their proposal provided substantial tax breaks for every field producing less than 1300/bbl per day, that is a break in comparison with the laws that stood at that time. So there were attempts made to adjust the Economic Limit Factor...in the administration's bill. And that intent, since there were really only two factors you could adjust in that bill, one was the Production at the Economic Limit, which in their bill was 100. They said well if you don't want to lower that, let's just increase it, and so here was a, this was never introduced as a bill but was discussed as a proposal, Economic Limit Factor of 1000. Well, without the exponent, what happens is that this curve gets pushed this way, it actually gets pushed, this point gets moved to here and this curved area gets pushed down to here. That didn't produce the result that people were comfortable with either because it was felt that the result was even too big a tax break for the fields that were in this region right here. And, as well, when you gave that tax break, the result was the depression of the curve over in this region here. You couldn't avoid it if the calculation of the formula was such that if you moved this over here, this part came down as well. So, I think the desire was, and this is my guess, there was some evidence in the written record to indicate that this was what in fact was in the minds of some legislators, they wanted to give this break here, but they didn't want to give this big a break out here, and they couldn't figure out a way to do it with the Economic Limit Factor that the Dept. of Revenue had presented. And legislators kept saying, well, I'd like to use the Dept. of Revenue's formula because it's always good to get the administration's bill passed and put your amendments on the administration's ideas rather than try to do it the other way around, but they were saying, "We want a curve that incorporates the administration's formula, but one that more closely approximates what we've got here in our own bill. Can you give us an ELF factor that produces this?" And the result was the exponent because the exponent allowed you to push this part of the curve this way, to push the curve inward without pushing this part down very much, pushing this outer edge down very much.

It's interesting, some people say that these kinds of complications in law wouldn't happen if the legislature and the administration didn't have a bloated bureaucracy to dream up crazy ideas like this. And I think that's absolutely true, but it wasn't the bureaucracy that dreamed up the idea because they wanted to complicate the law, it was because the legislators and the policy makers came and said I want to accomplish a result, how do we do it? And that's how it happened that the ELF got an exponent.

COUNTER #302

The two bills that...ended up in free conference committee then had three things that they could adjust. The nominal rate, the exponential constant and the Production at the Economic Limit, and they also had a cents-per-barrel factor which I can get into if you like. I think it's probably worthwhile covering, but I think I'd like to reserve it for a little bit later.

In terms of the nominal rate, the house bill suggested 12.5% of value, the Senate wanted 11.5% of value, two different nominal rates which meant that the senate bill's curve headed up towards 11.5, never quite got to it, and the house bill was above it, was headed up towards 12.5, also never quite reaching it. The presumed Production at the Economic Limit in the house bill was 300/bbl per day and in the senate bill was 100/bbl per day, which was to say that the house bill gave a bigger tax break under the PEL, than did the senate bill. I think that reflected the greater concern in the House with the production problems that might in the future occur in Cook Inlet, or that were seen as a potential future problem in 1977.

The final factor that the free conferees were arguing about for those two weeks was the exponential constant, and the Senate wanted 750 and the House wanted 300. And to make a long story short, they compromised. In the very last minutes, as often does, it came together very quickly with a compromise which was a very small reduction in the House's proposed nominal rate from 12.5 down to 12.25, and they got to the end where they were arguing about hundredths of a percentage point, and they compromised on the House's part, or really a willingness on the Senate's part to adjust that exponential constant downward and there was some disagreement among the various oil companies as to their reactions to that and I don't think any of that disagreement ever got on the record, but it least it was said that some of the smaller oil companies operating in Cook Inlet felt that some advantage for the larger oil companies had been gained at their expense. I don't know if that's true, but that was an interesting side light on the negotiations and discussions.

COUNTER #348

There were probably ten or, there were a multitude of curves of this nature drawn and I think that's about all I can tell you about what went on in 1977 free conference. But the formula we worked through today arose out of those kinds of political compromises and I think it's the fact that the free conferees had to get in to this material as deeply as they did and as we have done today that has persuaded Gordon Harrison to ask me to go into as deeply as I have.

There are a whole lot of additional things that probably should be talked about, including the cents-per-barrel differences in 1977. The House proposed a cents-per-barrel tax...with an annual adjustment to the cents-per-barrel, based on the GNP deflator, basically based on inflation. So, had the House provision in that regard been adopted, the cents-per-barrel floor would have risen each year to keep pace with inflation and we haven't calculated what it would have been. The House proposed 93¢ per barrel, so it clearly would have been somewhere well above \$1.00 by now as a floor for the severance tax.

There's another interesting side light. The Dept. of Revenue initially proposed in 1977 and later retracted, or withdrew, a proposal to provide a royalty credit against severance tax, and it was a cute little device that would have, had it been legal, or had it been adopted, would have protected royalty revenues with a floor of sorts, in effect, using the severance tax as a means of providing a floor under royalty revenues as well. Senator Ferguson, who was around all this time, and Sen. Eliason haven't said anything about these, I hope that your memory ... accords with mine on these points.

The Senate had proposed a cents-per-barrel floor of 75¢ per barrel and had said that there would be no escalator. They compromised on that at 80¢ per barrel and that's where the 80¢ per barrel comes from that's in our law today. That's a good stopping place, I think, for the moment. There are a whole lot of other things to go into, but now is probably a good time to pause.

What comes next, if we want to go into it, Mr. Chairman, is the procedure for establishing the Production at the Economic Limit. The 1981 amendments, which of course gave us the tax system we have and which substantially changed the applicability of the ELF, as Mr. Nelson pointed out earlier, the ELF doesn't at this moment apply to Prudhoe Bay and that's because of what was done in 1981. Do you want to go on to those right now, Mr. Chairman, or do you want to pause at this point?

COUNTER #398

(QUESTION from Rep. Grussendorf: What would be your timing on that, Gregg?)

I think the 1981 amendments we could probably get through before lunch, and probably finish up this whole thing before lunch, unless you want to take an early lunch. I guess I'm getting a little hoarse, but that's alright.

(QUESTION from Rep. Grussendorf: Are there any objections to continuing?)

(QUESTION from Sen. Abood: One question, Mr. Chairman, I want to be sure it's straight. The only two fields that are affected are the Milne Point and the Kuparuk at this present time, is that correct?)

Affected by the ELF? I don't believe that's correct, but I would defer to my colleague, Tom Chester, who's probably looked into it. Cook Inlet fields, of course, are affected as well. And I think...

(QUESTION from Sen. Abood: But you were saying, if I may, Prudhoe Bay is not effected by it, but Kuparuk and Milne Point according to this graph, is affected by it?)

The Kuparuk field does have the ELF applied in calculation if its taxes, and the Milne Point field does as well, yes.

(QUESTION from Sen. Abood: So everything but Prudhoe Bay is affected by it?)

At this time, that's correct. (tape unintelligible) It appears that that would be the case, yes, unless the law is altered.

In 1981, let me back up, because there's one thing I should really say that I am not really the expert to talk, or the person to profess any expertise on, and that is the procedures under which the Production at the Economic Limit can be modified. And I am going to defer to Mr. Monkman or Ms. Vogt or Dr. Logsdon, if you want to go into more detail on those procedures. They're dealing with them on a daily basis. But the 1977 law, both versions, the House version and the Senate version, had a provision that said if the oil companies came in and could show that the costs of their production, and the bill defined costs very narrowly, although it left some ambiguities which I think may be a matter of some concern, if the oil companies could come in, or any oil company, any producer, could come in and show that its costs or the revenue from the production of the given 300 B was not enough to cover its narrowly defined costs, then the company would be entitled to, and the Dept. of Revenue was directed to grant, a higher Production at the Economic Limit. That factor, that provision was, I must say in my memory, not particularly a matter of concern to either side in the negotiations. There was concern that the language be written very tightly and of course, as usually often happens in this case, the concern of those of us who were drafting at the direction of the committee was to define those costs very narrowly. It turns out that that wasn't the problem, and as is often the case, it's the problem you don't think about is the one that comes back and grabs [you]. So, if there are further questions on that, I think I'd like to defer and have them direct it to the Dept. of Revenue, since they're in administrative hearings and are thinking a lot about it, if it's alright with Mr. Monkman.

COUNTER #458

(QUESTION from Rep. Grussendorf: Any last questions of Gregg, here on PEL?)

Let's go on to 1981 then. In 1981, I don't think we want to go through the long history of the 1981 situation, but in brief, the state had been sued with respect to the constitutionality of its oil and gas corporate income tax. And as a result of the deliberations in the 1981 session, there were attempts to settle that lawsuit legislatively, that is to remove the provisions of the petroleum corporate income tax that was passed in '78, which offended the oil companies, and thus settle the law suit. Those efforts came to naught, but there were efforts and concern on the part of the administration of Governor

Hammond to limit the state's liability by substituting another kind of tax that would not be so legally, at least would not be subject to the legal vulnerabilities that some people thought the oil and gas corporate income tax, that was then called, by shorthand, separate accounting, was supposedly vulnerable to.

The legislature decided to repeal the separate accounting tax and substitute a different tax which, it was felt, would be less subject to legal threat. The result of that change was a substantial reduction in revenue to the state. And to counterbalance that reduction, significant changes were made in the 1977 severance tax. The effect of those changes were to increase the tax rate at Prudhoe Bay from what was then about 11% up to 15%. This was done by establishing in the law, what I call in a shorthand way, the ten-year ELF trigger. And the ELF trigger says that any time a field has been in production for ten years, if that field began production before 1981, that it, the ELF goes into effect only after ten years of production. That is why Prudhoe Bay does not have the ELF applied in calculating its effective tax rate right now. Now there was also another trigger in the 1981 law and that's the .7 trigger. And I know this sounds very confusing and it is because the 1981 amendments were confusing. They were, in my opinion anyhow, kind of jury-rigged to produced the revenue result that was needed to balance the losses of revenue resulting from the change in the separate accounting to modified apportionment tax in the income tax side.

The theory behind it however, there was a theory behind those changes, and the theory behind the changes was that a field would be entitled in general (and this wasn't in the law this was sort of the theory behind it) to five years of production with a tax rate of 12.25% and that thereafter the tax rate would go up to 15%. Since Prudhoe Bay had already producing for five years in 1981, it meant that Prudhoe Bay had about five years to go without, actually in terms of the effective date about seven years to go, and with a tax rate that was not affected by the ELF. In addition, that unfortunately didn't get enough money to make up the difference, and so it was rather arbitrarily the law was designed so as to apply a 15% rate to Prudhoe Bay during the present time on the distinction that it came into production earlier and that they were going give a better tax situation to the smaller fields that were expected to come on after 1981.

COUNTER #536

So the result is that Prudhoe Bay has a calculated ELF of about .8 right now, which being above .7, doesn't trigger the .7 trigger, which if it did would cause the ELF to be applied. As a result, Prudhoe Bay pays a full 15% tax and will do so until it has been in production for ten years, which happens next year. That change means that there will be a significant reduction in the amount of severance taxes that the Prudhoe Bay field will produce for the State of Alaska.

That reduction sometimes gets caught in a kind of semantic difficulty. [I]t certainly is a reduction from the tax that is currently being paid by the oil companies on their Prudhoe Bay properties and their Prudhoe Bay production. It is not, however, a reduction from the current tax law, so I think it's useful in discussing this to remember that semantic distinction there. Usually we can say current tax and compare it with something else, in this case the word current tax can have two quite different meanings. So that is...one kind of ELF legacy, if you will, that is left over from the 1981 session: the ten years is running out and Prudhoe Bay is waiting to get its ELF.

The second legacy, and one that really works the other way, is that the five years that fields are allowed to produce at 12.25%, and this only applies to the newer fields, means that in the 1990's or late 1980's some of these newer

fields are going, actually they'll all be in the 1990's, are going to have a significant tax increase. Endicott for example, is going to be subjected to about an increase from, I don't know what the effective rates are, but it's about a 20% severance tax increase in about 1991-1993 (I don't have that sheet in front of me, but Tom Chester will talk to you later about the revenue effects of these things and show that to you) because the nominal rate changes from 12.25 to 15% in that year. Now if those fields are marginal, it's probably [not] something you want to hit with an extra tax burden at that time. That is another legacy left by the 1981 amendments.

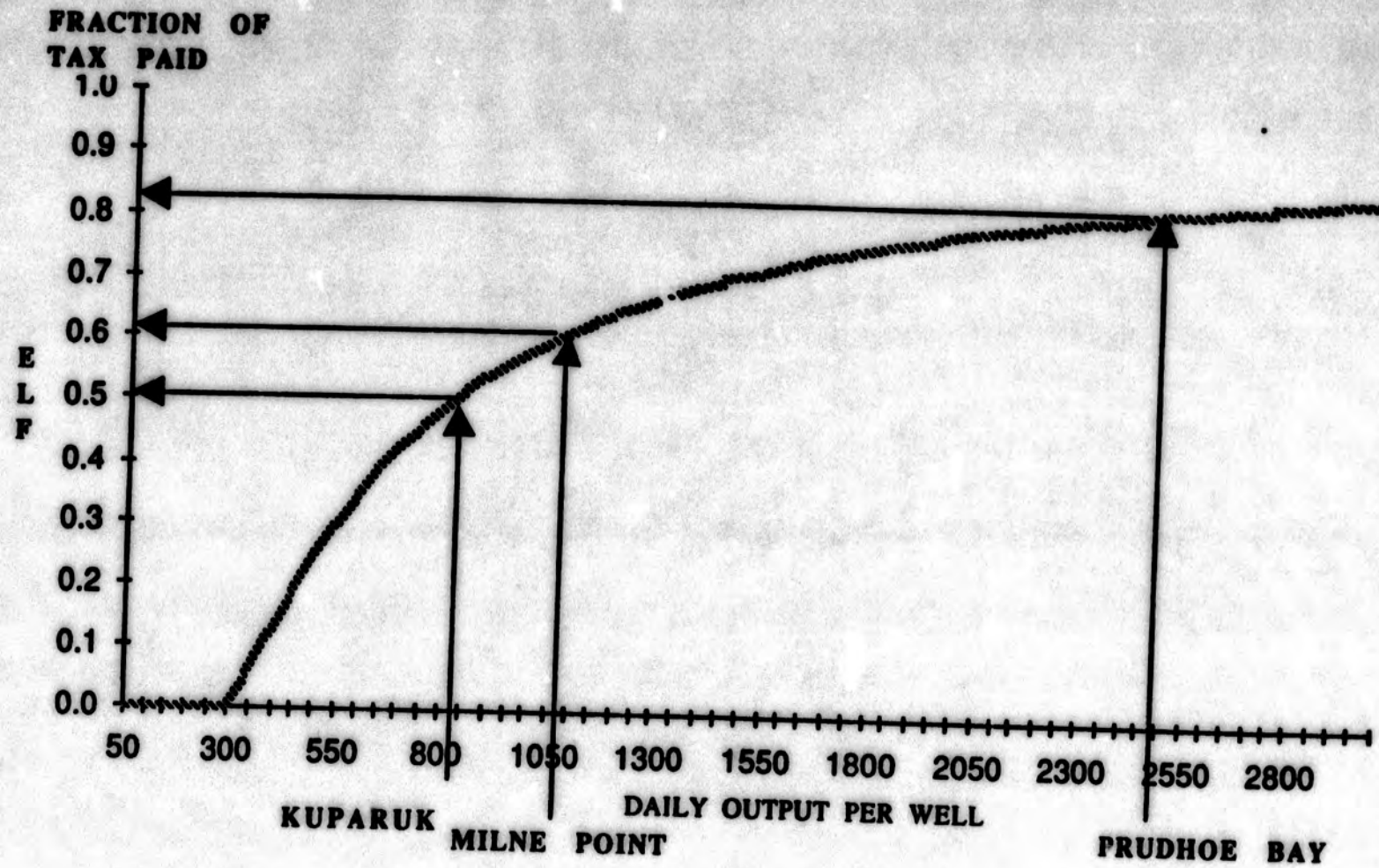
There is, of course, the legacy of the 1977 session, in what Mr. Monkman has descriptively called the "trap door in the floor." That is the application of the ELF to the cents-per-barrel which means that the tax rate could in fact fall to zero. Something that I don't think was contemplated or thought about one way or the other very much at the time the bill was drafted, although others may have a different opinion on that. So there are at least these two legacies from the 1981 amendments, and those may or may not be something you'll be interested in looking at further.

That concludes my presentation, and I am to be followed, presumably this afternoon, by my colleague, Tom Chester, who will discuss with you the revenue implications of these legacies, if you will, and the ways that those revenue implications could be altered, some of the ways that those revenue implications could be changed.

(QUESTION from Rep. Grussendorf: Before we break, do we have any questions of Gregg? When we come back, we'll be dealing with revenue effects of ELF and then the previous proposals to change ELF. Will coming back at 1:00 be acceptable with you? Let's recess until 1:00.)

END OF TAPE 2, SIDE 2, COUNTER #633

ECONOMIC LIMIT FACTOR



CASE 1

HOW THE ELF IS CALCULATED

$$\text{ELF} = (1 - [\text{PEL}/\text{TP}])\exp(460 \cdot \text{WD}/\text{PEL})$$

PEL = (Production at the Economic Limit) =
(300 barrels per day)*

(average number of operating wells during the month)*
(number of days of production for the month).

EXAMPLE

$$\text{PEL} = 300 \text{ barrels} * 541 \text{ wells} * 30 \text{ days} = 4,869,000 \text{ barrels per month}$$

TP = (Total Production for the field for the month) =

(average number of operating wells during the month)*
(number of days of production for the month)*
(average daily production per well).

EXAMPLE

$$\text{TP} = 541 \text{ wells} * 30 \text{ days} * 2477 \text{ barrels per well} = 40,201,710 \text{ barrels per month}$$

WD = (Well Days) =

(number of operating wells during the month)*
(number of days each well operates)

EXAMPLE

$$\text{WD} = 541 \text{ wells} * 30 \text{ days} = 16,230 \text{ well days}$$

CALCULATION EXAMPLE

$$\text{ELF} = (1 - [\text{PEL} / \text{TP}])\exp(460 \cdot \text{WD} / \text{PEL})$$

$$\text{ELF} = (1 - [4,869,000/40,201,710])\exp(460 \cdot 16,230/4,869,000)$$

$$\text{ELF} = (1 - .1211) \exp (1.533)$$

$$\text{ELF} = (.8789) \exp (1.533)$$

$$\text{ELF} = .82$$

CASE 2

WHAT HAPPENS WHEN THE EXPONENTIAL CONSTANT IS INCREASED?

$$ELF = (1 - [PEL/TP])\exp(1000*WD/PEL)$$

PEL = (Production at the Economic Limit) =
(300 barrels per day)*
(average number of operating wells during the month)*
(number of days of production for the month).

EXAMPLE

$$PEL = 300 \text{ barrels} * 541 \text{ wells} * 30 \text{ days} = 4,869,000 \text{ barrels per month}$$

TP = (Total Production for the field for the month) =
(average number of operating wells during the month)*
(number of days of production for the month)*
(average daily production per well).

EXAMPLE

$$TP = 541 \text{ wells} * 30 \text{ days} * 2477 \text{ barrels per well} = 40,201,710 \text{ barrels per month}$$

WD = (Well Days) =
(number of operating wells during the month)*
(number of days each well operates)

EXAMPLE

$$WD = 541 \text{ wells} * 30 \text{ days} = 16,230 \text{ well days}$$

CALCULATION EXAMPLE

$$ELF = (1 - [PEL / TP])\exp(1000*WD / PEL)$$

$$ELF = (1 - [4,869,000/40,201,710])\exp(1000*16,230/4,869,000)$$

$$ELF = (1 - .1211) \exp (3.333)$$

$$ELF = (.8789) \exp (3.333)$$

$$ELF = .65 \quad \text{RESULT: A DECREASE IN THE TAX}$$

CASE 3

WHAT HAPPENS IF THE EXPONENTIAL CONSTANT IS REDUCED?

$$ELF = (1 - [PEL/TP])\exp(300*WD/PEL)$$

PEL = (Production at the Economic Limit) =
(300 barrels per day)*
(average number of operating wells during the month)*
(number of days of production for the month).

EXAMPLE

$$PEL = 300 \text{ barrels} * 541 \text{ wells} * 30 \text{ days} = 4,869,000 \text{ barrels per month}$$

TP = (Total Production for the field for the month) =
(average number of operating wells during the month)*
(number of days of production for the month)*
(average daily production per well).

EXAMPLE

$$TP = 541 \text{ wells} * 30 \text{ days} * 2477 \text{ barrels per well} = 40,201,710 \text{ barrels per month}$$

WD = (Well Days) =
(number of operating wells during the month)*
(number of days each well operates)

EXAMPLE

$$WD = 541 \text{ wells} * 30 \text{ days} = 16,230 \text{ well days}$$

CALCULATION EXAMPLE

$$ELF = (1 - [PEL / TP])\exp(300 * WD / PEL)$$

$$ELF = (1 - [4,869,000/40,201,710])\exp(300*16,230/4,869,000)$$

$$ELF = (1 - .1211) \exp (1)$$

$$ELF = (.8789) \exp (1)$$

$$ELF = .8789 \quad \text{RESULT: AN INCREASE IN THE TAX}$$

CASE 4

WHAT HAPPENS WHEN THE PEL CONSTANT IS INCREASED?

$$ELF = (1 - [PEL/TP])\exp(460*WD/PEL)$$

PEL = (Production at the Economic Limit) =
(400 barrels per day)*
(average number of operating wells during the month)*
(number of days of production for the month).

EXAMPLE

$$PEL = 400 \text{ barrels} * 541 \text{ wells} * 30 \text{ days} = 6,492,000 \text{ barrels per month}$$

TP = (Total Production for the field for the month) =
(average number of operating wells during the month)*
(number of days of production for the month)*
(average daily production per well).

EXAMPLE

$$TP = 541 \text{ wells} * 30 \text{ days} * 2477 \text{ barrels per well} = 40,201,710 \text{ barrels per month}$$

WD = (Well Days) =
(number of operating wells during the month)*
(number of days each well operates)

EXAMPLE

$$WD = 541 \text{ wells} * 30 \text{ days} = 16,230 \text{ well days}$$

CALCULATION EXAMPLE

$$ELF = (1 - [PEL / TP])\exp(460*WD / PEL)$$

$$ELF = (1 - [6,492,000/40,201,710])\exp(460*16,230/6,492,000)$$

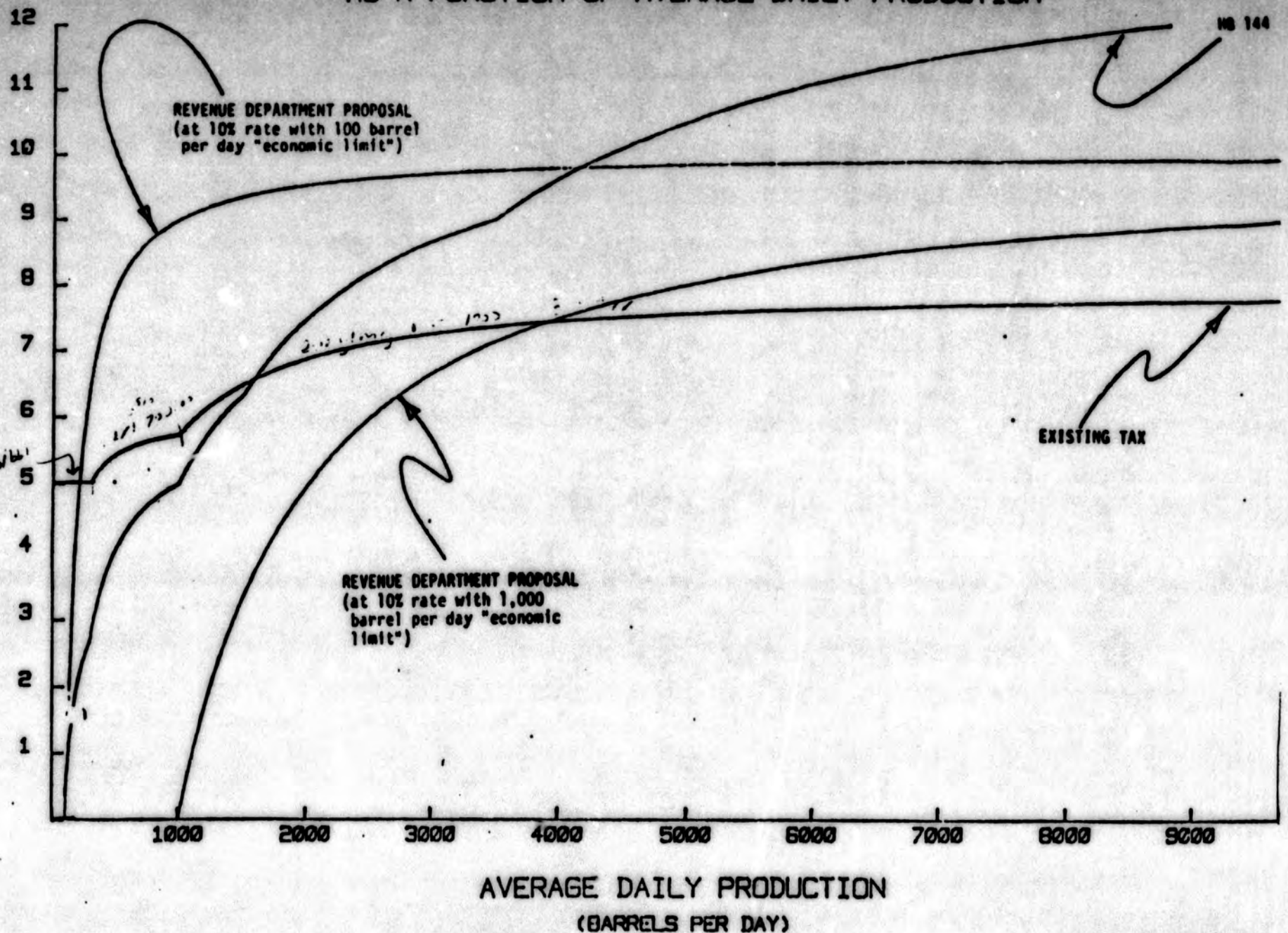
$$ELF = (1 - .1615) \exp (1.150)$$

$$ELF = (.8385) \exp (1.150)$$

$$ELF = .816 \quad \text{RESULT: A DECREASE IN THE TAX}$$

EFFECTIVE SEVERANCE TAX RATE AS A FUNCTION OF AVERAGE DAILY PRODUCTION

EFFECTIVE SEVERANCE TAX RATE
(PERCENT)



DON Y=10*(X-100)/X; INITIAL F(X)=15114.03

DON Y=10*(X-1000)/X; INITIAL F(X)=6700.00

LEGISLATIVE AFFAIRS AGENCY
RESEARCH DIVISION
15 February 1977

Office Correspondence

STANDARD
ALASKA PRODUCTION

TO: G. W. Nelson

DATE: October 16, 1986

FROM: G. J. Abraham

CC NO:

SUBJECT: Proposed Severance Tax Changes

YOUR REF:

I have some serious concerns with the proposals before the Joint Special Committee on State's Tax Policy (Committee) to alter the Economic Limit Factor (ELF). Implementation of the proposals to amend or eliminate the ELF presented by ONB at the September 11, 1986 meeting could result in decreased recovery at Prudhoe Bay and could significantly impact future exploration and production activities in Alaska.

Prudhoe Bay Development

Prudhoe Bay is a field of 10 billion barrels of recoverable liquids out of 22 billion barrels in place. Approximately five billion barrels have already been produced leaving a reserve of five billion barrels. Up to four billion barrels of that remainder could be recovered under current State tax law with the wells and facilities in place. Premised on these tax laws, over \$5 billion has been spent in the last four years on the drilling of 285 new wells and projects such as Waterflood, Gas Lift, and Enhanced Oil Recovery/Natural Gas Liquids (EOR/NGL).

Recovering the remaining one billion barrels will require additional capital investment in facilities and drilling. Many of these future investment decisions are only marginally economic. This future development and some of the expected production from the current wells and facilities is jeopardized by the proposed changes to the ELF.

Additionally, Prudhoe Bay contains 12 billion barrels unrecoverable with current technology. Some of this currently unrecoverable oil could be recovered with improved technology and major capital investment. Significant increases in taxation will curtail the research necessary to pursue these thinly margined projects and further reduce potential future State revenues.

The ELF is important in decisions to continue development within the Prudhoe Bay Unit. Consider, for example, the decision to drill additional wells at Prudhoe. Removal of the ELF benefit will in many cases make additional wells uneconomic. Four hundred or more future wells will be required to realize the additional one billion barrels referenced. Preliminary studies show that elimination of the ELF could

reduce future drilling at Prudhoe Bay by over 25%, reducing ultimate recovery and industry and State revenues. From the State's perspective, direct losses accrue in the areas of royalty, production tax, income tax and annual property taxes as well as in the secondary areas of employment and economic stimulation.

An ELF modification which involves an additional total field production factor would eliminate some projects which increase field production by raising the severance tax rate on the whole field and thus making the incremental project unattractive. From a broader perspective, selectively penalizing large fields like Prudhoe will curtail their development short of their full potential as discussed above. Further, penalizing large fields discourages unitizations which are an efficient means of managing a reservoir for maximum benefit to the industry and the State.

Alaskan Development Impact

In addition to the Prudhoe Bay impacts, tax increases could have significant adverse effects on future Alaskan oil development. Decisions to proceed with exploration and development projects are based on after-tax economics. There are three tax related factors:

- Cash to finance the project,
- Competitive after-tax returns on investment, and
- Stable business environment.

Cash to Finance the Project

Standard has invested \$12 billion on Alaskan exploration, development and transportation. This investment record for TAPS, Prudhoe Bay, Endicott, Kuparuk and Mukluk, demonstrates the company's willingness to invest in Alaska when competitive after-tax returns are projected.

The oil industry, as well as the State of Alaska, has a severely constrained cash flow. Virtually all major oil companies have significantly reduced 1986 exploration and development budgets and workforce. Standard's 1986 original capital budget for Alaskan field development has been reduced from \$923 million to \$675 million. Standard's workforce was reduced in July by 172 people.

Increasing industry taxes through changes to the ELF will further reduce the industry's ability to continue to invest in Alaska.

Competitive After-Tax Returns On Investment

The future commitment of available exploration and development funds to Alaska will depend on whether the projected returns are competitive with alternative uses of the funds. The ELF is also critical in this regard.

Modification or elimination of the ELF which increases the effective tax rate on major fields will discourage exploration. Arctic exploration involves expensive, high risk ventures such as Mukluk. These risks are taken to find major, profitable fields such as Prudhoe Bay and Kuparuk. Smaller fields are generally a by-product of these efforts. Where the taxation system reduces significantly the profitability of a major field, the high cost exploration risks will not be taken and neither large nor small additional Alaskan fields will be found.

Stable Business Environment

A fair and stable taxation system is a critical component in any business environment. Under the current taxation system, production taxes can be reduced by the ELF where the wellhead value closely approaches the operating costs allowing continued production. Alaska's highest in the nation production tax rate of 15% and highest in the nation production tax floor of 80¢ per barrel will be reduced for Prudhoe by about 20% after ten years of production.

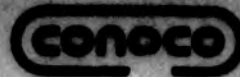
The large Alaskan development expenditures outlined above were determined to be economic based on existing tax laws. Changes in these laws - which result in tax increases - send several unwelcome messages to the oil industry. One message is that the industry could expect tax increases in major fields after the major capital outlays have been made. A second message is that during hard times for the industry and the State, oil industry tax increases will be considered regardless of their impact on the industry.

It is easy to estimate the State revenues to be generated by tax increases. It is difficult to quantify the very real lost future production and the consequent losses to State revenue and the overall Alaskan economy that will be incurred as a result of the enactment of a severance tax increase.

Recommendation

In light of the adverse impacts of increased severance taxes on the Prudhoe Bay Unit and other future industry exploration and development activities, I recommend that these comments be forwarded to the Committee. Hopefully they will provide the Committee with a more balanced perspective in which to consider tax policy and the resulting longer term implications.


G. J. Abraham



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John R. Kemp
Division Manager

Conoco Inc.
3201 'C' Street, Suite 200
Anchorage, AK 99503

September 4, 1986

Joint Special Committee on State's Tax Policy
Senator Frank Ferguson, Chairman
1024 W. 6th Street, Suite 203
Anchorage, Alaska 99501

Dear Senator Ferguson:

The high drilling and production costs and the decline in the value of crude oil significantly impacts the development of new fields in Alaska. It also impacts the decision to continue operating any fields in the State. One of the cost factors, the State's oil and gas production tax, is directly controlled by the State. The modifications and revisions to the present production tax statutes may be the deciding factor for future oil and gas development in Alaska.

The present production tax is based on a monthly production rate at the economic limit OF 300 barrels/day times the number of well days. This is called the economic limit factor (ELF). The statutory presumption is that the ELF represents the producer's break-even point. It is presumed that the producer is making profit from the production of oil and gas before reaching the ELF. The ELF, however, may be rebutted. Rebutting the presumption allows a producer to establish by clear and convincing evidence that the break-even point is higher than 300 barrels for the field or unit. Successfully rebutting the ELF and establishing a new ELF results in a downward adjustment of the production tax payable by the producer.

The legislators who enacted the production tax statutes were farsighted and concerned that a rigidly structured production tax would force producers of economically marginal fields or units to shut down wells prematurely. See, e.g., Governor's transmittal letter for S.B. 238, March 11, 1977, 7th Journal, at 540-41. Prior to 1977, production tax liability was calculated on a rigid stair-step approach with incremental increased taxes based on the amount of production.

This approach was insensitive to the problems of marginal fields and the geographic variation of cost and production.

Early in 1977 after the introduction of the Senate and House production tax bills which would have continued the stair-step approach, the Alaska Department of Revenue published an in-depth comprehensive report titled "Alaska's Oil and Gas Tax Structure", a study with recommendations for improvement. See testimony of Sterling Gallagher, Commissioner of the Department of Revenue, before the House Finance Committee, April 14, 1977. In developing the presumptive ELF factor, the legislature has provided a mechanism to allow production tax relief to producers of marginally economic fields. The present production tax allows the producers to establish their actual break-even point and to be assessed production tax from the point of the field or unit's production at a profit. In essence, the producer is not forced to pay taxes while in a negative profit or loss situation. The provisions for this production tax relief are not automatic. The producer must request a formal hearing and prove by clear and convincing evidence that its break-even point is different than that presumed by the statute. The economic sensitivity in the current production tax statutes allow the State to grant relief to producers of marginally economic fields and allows the production operations to continue, rather than to shut-in during times of unprofitability.

Proposals for new legislation to change the ELF provisions are now under consideration. Conoco urges the legislature to look to the future of Alaska. In the short run, the State may benefit by establishing a fixed minimum tax. It is anticipated that the minimum tax would approximate the current 80 cents per barrel resulting from the presumed ELF. A production tax at this rate could contribute to the shut-in of Milne Point Unit. Shut-ins of these types of units and the prohibitive effect of a fixed tax on the development of new fields means a reduction in the State's employment rate and a detriment to the local economy. It also means a reduction in both the State and local ad valorem taxes. Alaska's economy will stagnate.

Conoco urges the State to maintain the current tax structure. Careful and thoughtful analysis was used in the establishment of the production tax, with the ultimate goal of maximizing both income to the State and the conservation of the State's most valuable non-renewable resource. A panic-induced tampering with the existing law may produce deleterious effects in both near term and long term economic stability. In the alternative, if action on the production tax must be undertaken, Conoco strongly urges that the first 50,000 barrels per

Senator Frank F. uson
September 4, 196.
Page 3

day of production from a unit be exempted from any proposed changes in the tax structure. This provision would maintain the original intent of maximizing resource utilization in economically vulnerable units. This type of provision will encourage the continued operation of Milne Point and other small units. It is also farsighted enough not to require yearly amendments and changes and, thus, will encourage the continued development of the oil and gas fields of Alaska.

Yours very truly,


FCR John R. Kemp
Division Manager

vv
HG/AEH
520.0

Standard Alaska
Production Company
900 East Benson Boulevard
P.O. Box 196612
Anchorage, Alaska 99519 6612
(907) 564-5423

G.N. Nelson
President

STANDARD
ALASKA PRODUCTION

September 4, 1986

Senator Frank Ferguson
Co-Chairman
Joint Special Committee on the State's Tax Policy
PO Box 131
Kotzebue, Alaska 99752

Dear Senator Ferguson:

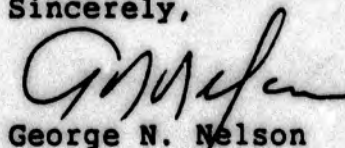
I recently received the enclosed paper on the Economic Limit Factor prepared by Tom Williams and I thought it would be of interest to you and perhaps other members of the Special Committee. The paper presents an overview of the ELF, explains how it functions and why it was originally written into Alaska's statutes.

Tom prepared the paper at the request of the Alaska Oil and Gas Association Tax Committee. I must emphasize, however, that it is not an official AOGA position paper and should not be taken as such.

A copy of this paper is being also sent to Rep. Grussendorf and I leave it to your discretion to distribute it to other committee members.

I look forward to seeing you on September 11.

Sincerely,



George N. Nelson

cc: Rep. Ben Grussendorf w/enclosure

**THE ECONOMIC LIMIT FACTOR
IN ALASKA'S OIL AND GAS PROPERTIES
PRODUCTION TAX**

By Thomas K. Williams

September 1986

About the Author

Thomas K. Williams may rightfully lay claim to being the "father of the ELF" since he was the one who first proposed the idea of an economic limit factor for the production tax in late 1976, when he was Director of Petroleum Revenue for the Alaska Department of Revenue. As director, he had immediate responsibility for administering the state's oil and gas tax laws, and he drafted many of the regulations that are still in effect for those taxes. Mr. Williams was director from September 1975 until April 1979, when he became Commissioner of Revenue for the remainder of Governor Hammond's second term. Prior to joining Revenue Mr. Williams was an Assistant Attorney General for the state, specializing in oil and gas matters. He is currently Vice President and General Counsel of Cook Inlet Region, Inc. Mr. Williams received bachelor's and master's degrees in history from Princeton and Harvard, respectively, and earned his law degree at Stanford. He has lived in Alaska since 1973.

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WHAT IS THE ELF?

The Economic Limit Factor, or ELF, is a mathematical formula that changes the rate of tax on oil and gas production under Alaska's Oil and Gas Properties Production Tax (the "Production Tax"), AS 43.55. Without the ELF, these rates would be the nominal rates set out in the statute -- 15 percent 1/ of the value of taxable oil production 2/ (12.25% during the first five years of production from a lease or property 3/) or \$0.80 per barrel, 4/ whichever is greater. 5/ The \$0.80 cents-per-barrel amount is for oil having an API gravity of 27 degrees, and it is increased or decreased by half a cent for each degree above or below 27 degrees, respectively, in the API gravity of the actual oil produced. 6/ This adjustment to the cents-per-barrel amount

-
- 1/ AS 43.55.011(b) (15 percent rate for oil produced after June 30, 1981).
 - 2/ AS 43.55.011(a) excludes "any oil the ownership or right to which is exempt from taxation". Such exempt oil almost invariably is state or federal royalty oil.
 - 3/ AS 43.55.011(b) ("for a lease or property coming into commercial production after June 30, 1981, the percentage-of-value amount equals 12.25 percent of the gross value . . . of taxable oil produced from the lease or property in the first five years after the start of commercial production and equals 15 percent . . . thereafter").
 - 4/ AS 43.55.011(c). This statute also specifies a cents-per-barrel rate of \$0.60 for "taxable old crude oil", referring to "old oil" under former federal oil price controls. With the expiration of those controls, there is no longer any current production to which the \$0.60 rate applies.
 - 5/ AS 43.55.011(a) requires payment of the Production Tax on the basis of the greater amount, with the percentage-of-value amount deemed to be the greater if both amounts happen to be equal. It used to be necessary to establish which amount was being used when both amounts were equal because former AS 43.55.011(d) (repealed by § 18, ch. 116, SLA 1981) called for certain payments into the Alaska Native Fund when the Production Tax was paid on the cents-per-barrel basis.
 - 6/ AS 43.55.012(b).

for API gravity is made before the ELF is applied. 7/ For taxable gas, the nominal tax rate is greater of ten percent of its value or \$0.064 per thousand cubic feet (Mcf) 8/ before applying the ELF.

The ELF ranges in value from zero to one, although the way the formula is set up, it could approach, but never actually reach, one. However, by statute, if the calculated value of the ELF under the formula is greater than 0.7 for oil during the first ten years of production from a lease or property, then the ELF is defined to have a value of one; 9/ after ten years of production, the ELF equals its calculated amount under the formula, whether it is above or below 0.7. 10/ There is no corresponding rule changing the value of the ELF for gas from its calculated value under the gas ELF formula. 11/

The actual tax rate for taxable production from a lease or property equals the nominal tax rate multiplied by the ELF for that lease or property. Thus for instance, with oil, as the ELF varies from one down to zero, the effective

7/ Under AS 43.55.011(a) "[t]he tax is equal to either the percentage-of-value amount calculated under (b) of this section or the cents-per-barrel amount calculated under (c) of this section, whichever is greater, multiplied by the economic limit factor". AS 43.44.011(c) states "[t]he cents-per-barrel amount equals . . . \$0.80 per barrel . . . as adjusted by AS 43.55.012 [providing for the API gravity adjustment]". Thus, the API gravity adjustment applies in determining the cents-per-barrel amount under "(c) of this section", and then, if that amount is greater than the percentage-of-value amount, it is multiplied by the ELF.

8/ AS 43.55.016. The reference in AS 43.55.016(c) to an "adjust[ment] by AS 43.55.012" in the \$0.064 cents-per-Mcf rate refers to provisions in AS 43.55.012 that have since been repealed. AS 43.55.012(b), the only portion of AS 43.55.012 currently remaining in effect, is applicable only to oil. The reference to AS 43.55.012 is therefore an artifact from prior versions of the statute and no longer has any application; the cents-per-Mcf rate is uniformly \$0.064 per Mcf (before applying the ELF).

9/ AS 43.55.013(b)(3).

10/ AS 43.55.013(b)(4).

11/ AS 43.55.013(c).

rate of tax can range between something at or very near its nominal rate of 15 percent (or \$0.80 per barrel, if greater), down to zero. 12/

12/ The cents-per-barrel and cents-per-Mcf rates represent, in effect, floors on the prices used for Production Tax purposes. If prices drop below these floor levels, the cents-per-barrel or cents-per-Mcf rate kicks in. However, neither of these represents any sort of floor on the actual amount of tax collected. As explained below, the purpose of the ELF is to scale down the burden of the Production Tax so that the tax does not cause the cessation of production before the property would otherwise reach its economic limit (break even point). If the amount of production needed to break even equals the amount currently being produced, the ELF makes the tax zero whether the tax is calculated on a percentage-of-value basis or on the cents-per-barrel (or cents-per-Mcf) basis.

HOW THE ELF WORKS: THE BASIC THEME

The ELF depends primarily on two things. One is the volume of production needed to "break even" so that the gross value of the production just equals the total direct operating costs (as defined in the statute) for producing that oil or gas. The other is the volume of production actually produced during the month in question.

These two factors have a determinative role in the changing economics of an oil and gas property during its productive life, and the ELF attempts to recognize the economics and set the effective tax rate at appropriate levels throughout that productive life. In general the cost of producing an additional barrel of oil or an Mcf of gas starts off relatively low and increases with time, until eventually the cost of getting the next barrel or Mcf gets so high that it is no longer profitable to continue producing. This point at which operations cease to be profitable is called the economic limit.

The ELF, which gets its name (Economic Limit Factor) from this concept of an economic limit, takes an approximation of how much production is needed to break even at the economic limit, 13/ and then compares that production rate

13/ The statute makes an approximation of the operating costs at the economic limit by specifically listing certain types of operating costs that one would reasonably expect to continue being incurred right up until the economic limit is reached. Such costs are "royalty, production supplies, purchased fuel, routine maintenance, and wages and benefits of employees working on the production operations." AS 43.55.013(e) (oil); AS 43.55.013(h) (gas). Other current costs are specifically excluded from the calculation of the operating costs at the economic limit because one would reasonably expect them to have been discontinued or no longer incurred by the time the economic limit is reached. These excluded costs are capital expenditures, tangible or intangible drilling expenses, costs of well workovers, and costs of replacement or repairs other than routine maintenance. All of these are excluded because they represent expenses or capital investments that a reasonable person would have discontinued making once the property got close enough to its economic limit that the additional cost or investment no longer promised to pay for itself. Amortization and depreciation are excluded because all past capital investments ordinarily should be fully amortized or depreciated before

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at the economic limit (PEL) to the volume actually being produced. This ratio is an indicator of the profitability of the lease or property. The smaller PEL is in proportion to the total production (TP) currently being produced, the more profitable the lease or property is and, theoretically, the better it can bear a greater "slice off the top" for the Production Tax. Hence the ELF approaches one (and the effective tax rate approaches its maximum possible rate) when the property is most profitable, but later as the property becomes more and more expensive to operate and less and less profitable, the ELF decreases and scales down the tax rate, until finally both the ELF and the tax are zero when the economic limit is reached.

An example will illustrate exactly how this occurs. In its simplest form, the ELF is one minus the ratio of PEL to TP. Put into algebraic terms, the formula for the ELF is:

$$\text{ELF} = 1 - [\text{PEL}/\text{TP}],$$

where PEL is the production rate needed to cover the projected direct operating costs at the economic limit, and TP is total current production. This is the present formula

(footnote continued from previous page)

the property reaches its economic limit. Taxes are excluded because (a) the ELF would have reduced the Production Tax to zero when the property reaches the economic limit and (b) ad valorem taxes, even on a replacement-cost basis of assessment, should reflect the fact that there is no remaining economic life for the assets and hence they would be fully depreciated for assessment purposes at the economic limit (the third tax, the conservation tax of one eighth of a cent per barrel, AS 43.57, is disregarded as having a minimal effect). Insurance and overhead are excluded because they were not considered to be sufficiently "direct" in nature. The costs of terminating production operations and shutting down the property are excluded because they are not costs of production, but costs of ceasing production; if anything, the financial advantage (due to the time value of money) to be gained by deferring the termination costs might be enough in itself to induce an operator to continue producing a property even after it reaches what would ordinarily be its economic limit (i.e., after its production revenue started falling short of the direct operating expenses for continuing that production). The statute also allows the Department of Revenue to adopt regulations that include additional direct operating costs that are not specifically set out in the statute; the Department has adopted no regulation including any such additional types of cost.

for the gas ELF ^{14/} (formerly, when there were still federal oil price controls, it was also the formula for "old oil" production ^{15/}).

Suppose there is a gas-producing property for which the PEL is determined to be 150,000 Mcf per month. Suppose further that initial production from this property is 500,000 Mcf per month. The ELF will be:

$$\begin{aligned}\text{ELF} &= 1 - [\text{PEL}/\text{TP}] \\ &= 1 - [150,000/500,000] \\ &= 1 - [0.300000] \\ &= 0.700000\end{aligned}$$

The effective rate of tax will be seven percent of the value of the gas (0.700000 times the nominal rate of 10% equals 7%) or \$0.0448 per Mcf (0.700000 times the nominal rate of \$0.064 equals \$0.0448), whichever is more.

Now suppose the property continues producing at 500,000 Mcf per month for five years, and then, starting in year six and each year thereafter, the rate of monthly production drops by 70,000 Mcf. The following table shows what the ELF and the effective tax rates will be during the life of this property:

Year	Production Rate	ELF	Effective Tax Rate	
			% of Value	\$ per Mcf
1 - 5	500,000	0.700000	7.00000%	\$0.044800
6	430,000	0.651163	6.51163	0.041674
7	360,000	0.583333	5.83333	0.037333
8	290,000	0.482759	4.82759	0.030897
9	220,000	0.318182	3.18182	0.020364
10	150,000	0.000000	-0-	-0-

^{14/} Id. ("The economic limit factor for gas production of a lease or property equals one minus the ratio of the monthly production rate at the economic limit to the production during the month for which the tax is to be paid").

^{15/} Former AS 43.55.013(a), repealed by § 18, ch. 116, SLA 1981 ("The economic limit factor for old crude oil production of a lease or property equals one minus the ratio of the monthly production at the economic limit to the production during the month for which the tax is to be paid").

As one can see from this table, when current production starts to decline, the ELF starts falling off too, but at a somewhat slower rate. For example, between Years 5 and 6 production in this illustration falls from 500,000 to 430,000 Mcf, a drop of 14 percent (the drop of 70,000 is 14% of 500,000), but the ELF drops from 0.700000 to 0.651163, a decline of only 6.9767 percent (the change of 0.048837 in the ELF between Year 5 and Year 6 is 6.9767% of 0.700000). However, as the table clearly shows, the ELF eventually does fall off fast enough to get to zero when the economic limit is reached.

What this means in practical terms is that the ELF operates to keep the effective tax rate from initially falling off quite as rapidly as does the profitability of the property measured by the ratio of current production to production at the economic limit. Thus the State's Production Tax collections are higher than they would be if the ELF scaled the tax rate down in direct proportion to the property's profitability.

There is one other thing that this illustration reveals about the ELF, and that is why the effective tax rate cannot ever equal the nominal rates set out in the statute (except of course where there is a special statutory rule making the ELF one if its computed value under the formula is greater than 0.7). The reason is that the ELF itself can approach, but never quite reach, the value of one. For the ELF to equal one, the ratio of production at the economic limit to current production must be zero. ^{16/} In mathematical terms,

^{16/} In the "complex" explanation of the ELF, the effects of the exponent in the oil ELF are explained. With the exponent, there is theoretically a second way for the ELF to equal one, and that is if the exponent is zero and the number to which the exponent is to be applied is not equal to zero. However, since the exponent is, in effect, the ratio of 460 barrels a day per well to the actual average daily production rate per well during the month in question, the exponent cannot be zero unless actual production were infinite (this is because 460 divided by any finite number, no matter how huge, will yield a number greater than zero; otherwise, if zero were the quotient, one would be able to reverse the process and multiply that huge but finite number by that quotient (zero) and get back to 460, but zero times any finite number is always zero). Since an infinite production rate is one of the two possible conditions that are described in the "simple" version of the ELF as making the ELF exactly equal to one, there is no practical difference between the "simple" and "complex" versions as to why the ELF is always less than one in the physical world.

if $1 = ELF$, then $1 = 1 - [PEL/TP]$.

Clearly, $[PEL/TP]$ must equal zero for this equation to be true, since if any number other than zero is subtracted from one, the result will not equal one. Thus,

$$PEL/TP = 0, \text{ or}$$

multiplying both sides of this last equation by TP,

$$PEL = 0 \times TP.$$

There is no finite number for TP which will, when multiplied by zero, yield a value for PEL other than zero. This is because zero times any finite number is always zero. And so, if the ELF is to equal one, either current production (TP) is infinite (which is possible in mathematics, but not in the physical world) or PEL equals zero (again, a practical impossibility, since no field would have costs of production equal to zero, especially at its economic limit).

Thus, the larger current production becomes in proportion to PEL, the closer the ELF comes to a value of one, but it never reaches one under the formula in the real world.

REASONS FOR THE ELF

The ELF operates to reduce the effective rate of the Production Tax as an oil and gas property nears its economic limit; i.e., the point where the income (gross value) from producing a barrel or Mcf of production from that property is just enough to cover the costs of producing that barrel or Mcf. At the end, when the property actually reaches its economic limit, the ELF makes the tax rate zero. Why has this ELF feature been included in the Production Tax?

The reasons for the ELF are both historical and economic. Prior to the enactment of the ELF in 1977, Alaska had a "stair stepped" Production Tax on oil in which the tax depended on the average daily rate of production per well. The first 300 barrels a day per well were taxed at five percent of their gross value, the next 700 barrels a day were taxed at six percent, and average daily production in excess of 1,000 barrels a day per well was taxed at eight percent. ^{17/} In addition, there were three similarly "stair

^{17/} Former AS 43.55.010, repealed by § 9, ch. 136, SLA 1977. The three-tiered "stair step" tax (enacted in ch. 4, FSSLA 1973) replaced an earlier four-tier version, in which the four "stair steps" for percentage-of-value had been enacted first (ch. 247, SLA 1970), with the cents-per-barrel rates added later (ch. 101, SLA 1972). The four "steps" in the original progressive tax rate structure were 0 - 300 barrels a day per well (3% rate), 301 - 1,000 barrels a day per well (5% rate), 1,001 - 2,500 barrels a day per well (6% rate), and 2,500+ barrels a day per well (8% rate). When the cents-per-barrel rates were added to the Production Tax in 1972, they were coupled with a credit for royalty payments to the State, the intent and effect of which was to set a floor on combined state revenues from royalty and Production Tax, corresponding to a "wellhead" price of \$2.65 a barrel (which would have dropped to \$2.50 on July 1, 1980 if the law had remained in effect). If prices dropped under that floor, the "lost" royalty income would be made up by the corresponding reduction in the royalty credit against the cents-per-barrel rates. See ch. 101, SLA 1972; 1972 House J. 915-916 (Governor Egan's transmittal letter for House Bill 817, introducing the royalty credit concept; the House Finance Committee took the substance of HB 817 and incorporated it into a House Committee Substitute for a Senate Bill, SB 168, that had already passed the Senate; the version that became chapter 101 of the 1972 Session Laws was the Second Free Conference Committee

(footnote continues on next page)

stepped" cents-per-barrel rates -- \$0.16875 on the first 300 barrels a day, \$0.2025 on the next 700, and \$0.27 on anything over 1,000 barrels a day. 18/ These cents-per-barrel rates were for oil having an API gravity of 27 degrees, and they were increased or decreased by two percent for each degree of API gravity that the actual oil production was over or below 27 degrees. The actual tax to be paid was the higher of the two, percentage-of-value or cents-per-barrel. 19/ The cents-per-barrel amount would be greater when the "wellhead" price 20/ fell below \$3.375; for higher

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Substitute for SB 168, SFCCS HCS SB 168). Litigation over this and other enactments of the 1972 Legislature quickly ensued -- Amerada-Hess Corp., et al., v. State (Superior Ct. No. 72-2719 Civil), ARCO Pipe Line Co. v. Herbert (Superior Ct. No. 72-2798 Civil), Mobil Pipe Line Co. v. State (Superior Ct. No. 72-2720 Civil), consolidated. Legislation enacted by the 1973 Special Session, including repeal of the royalty credit provisions, made part of the litigation moot and allowed the remainder to be settled.

18/ Former AS 43.55.015(a), repealed by § 9, ch. 136, SLA 1977. Actually, the base cents-per-barrel rates (before any adjustment for API gravity) were not constant, but changed from month to month based on monthly changes in the Wholesale Price Index for crude petroleum from the Index for the month of December 1973. See former AS 43.55.015(c); Union Oil Co. of Cal. v. Dept. of Revenue, 560 P.2d 21 (Alaska 1977) (upholding the Department's regulation, former 15 AAC 05.694, which made the December 1973 Index the base Index). This monthly adjustment to the cents-per-barrel rates, in turn, meant that the effective floor price for the Production Tax revenue (i.e., the price at which the cents-per-barrel tax became greater than the percentage-of-value tax) also varied from month to month, depending on the Index.

19/ Former AS 43.55.010(e).

20/ The issue of what is the "wellhead" for royalty and Production Tax purposes has itself been hotly disputed. In Alaska when oil emerges from the ground at the "Christmas tree" atop the well casing, it is cleaned and dehydrated and separated from associated and dissolved gases before it is in a marketable condition. After it has gone through the surface equipment to make it marketable, it is then metered and either sold or

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prices, the percentage-of-value amount would be the greater. ^{21/} Thus, the cents-per-barrel rates, in effect, established a floor price for the value of the oil for Production Tax purposes, regardless of how low the actual "wellhead" price might fall.

To illustrate how the "stair step" tax worked, suppose a property had 10 wells and produced 450,000 barrels of 27-degree API gravity, valued at \$10 apiece during a 30-day month. The tax would be calculated as follows:

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transported away from the property through some common carrier pipeline. In a number of other states, the "wellhead" price is effective at the outlet of the tank gauge or custody transfer meter at which it is first measured in a marketable condition. In Cook Inlet and on the North Slope, it may be miles between the Christmas tree and the custody transfer meter, and the separators and dehydrators represent significant expenditures. If the incidence of the tax or the royalty is at the custody transfer meters, none of the costs incurred upstream from that point for the gathering lines, separators and dehydrators and associated equipment would be deducted in determining the price or value for purposes of paying the tax or royalty. Conversely, if the incidence of the tax or royalty is at the Christmas tree, then all those costs are deducted in determining the price or value on which the tax or royalty is computed and paid. The phrase "wellhead price," while commonly used, can therefore be misleading or at least ambiguous in the Alaskan context, since it is unclear whether it refers to the price at the custody transfer meter or a price further upstream, perhaps as far as the Christmas tree. The Production Tax is based on the "gross value at the point of production", which is specifically defined to be the point of measurement (as opposed to the Christmas tree); see AS 43.55.140(6), 15 AAC 55.210(6).

- ^{21/} Five percent of \$3.375 equals \$0.16875, which is exactly what the cents-per-barrel rate was for the first "stair step." Six percent of \$3.375 is \$0.2025, the same as the rate for the second "step," while eight percent of it is \$0.27, the rate for the third. By 1977 the escalation in the cents-per-barrel rates due to the Wholesale price Index (see note 16, above) had raised the effective floor from its original \$3.375 to approximately \$6.10.

0 - 300 bbl/day "stair step": 10 wells, times 300 barrels per well a day, times 30 days, equals 90,000 barrels in this "stair step" of the 450,000 total taxable barrels produced. Five percent of 90,000 barrels at \$10 each equals \$45,000. 90,000 barrels times the cents-per-barrel rate of \$0.16875 22/ equals \$15,187.50.

301 - 1,000 bbl/day "stair step": 10 wells, times 700 barrels per well a day, times 30 days, equals 210,000 barrels in this "stair step", of the remaining 360,000 barrels that didn't fall into the first "step". Six percent of 210,000 at \$10 each equals \$126,000, while 210,000 times the \$0.2025 cents-per-barrel rate equals \$42,525.

1,000+ bbl/day "stair step": 450,000 total barrels, minus the 90,000 barrels falling in the first "stair step" and the 210,000 barrels falling in the second, leaves 150,000 barrels to fall in this top "step." Eight percent of 150,000 at \$10 a barrel is \$120,000, and at \$0.27 a barrel the cents-per-barrel amount is \$40,500.

The total percentage-of-value amount would be \$45,000 plus \$126,000 plus \$120,000, or \$291,000. This is greater than the cents-per-barrel amount of \$98,212.50 (\$15,187.50 + \$42,525 + \$40,500), so the actual tax would be paid on the percentage-of-value basis. The effective rate of tax in this example would be 6.47 percent (\$291,000 total tax, divided by a total value of \$4,500,000 for the 450,000 barrels, equals 0.0647).

After this tax system was enacted in October 1973 (ch. 4, FSSLA 1973), factors affecting the Alaska oil and gas market changed dramatically. The Arab oil embargo of the United States in early 1974 caused oil prices, which had doubled since the previous May, to redouble. Construction of TAPS finally began in 1974, but costs for constructing

22/ For simplicity, the example uses the original rates set out in the statute. In actual practice, those rates would first have been adjusted for changes in the crude oil Wholesale Price Index (WPI). One might also note that, by having 27 degree API gravity oil in the example, the example does not show how to make the API gravity adjustment of two percent in the WPI-escalated cents-per-barrel rates per degree above or below 27 degrees would be made. For an example illustrating all these aspects of the former tax, see Alaska Department of Revenue, Alaska's Oil and Gas Tax Structure: A Study with Recommendations for Improvement (February 1977) (the "1977 Tax Study"), pp. II-6 to II-10.

that project continued to skyrocket over all earlier projections. The federal government imposed a complex system of price controls on crude oil and refined products, with a big question mark deliberately left in the system as to how Prudhoe Bay oil would fit into it all once that field came into production.

Uncertain as to what all these changes might mean in terms of the profitability of Prudhoe Bay and the appropriate level and type of state taxation, the Alaska Legislature in 1975 retained Tanzer Economic Associates, Inc. to conduct an economic analysis of Prudhoe Bay, its profits, and the effects of state taxation policy on those profits. In January 1976 Tanzer's results were released. ^{23/} The "Tanzer Report" concluded that Alaska could significantly increase the overall level of its tax burden on Prudhoe Bay and still provide a sufficient degree of profitability to reward the oil companies there for investing in the development of the field.

A flurry of legislative proposals to increase oil taxes immediately followed, ranging from "excess profit" taxes to a "separate accounting" income tax, with higher Production Tax rates as an option somewhere in between. In the face of misgivings by the Department of Revenue about some of the proposals and the lack of a clear legislative consensus about which proposal(s) to adopt, Governor Hammond prevailed upon the Legislature to give the Department a year to make a comprehensive study of Alaska's then current tax structure and make recommendations in early 1977 about any changes that should be made. ^{24/} Because of strong support in the Senate for a "separate accounting" income tax ^{25/} and be-

^{23/} Tanzer Economic Associates, Alaska's Prudhoe Bay Oil: Profitability and Taxation Potential (January 9, 1976).

^{24/} The 1976 Legislature, through a Committee Substitute for Senate Concurrent Resolution 101 (CS SCR 101), resolved that the Legislative Council, through its Interim Committee on Oil and Gas Leasing and Taxation Policy, was to cooperate with the Administration in making a comprehensive and definitive study of Alaska's oil and gas leasing and taxation policies, with recommendations for improvement.

^{25/} "Separate accounting" is one of two basic ways of determining how much of a multistate business's taxable income is attributable to its activities in a particular state for purposes of that state's income tax. It attempts to isolate the in-state activities from the rest of the business and see how much income results

(footnote continues on next page)

cause of criticism of the state income tax as early as 1973, 26/ the Department of Revenue and the Legislative Council engaged Professors Jerome M. Ziefman and Kenneth G. Ainsworth to make a special study of the income tax. 27/

The Department's report -- Alaska's Oil and Gas Tax Structure: A Study with Recommendations for Improvement (February 1977) (the "1977 Tax Study") 28/ -- was transmitted to the Governor on February 11, 1977. Besides incorporating the criticisms and recommendations of Professors Ziefman and Ainsworth about the income tax, the 1977 Tax Study examined the Production Tax, the state ad valorem tax on pipelines and production and exploration equipment and facilities, and the reserves tax. In its review of the Production Tax, the 1977 Tax Study noted:

. . . Typically production taxes do not reflect the expenses incurred to obtain the production. The tax is either some specified percentage of the gross value of the production or a flat fee of so

(footnote continued from pervious page)

from the in-state activities. The other way is "apportionment," in which a slice of the business's total income is attributed to its in-state activities on the basis of a prescribed formula. Of the consultants advising the Legislature in the mid-1970s, perhaps the most respected was Milton Lipton of Walter J. Levy & Associates. He and Dr. Michael Tanzer of Tanzer Economic Associates, Inc. were preeminent advocates of separate accounting as the way to reform the state income tax and even Alaska's oil and gas tax structure in general.

26/ Milton Lipton, "Testimony at the Joint Hearings of Proposed Oil and Gas Legislation before the House and Senate resources Committees" (March 23, 1973 transcript), p. 7.

27/ Ziefman and Ainsworth, The Taxation of the Petroleum Industry under Alaska's Corporate Income Tax (January 9, 1977).

28/ The principal draftsmen of the 1977 Tax Study were John R. Messenger, then Deputy Commissioner of Revenue (Taxation), and Thomas K. Williams, then Director of the Department's Petroleum Revenue Division. Important editorial review and suggestions were made by Dr. David L. T. Knudson, Petroleum Economist in the Petroleum Revenue Division. Revenue Commissioner Sterling Gallagher closely supervised the preparation of the report.

many cents per unit of production. Since it is not based on net proceeds of the production operation, the production tax simply represents another cost of doing business to the producer. 29/

. . . .

Once a discovery has been made and production begins, however, the production tax (and the landowner's royalty) can have a more significant impact on the economics of the production operation and the associated decisions. As operating costs rise during the life of the field, the profit margin shrinks. At some point the total production costs overtake the value of the oil or gas produced, and production can then be continued only by operating at a loss. As one of the costs of doing business, the production tax contributes to the total costs and tends to hasten the time when this break-even point (called the economic limit) is reached. 30/

Besides this negative economic effect of production and severance taxes in general, the 1977 Tax Study drew attention to a particular problem with the "stair step" tax as it applied to areas of Alaska where the operating costs differed greatly from each other:

The current State oil production tax contains a "stair step" feature which is intended to alleviate the adverse impact that a production tax can have on an oil well operating close to its true economic limit. . . . The "stair step" feature of the existing oil production tax schedule is an attempt to reduce the tax rate as production falls closer to the true economic limit. The tax rate declines from 8% to 6% to 5% as individual well output falls. Unfortunately, the current "stair steps" appear to be sized incorrectly.

Economic factors governing production operations vary widely in the State of Alaska. Some areas in the State are located close to the refinery market and have low operating costs. In these areas wellhead values are high. As a consequence, the true economic limit (measured in barrels per day) for these properties can be quite low: 50 to 75 barrels a day per well, or even lower, in some cases in Cook Inlet.

29/ 1977 Tax Study, p. V-19.

30/ Id., p. V-21.

Other crude oil wells in Alaska are not located close to refinery markets and could have extremely high operating costs. The netback value in the field for these isolated areas is lower than in Cook Inlet and the operating and capital costs can be much higher than in Cook Inlet. Accordingly, the true economic limit (measured in barrels per day) for these producing properties can be quite high. Depending on the property, this limit might range from 300 to perhaps 1000 barrels per day [per well]. There is, then, a rather wide range of values which can be generated regarding the minimum production level at which Alaska crude oil wells can be operated.

From this perspective, an economic flaw in the existing or any other "stair step" production tax schedule becomes obvious. By establishing a fixed schedule of "stair stepped" tax rates, the State crude oil production tax is based on the faulty assumption that production economics are similar in Cook Inlet, Prudhoe Bay, and everywhere else in Alaska. 31/

To take care of these problems, the 1977 Tax Study made the following recommendation to replace the "stair steps" with the ELF: 32/

The Department of Revenue recommends perfecting the "stair step" approach as a means of eliminating effects of the production tax on the economics of oil production operations. The key to doing so is not found by creating a series of "steps" and rates that succeed in this for any one area of the State, such as Cook Inlet. As explained in Chapter V, a well producing 1000 bar-

31/ Id., pp. V-28 to V-30.

32/ The original idea for an economic limit was by the then Director of the Petroleum Revenue Division of the Alaska Department of Revenue, Thomas K. Williams, in response to criticism, particularly by Milton Lipton, about the adverse economic effects of the Production Tax on properties as they near their economic limit. The precise formula for the ELF proposed in the 1977 Tax Study (and still the formula for the gas ELF) was developed jointly by Mr. Williams and Dr. David L. T. Knudson, Petroleum Economist in that division. The exponent for the oil ELF and the number 460 appearing in the exponent were features added during the legislative process as the result of work by Alan Latham, who was working for the Legislature.

rels a day may be quite a money maker in Cook Inlet but be mediocre or even marginal in other areas of the state such as the Interior or North Slope. Consequently the "stair steps" that succeed for the Inlet won't eliminate the economic effects of the tax elsewhere. Conversely, "stair steps" designed to eliminate those effects [for] production on the North Slope would give too much away to production in the Inlet.

To eliminate this difficulty, the Department of Revenue recommends an Economic Limit Factor (ELF), based on the ratio of the rate at the true economic limit to the current production rate, as a mechanism for scaling down the tax rate as the production declines toward the economic limit. This would be done by multiplying a basic tax rate times the difference between unity (the number, one) and the ratio of rate at limit to current rate.

. . . .

If the tax law conclusively sets the rate at the economic limit at some specific rate like 200 barrels a day per well, the ELF becomes simply one more economically rigid structure like the present "stair steps." It would not respond to the great regional differences in economic scale for production operations in Alaska. But the great advantage of the ELF over any specific set of "stair steps" is that it can be tied to the actual economic condition of a property anywhere in the state (emphasis in original) 33/

This was the first public proposal to adopt the ELF as a replacement for the "stair steps" in the Production Tax. Instead of a series of discrete "steps" in production rates at which tax rates changed, the ELF represented in effect a smooth curve, a series of an infinite number of "steps" each infinitesimally small. But beyond simply smoothing the "steps" into a continuous curve, the ELF had the additional advantage of allowing the whole curve itself to be shifted, to reflect the rate of production needed for that particular property to cover its basic operating costs at the economic limit. It could reflect the fact that in remote areas of Alaska like Prudhoe Bay, the rate of production needed merely to break even would be very much greater than the rates needed to break even in the more accessible areas like Cook Inlet and the Kenai Peninsula. Thus, the adverse economic

33/ 1977 Tax Study, pp. VI-17 and VI-19.

effects on the economic life of an oil and gas property were no longer a necessary evil of a tax based on gross production value as the Production Tax is.

Governor Hammond acted on this recommendation by introducing Senate Bill 238 to the 1977 Session of the Legislature. 34/ After much legislative wrangling, an amended version of this bill (FCCS HCS CSSB 238) finally passed, and the ELF became part of the Production Tax. 35/

34/ See 1977 Senate Journal, pp. 540-541 (Governor's transmittal letter).

35/ Ch. 136, SLA 1977.

HOW THE ELF WORKS: VARIATIONS ON THE THEME

A. Introduction to the Exponent. The ELF formula for gas production (and formerly for "old oil" under now expired federal oil price controls) is simple and straightforward in its operation. It is merely one minus the ratio of production at the economic limit (PEL) to current production (TP), or to put it into mathematical symbols:

$$\text{ELF} = 1 - [\text{PEL}/\text{TP}]$$

As current production (TP) declines toward the "break even" rate (PEL), the ratio of PEL to TP gets larger and larger, eventually equaling one when TP has declined to the point that it equals PEL. At that point, the ELF becomes $1 - 1$, or zero. The tax is then also zero.

This same formula is at the root of the ELF for oil, except that there is, in addition, an exponent that is applied to it. (For a review of how exponents work and what fractional exponents mean, see Appendix A.)

The exponent in the oil ELF is a fraction whose numerator is 460 times the number of "well days" in the month when the oil was produced, and whose denominator is the monthly production rate at the economic limit. The number of well days is simply the sum for all wells of the number of days each of them was operated during the month. If 10 wells were each operated for 30 days during a month and two others were operated for 25 days each, then the number of well days is 350 (10 times 30, plus two times 25).

Depending on what PEL is, the exponent may be greater than, equal to, or less than one. If it is greater than one, the exponent is a "net power function" -- that is, the effect of raising to a power equal to the numerator of the exponent outweighs the effect of taking the a root equal to the denominator of the fraction. Conversely, if it is less than one, the exponent is a "net root function" and the effect of taking the root outweighs that of raising to the power.

As set out in the "simple" explanation of the ELF, the value of one minus the ratio of PEL to TP is always less than one and can range all the way down to zero. For numbers between zero and one, the effect of a "net power function" is to make the result smaller than the starting number. For example, 0.9 squared is 0.81; 0.01 to the fifth power is 0.0000000001; 0.5 to the "1.000001"-th power is 0.499999653. Conversely, the effect of a "net root function" on this range of numbers is to produce a larger number: the square root of 0.81 (0.81 raised to the "one half"-th power) is 0.9; the fifth root (the "1/5"-th or

"0.2"-th power) of 0.0000000001 is 0.01; and 0.5 to the "0.999999"-th power is 0.500000347.

The value of PEL therefore has an important but subtle effect on the exponent. If PEL corresponds to more than 460 barrels a day per well, the exponent becomes a "net root function" and makes the value of the ELF larger than the starting number to which the exponent is applied. On the other hand, if PEL is less than 460 barrels times the number of well days, the exponent is a "net power function" and makes the final value of the ELF less than the number to which the exponent is applied.

B. The PEL Presumption: To Rebut or Not to Rebut?
PEL appears twice in the oil ELF formula -- once in the exponent and once in the calculation of the number to which the exponent is applied:

$$ELF = (1 - [PEL/TP])^{([460 \times WD]/PEL)}$$

For oil there is a rebuttable presumption that PEL equals 300 barrels times the number of well days in the particular month. ^{36/} The presumption may be rebutted only once a year, and if it is rebutted, the value that is demonstrated to be the proper PEL must be used for that entire calendar year. ^{37/} If the presumption is not rebutted, then the formula for the ELF is, in effect, the following:

$$ELF = (1 - ([300 \times WD]/TP))^{(460/300)}$$

The decision to rebut the presumption or not, presents some subtle trade-offs that must be carefully considered before proceeding. On the one hand, if the presumption is not rebutted, then the exponent is a "net power function," which produces a result that is smaller than the number to which the exponent is applied. On the other hand, if the presumption is rebutted and shown to be greater than 300 barrels per well day, then the ratio of PEL to current production will be made greater, leaving a smaller number to which the exponent is applied. If the demonstrated PEL is still less than 460 barrels per well day, the exponent will remain a "net power function" although, as the value for PEL approaches 460 barrels per well day, the effectiveness of the exponent in reducing the number to which it is applied will diminish. The effects of rebutting the PEL -- that is, the reduction in the difference between one and the ratio of PEL to current production (that difference being the number

^{36/} AS 43.55.013(d).

^{37/} Id.

to which the exponent will be applied), and the "net power function" nature of the exponent -- will both be working in the same direction and reduce the ELF.

If PEL equals 460 barrels per well day, the exponent becomes exactly equal to one and has no effect at all on the number to which it is applied. The effect of rebutting the presumption is then simply the reduction in the difference between one and the ratio of PEL to current production, which will still yield a lower ELF than if the presumption were not rebutted.

Beyond 460 barrels per well day, the demonstrated PEL will turn the exponent into a "net root function," which will tend to offset the advantage to be gained by reducing the difference between one and the ratio of PEL to current production. Although that advantage always outweighs the offsetting effect of the exponent (in other words, it is always worth rebutting the presumption if possible, because doing so reduces the final value of the ELF), the extent to which this happens depends on how what the current average daily production per well is. The higher the production rate, the smaller the net effect is from rebutting the presumption.

The following table illustrates this for four cases: Case 1 has current average production of 500 barrels a day per well; in Case 2 it is 1,000 barrels a day per well; in Case 3, 5,000 barrels a day per well; and in Case 4, 10,000 barrels a day per well, corresponding roughly to the expectations in early 1977 for what would be the situation with the Prudhoe Bay field by the beginning of 1978. 38/

38/ The throughput capacity of TAPS represents a physical constraint on the rate of production from North Slope fields. TAPS had been planned to start up in three phases: the first at a throughput of 600,000 barrels a day; the second and 1.2 million barrels a day; and the third at 1.5+ million. Until the third phase was implemented, TAPS's throughput capacity represented the upper limit at which the Prudhoe Bay field could be produced (Phase 3 would be at or above the maximum efficient rate for Prudhoe Bay of 1.5 million barrels a day). By early 1977 the first two phases had been "telescoped" together, so that TAPS was expected to be at 1.2 million barrels a day by the end of the year. That was, of course, before the fire and explosion at Pump Station 8 while the pipeline was being filled. However, for purposes of analyzing the ELF, the assumptions used by the Legislature and the Administration reflected the planned 1.2 million-barrel-a-day rate of production from the field into TAPS, with approximately 120 producing wells.

<u>PEL</u>	<u>Case 1</u> <u>(TP=500)</u> <u>ELF</u>	<u>Case 2</u> <u>(TP=1,000)</u> <u>ELF</u>	<u>Case 3</u> <u>(TP=5,000)</u> <u>ELF</u>	<u>Case 4</u> <u>(TP=10,000)</u> <u>ELF</u>
300	0.245372	0.578740	0.909486	0.954370
400	0.157103	0.555743	0.908565	0.954140
450	0.095012	0.542741	0.908095	0.954023
460	0.080000	0.540000	0.908000	0.054000
470	0.063701	0.537208	0.907905	0.953977
500	-0-	0.528509	0.907618	0.953906
600	---	0.495351	0.906644	0.953670
700	---	0.453309	0.905641	0.953430
800	---	0.396362	0.904608	0.953187
900	---	0.308240	0.903544	0.952940
1000	---	-0-	0.902446	0.952690
2000	---	---	0.889149	0.949972

As the table shows, the effect of raising PEL by 100 barrels per well day from its presumed level of 300 is greatest in Case 1, dropping the ELF from 0.245372 to 0.157103. This reduction of 0.088269 in the ELF represents a tax reduction of 35.974 percent as the result of rebutting the presumption (0.088269 is 35.974 percent of the 0.245372 value of the ELF in Case 1 if the presumption is not rebutted). The reduction from similarly raising the PEL from its presumed rate steadily drops off as the rate of current daily production per well gets larger: the ELF is reduced by 0.022997 for the 1,000 barrel-a-day Case 2 (corresponding to a tax reduction of 3.974 percent); by 0.000921 for the 5,000 barrel-a-day Case 3 (tax reduction of 0.101 percent), and by a mere 0.000230 for Case 4 (tax reduction of 0.024 percent), the case approximating Prudhoe Bay as expected after the completion of TAPS start up. In fact, in the Prudhoe-type case, even showing a PEL of 1,000 barrels a day per well (which is about what PEL was then expected to be if the Prudhoe Bay producers had rebutted the presumption) would only reduce the ELF by 0.001680 from its value with the presumed PEL. Rebuttal of the presumption thus represented a potential tax reduction of only 0.176 of one percent.

The decision to rebut or not rebut the presumed PEL is thus seen to have a rule of diminishing returns, the larger the average of current daily production per well becomes. With a property with extremely productive wells, the potential advantage from rebutting the presumption may simply be too small to be worth the effort even though the property is in a high operating cost area of the state.

C. The ELF's Incentive to Continue Development Drilling in "Mature" Fields. Recent (1986) proposals to modify the ELF so that the presumed PEL is on a field-wide or

reservoir-wide basis instead of a per-well basis have overlooked the incentive that the present ELF offers for producers to continue development drilling in mature fields that are already producing at their maximum efficient rate (MER). This incentive is best illustrated by examining a particular example, rather than trying to describe it abstractly.

Suppose there is a field that is producing at its MER, which is 1,500,000 barrels a day, or 45,000,000 barrels in a 30-day month. Since this is the MER for the field, the 45,000,000 barrel figure will not change if another development well is drilled. Suppose further that there are already 500 producing wells in the field and that the presumption for PEL is unrebutted. What happens to the tax burden if the 501st development well is drilled?

Since the presumption for PEL is in effect, PEL can be replaced in the ELF formula by the expression $[300 \times WD]$. Thus the formula becomes:

$$ELF = (1 - ([300 \times WD]/TP))^{([460 \times WD]/[300 \times WD])}$$

Given how WD is in both the numerator and denominator of the exponent, it cancels itself out and the exponent can be simplified to 460/300. With 500 wells all operating every day in a 30-day month, the number of well days is 15,000. Using the simplified exponent and filling in the variables with the appropriate numerical values from this example, the ELF becomes:

$$\begin{aligned} ELF &= (1 - ([300 \times 15,000]/45,000,000))^{(460/300)} \\ &= (1 - (4,500,000/45,000,000))^{(460/300)} \\ &= (1 - (0.1))^{(460/300)} \\ &= 0.850822 \end{aligned}$$

Now if the 501st well is drilled, the number of well days will become 15,030, and the new ELF will be:

$$\begin{aligned} ELF &= (1 - ([300 \times 15,030]/45,000,000))^{(460/300)} \\ &= (1 - (4,509,000/45,000,000))^{(460/300)} \\ &= (1 - 0.100200)^{(460/300)} \end{aligned}$$

$$= 0.850532$$

While the difference in the ELF seems small -- a reduction of 0.000290 in the value of the ELF, or 0.034 percent -- its dollars-and-cents effect is not insignificant. If the field is still in its first ten years of production, the nominal tax rate is 15 percent. If it costs \$7.00 a barrel to get the oil to market, where it fetches \$15.00, the "wellhead" value is \$8.00. Assuming a one-eighth governmental royalty interest that is exempt from the Production Tax, the annual tax burden on this field with 500 wells would be:

$$\text{Tax} = (1,500,000 \text{ B/D}) \times (365 \text{ days}) \times (1 - 1/8 \text{ tax exempt share}) \times (\$8.00/\text{Bbl}) \times (15\%) \times (\text{ELF of } 0.850822)$$

$$= \$489,116,297$$

Now with 501 wells the tax becomes:

$$\text{Tax} = (1,500,000 \text{ B/D}) \times (365 \text{ days}) \times (1 - 1/8 \text{ tax exempt share}) \times (\$8.00/\text{Bbl}) \times (15\%) \times (\text{ELF of } 0.850532)$$

$$= \$488,949,583$$

In this example, drilling the 501st well results an annual savings of \$166,714 ^{39/} in the Production Tax. One must remember that the decision to drill each additional development well is a decision that must be made on its own merits. Past expenditures in developing the field may or may not have been good investments, but they are in any event irrelevant to the decision to spend additional money for further development. In contrast, a savings in the future Production Tax burden that will result from the drilling of an additional development well is definitely a factor to be weighed in the decision to drill that additional well or not, and it is one that helps tip the balance in favor of drilling it. Other favorable factors affecting the decision will be the ability to sustain production at the MER for a longer period of time if additional wells are drilled, and the likelihood that the amount of production ultimately

^{39/} It should be apparent from the calculation that the exact amount of tax savings to be realized from drilling an additional development well is also dependent on other factors as well, particularly the "wellhead" price. If in the example the market price had been \$25 instead of \$15, the tax savings would have been considerably greater -- \$375,106. Conversely, lower prices would have meant smaller tax savings.

recovered from the reservoir will be greater with more wells, both of which benefit the state as well as the taxpayer.

As this example shows, if the presumption regarding PEL has not been rebutted, all of the incentive provided under the present ELF is due to the fact that the presumed PEL is based on well days, which in turn depends on the number of development wells in operation. ^{40/} In other words, the only difference between the calculation of the ELF for 500 wells and the one for 501 wells is in the fact that there are 15,000 well days in the first and 15,030 in the second.

- ^{40/} It is a slightly different story if the presumption has been rebutted and PEL is established as a fixed number of barrels per month. There is still an incentive to drill the 501st well, but this time it is due to the fact that the well-days factor still appears in the numerator of the exponent even though it is no longer a factor in PEL (the denominator of the exponent). To illustrate how the ELF provides a drilling incentive when the presumption has been rebutted, let us start with the same figures as in the example in the main text and suppose PEL has been shown to be 9,000,000 barrels per month. With 500 wells the ELF is:

$$\begin{aligned}\text{ELF} &= (1 - 9,000,000/45,000,000) \frac{(460 \times 15,000)}{9,000,000} \\ &= (1 - 0.200000) \frac{6,900,000}{9,000,000} \\ &= 0.842757\end{aligned}$$

With 501 wells the ELF becomes:

$$\begin{aligned}\text{ELF} &= (1 - 9,000,000/45,000,000) \frac{(460 \times 15,030)}{9,000,000} \\ &= (1 - 0.200000) \frac{6,913,800}{9,000,000} \\ &= 0.842469\end{aligned}$$

In this example the difference in the ELF between having 500 producing wells and 501 is 0.000288. It is coincidental that this figure comes out so close to the difference in the ELF from drilling the 501st well in the example in the main text with the unrebutted presumption about PEL. The point being made here is that, if the presumption is rebutted, the present ELF still provides an incentive to drill another well.

APPENDIX A

A Review of How Exponents Work

Exponents can be sorted into two kinds: whole numbered exponents (1, 2, 3 etc.) and fractional exponents (1/2, 1/3, 2/3 etc.). The whole numbered exponents are the easiest to understand. Basically, a whole numbered exponent states how many times a particular number is to be multiplied by itself. For example,

$$4^3 = 4 \times 4 \times 4, \text{ and}$$

$$6^7 = 6 \times 6 \times 6 \times 6 \times 6 \times 6 \times 6.$$

Whole number exponents are often called "powers" -- in the two examples above, the first is four to the third power, the second is six to the seventh power.

Now suppose we want to multiply two numbers together, each of which is some power of the same number. What happens? Suppose we want to take four to the third power and multiply it by four to the second power. We already know that four to the third power is four times four times four, and four to the second power similarly is four times four. Thus,

$$\begin{aligned} 4^3 \times 4^2 &= (4 \times 4 \times 4) \times (4 \times 4) \\ &= 4 \times 4 \times 4 \times 4 \times 4 \\ &= 4^5 \end{aligned}$$

Notice that the exponent, 5, in the last line equals the sum of the two exponents, 3 and 2, of the numbers being multiplied together. One may draw from this example the following generalization: if a number, A, to the N-th power is multiplied by A to the M-th power, the product is A to the "N plus M"-th power, or

$$A^N \times A^M = A^{(N + M)}$$

(Remember, though, that it must always be the same base number that is being taken to the different powers and mul-

tiplied together, for this generalization to be true. A to the N-th power times B to the M-th power does not equal A times B taken to the "N plus M"-th power, nor does it equal just A to the "N plus M"-th power or B to the "N plus M"-th power. As a generalized statement, A to the N-th power times B to the M-th power equals A to the N-th power times B to the M-th power, and that's as simple as the statement can be made and still be a generalized statement. In limited kinds of cases it can be made into a simpler statement, but only when there are special values for A and B or special values for M and N, or both.)

Exponents have a similar property when division is involved instead of multiplication. Suppose we wish to divide five to fifth power by five to the third power (the third power of a number is called its "cube"; five to the third power is "five cubed"). The following shows what happens:

$$\begin{array}{r} 5 \\ 5 \\ \hline 3 \\ 5 \end{array} = \frac{5 \times 5 \times 5 \times 5 \times 5}{5 \times 5 \times 5}$$

$$= \frac{\cancel{5} \times \cancel{5} \times \cancel{5} \times 5 \times 5}{\cancel{5} \times \cancel{5} \times \cancel{5}}$$

$$= 5^2$$

Note that the exponent of the answer equals the difference between the exponent in the dividend (five to the fifth) and that in the divisor (five cubed). The generalization to be drawn from this example is that, when different powers of the same number are divided into each other, the exponent in the result equals the difference between those powers:

$$\frac{A^N}{A^M} = A^{(N - M)}$$

This generalized equation gives meaning to two special cases: the numbers one and zero when used as exponents. If N equals M plus one, then:

$$\frac{A^1}{A^1} = A^{(1 - 1)}$$

$$= \frac{A^N}{A^M}$$

$$= \frac{A^{(M+1)}}{A^M}$$

$$= \frac{A^M \times A}{A^M}$$

$$= A$$

Thus, any number to the first power equals that number. (The preceding demonstration does not apply when A equals zero, because it would involve dividing by zero; however, the generalization still applies in the case of zero, so that zero to the first power is zero.)

Now, to get the zero-th power, N and M must be equal, and then the following happens:

$$A^0 = A^{(N-M)}$$

$$= \frac{A^N}{A^M}$$

$$= \frac{A^N}{A^N}$$

$$= 1$$

Therefore, any number (except zero itself) raised to the zero-th power equals one.

Now, what happens if a number being raised to some power is itself the power of another number? For example, four is two to the second power (the second power of a number is its "square"; two to the second power is "two squared"). What is four cubed if it is converted into powers of two?

$$\begin{aligned}
 4^3 &= 4 \times 4 \times 4 \\
 &= (2^2) \times (2^2) \times (2^2) \\
 &= (2 \times 2) \times (2 \times 2) \times (2 \times 2) \\
 &= 2 \times 2 \times 2 \times 2 \times 2 \times 2 \\
 &= 2^6
 \end{aligned}$$

In other words,

$$[2^2]^3 = 2^6$$

Notice that the exponent 6 in the answer equals 2 times 3. Once again this example gives rise to a generalization: if the quantity, A to the N-th power, is itself raised to the M-th power, the result equals A to the "N times M"-th power:

$$[A^N]^M = A^{(N \times M)}$$

When a number is raised to the N-th power, we are asking what the product is of multiplying one by that number N times. The N-th root of a number works the other direction. For a given number, it asks what number, when raised to the N-th power, will yield that given number. Thus, two is the cube root of eight, because two cubed (i.e., two times two times two) equals eight.

To show the N-th root of a number (call it A), the exponent is the fraction 1/N. The reason for having 1/N as the exponent to show the N-th root of a number is as follows: Let R stand for the N-th root of A. then by definition R to the N-th power equals A, or in mathematical terms:

$$R^N = A$$

Now let X stand for the exponent applied to A that is to be used to signify the N-th root of A; In other words, A to the X-th power equals the N-th root of A, which is R. In mathematical terms again, this is:

$$A^X = R$$

Substituting A to the X-th power in the second equation above gives the following:

$$R^N = \left[A^X \right]^N = A$$

Just a little bit above we showed that if the N-th power of a number is itself taken to the M-th power, the result equals that base number taken to the "N times M"-th power. Hence,

$$\left[A^X \right]^N = A^{(X \times N)} = A^1 = A$$

Since A to the "X times N"-th power equals A to the first power, then the exponents, although expressed differently, must be equal. So, X times N equals one. Therefore, X equals one divided by N, or 1/N. Since R, the N-th root of A, equals A to the X-th power, and since X equals 1/N, then R equals A to the "1/N"-th power. Q.E.D.

It is now but a simple step to understand what fractional exponents do. If the exponent is a fraction, M/N, it simply means that the N-th root of the base number is found and then that root is raised to the M-th power, or alternatively, that the base number is first raised to the M-th power and then the N-th root is taken. In mathematical terms:

$$\begin{aligned} A^{(M/N)} &= A^{[(1/N) \times M]} \\ &= \left[A^{(1/N)} \right]^M \end{aligned}$$

or

$$\begin{aligned} A^{(M/N)} &= A^{[M \times (1/N)]} \\ &= \left[A^M \right]^{(1/N)} \end{aligned}$$

It does not matter which is done first, taking the N-th root or raising to the M-th power, as a brief example will show. Suppose we want to take eight to the two-thirds power. The cube root of eight is two, which when squared equals four. Now, reversing the order between taking the root and raising

to the power, the square of eight is 64; the cube root of 64 is four. Both ways, the answer is four.

Fractional exponents expressed in decimal terms are no different from any other fractional exponent. Thus,

$$A^{0.125}$$

is simply the 125th power of the 1,000th root (or equivalently, the 1,000th root of the 125th power) of A. If, as here, the fraction can be simplified (0.125 equals 1/8), there is no change in the result if the simpler fraction is substituted (nor would there be if a less simple form of the same fraction were substituted for a simple one). The 125th power of the 1,000th root of A is exactly equal to the eighth root of A:

$$A^{0.125} = A^{(1/8)}$$

SECTION IV

REVENUE ALTERNATIVES REPORTS

MEMORANDUM

State of Alaska

TO: Vincent D. Wright
Chief of Research
Department of Revenue

DATE: January 10, 1986

FILE NO:

TELEPHONE NO: 465-2173

FROM: Mary Ellen Frank, Economist
John Larson, Economist
Bob Elliott, Research Analyst
Dave Tonkovich, Economist
Department of Revenue

SUBJECT: Alternative Means
of Increasing
Revenues

Current revenue projections for fiscal years 1986 through 1988 indicate that revenues generated by petroleum related activities, Oil and Gas Corporate Net Income Tax, Oil and Gas Property Tax, Oil and Gas Severance Tax and Oil and Gas Royalties will comprise over 84 percent of total unrestricted General Fund Revenues for the period. Therefore, state government is presently very dependent on these sources of revenue. In the future as oil production from the Prudhoe Bay field begins to decline, finding sources of additional revenue will become increasingly important. Prudhoe Bay oil production has already peaked and is currently projected to decline from over 1.5 million b/d in fiscal year 1984 to under 300,000 b/d by fiscal year 2000 which represents a compound annual average rate of decline of 10.3 percent. Other North Slope fields which are currently projected to begin producing will only partially offset this decline and total North Slope oil production is currently projected to peak at 1.806 million b/d in fiscal year 1987 and decline thereafter at a compound annual average rate of 10.15 percent with just under 450,000 b/d being produced in fiscal year 2000.⁽¹⁾ These projections are based only on the development of presently known and economically developable reserves. Additional discoveries may be made in the future, but, their development as well as the development of some currently known but high cost reserves is highly dependent on the future growth of real oil prices. In addition, these future discoveries may be made on federal OCS lands from which the state would receive little or no revenues. Future petroleum revenues are therefore both exhaustible and highly uncertain.

The purpose of this memo is to present some alternative means of increasing revenues. Advantages and disadvantages, as well as preliminary estimates of fiscal impact will be outlined for each alternative. It should be noted at the outset, however, that it will be practically impossible to replace petroleum revenues with taxes on

(1) Petroleum Production Revenue Forecast, Quarterly Report December 1985. Alaska Department of Revenue, Petroleum Revenue Division.

individuals or other industrial sectors given the present structure of the Alaskan economy. In fiscal year 1984 the gross wellhead value of North Slope oil production was approximately \$10.6 billion⁽²⁾ while the estimated gross product of all other nongovernmental industrial sectors was only \$8.7 billion and total disposable personal income was \$6.8 billion. In addition, oil production is a very high profit sector and is thus able to support much higher levels of taxation than other more marginal industrial sectors. Also, currently many other industries are supported, directly and indirectly through state government spending of oil revenues, by the oil industry.

The table following on pages three and four summarizes only the projected quantitative impact of these various proposals. In general, the issues which should be considered with respect to measures to increase revenues, i.e., tax law changes are as follows.

Economic Efficiency: What effect does the proposed tax law change have on incentives and economic decision making which may alter consumption, production or resource allocation decisions? Equity: Who bears the burden of the tax and how does that burden compare with ability to pay or benefits received? Is the tax progressive or regressive with respect to income and/or wealth? Elasticity: What is the sensitivity of the tax revenue yield to changes in economic or demographic conditions? As income or population increase and decrease does tax revenue increase or decrease in greater, lesser or equal proportion? Administrative Efficiency: How costly is the tax to administer in terms of resources devoted to administration and compliance relative to the revenue yield of the tax? Who bears the burden of administrative cost, the taxpayer, the State or the tax collector if different from the State? Political Feasibility: How acceptable is a proposed tax law change to the Legislature and/or the electorate given existing social, political, and economic conditions? Who benefits, who loses, and who has the most political power?

(2) Ibid.

Summary Table
(Millions of Dollars)

<u>Tax</u>	<u>Change</u>	<u>FY</u>	<u>Projected As Is</u>	<u>With Change</u>	<u>Difference</u>
Individual Income Tax	Reenact	86	-	308.9	+308.9
	Old	87	-	330.0	+330.0
	Law	88	-	352.0	+352.0
Individual Income Tax	Enact New	86	-	86.7	+86.7
	Flat Rate	87	-	88.1	+88.1
	Tax	88	-	89.5	+89.5
	Revenue per One Percent Tax Rate				
Corporate Income Tax	Increase	86	249.8	334.6	+84.8
	Rate In	87	266.4	358.9	+92.5
	Upper Income	88	267.9	360.9	+93.0
	Categories (Both Oil and Gas and non Oil and Gas Corp.)				
Business License Tax	Reinstate	86	2.0	33.7	+31.7
	Gross	87	2.0	38.1	+36.1
	Receipts	88	2.0	40.4	+38.4
	Retain 100%				
	In GF, At	86	2.0	55.9	+53.9
	Old Rates	87	2.0	60.0	+58.0
	and With	88	2.0	64.3	+62.3
	Flat Rates				
Alcohol Tax	Double and	86	14.0	27.1	+13.1
	Add CPI	87	14.0	31.9	+17.9
	Inflator	88	14.1	34.8	+20.7
Cigarette Tax	Add CPI	86	5.7	5.7	+0.0
	Inflator	87	7.8	8.7	+0.9
	Cont. 5¢/ Pack to	88	7.8	9.3	+1.5
	School Fund				

(Millions of Dollars)

<u>Tax</u>	<u>Change</u>	<u>FY</u>	<u>Projected As Is</u>	<u>With Change</u>	<u>Difference</u>
Highway Fuel Tax	Double and	86	22.5	41.2	+18.7
	Add CPI	87	22.5	47.5	+25.0
	Inflator	88	23.0	51.5	+28.5
Aviation Fuel Tax	Double &	86	8.0	15.7	+7.7
	Add CPI	87	8.0	16.3	+8.3
	Inflator	88	8.0	17.6	+9.6
Marine Fuel Tax	Double &	86	4.6	8.7	+4.1
	Add CPI	87	4.7	10.8	+6.1
	Inflator	88	4.7	12.4	+7.7
General Sales Tax	Enact	86	-	40.8	+40.8
	With and	87	-	42.5	+42.5
	Without Food	88	-	44.3	+44.3
	Exemption				
	Revenue Per	86	-	67.9	+67.9
	One Percent	87	-	70.8	+70.8
	Tax Rate	88	-	73.8	+73.8
License & Permits	Add CPI	86	38.3	39.7	+1.4
	Inflator	87	39.4	42.6	+3.2
		88	39.7	45.1	+5.4
	Enact	86	38.3	50.6	+12.3
	1% Vehicle	87	39.4	52.2	+12.8
	License Fee	88	39.7	53.1	+13.4
<u>Individual Income Tax</u>					

The Alaska Net Income Tax AS 43.20.011(a)-(d) could be reenacted to apply to individuals. If this were accomplished with the previous progressive rate schedule unchanged, the following amounts of additional revenue could be generated:

	<u>FY 86</u>	<u>FY 87</u>	<u>FY 88</u>
Individual Income Tax (millions \$)	308.9	330.0	352.0

These estimates are based on the most current REVENUE employment and income projections combined with previously estimated individual income tax equations.

In terms of equity the individual income tax is generally considered the "fairest" tax. The burden or incidence of the tax falls on the individual taxpayer and there is no opportunity for shifting of

incidence as with the corporate income or business type taxes. Given a progressive rate schedule, the tax burden is based on the "ability to pay" principle of taxation and the nominal incidence is progressive. That is, as income level of the taxpayer increases, the nominal tax rate also increases. It should be noted though that state income taxes are deductible when computing taxable income for federal income tax purposes if the individual itemizes deductions. This has the effect of reducing the burden on individuals with higher incomes who are subject to higher marginal rates at the federal level and are also more likely to be in a position to itemize. The effect is to reduce the progressivity of the tax burden at the state level. This effect will be reduced, however, in light of recent scheduled income tax rate reductions enacted at the federal level.

In terms of economic efficiency the effects of the individual income tax on consumption production and resource allocation decisions should be neutral as the tax is applied uniformly to all individuals. However, steeply progressive rates could result in general disincentives to engage in productive economic activity and incentives to shift income to tax sheltered or favored activities. Since the income tax at the state level is small relative to the federal income tax, this effect is not likely to be significant.

The income elasticity of individual income tax revenues, given progressive rates, is greater than one which is to say a given percentage change in income will produce a larger percentage change in tax revenues. Thus, during periods of income growth, individual income tax revenues will increase more than in proportion to the growth and, during periods of income decline, they will fall more than in proportion to the decline. This makes the individual income tax relatively unstable in terms of yield.

Reinstating the individual income tax after dismantling the administrative and compliance functions in the Department of Revenue could involve considerable start up costs. Audit and collection functions would have to be brought back on line. Personnel would have to be hired and trained, computer programs and procedures developed, etc. However, once the initial start up period was completed, administrative and compliance costs similar to previous levels relative to tax collections would probably be achieved.

The Alaska Net Income Tax law as it applies to corporations and as it applied to individuals before those sections were repealed is "piggy backed" on the federal income tax law. This means basically that the starting point for calculating Alaska taxable income is federal taxable income. The Alaska law follows the federal law as far as allowable deductions and exemptions are concerned unless specified otherwise. The state law specifies its own tax rate schedule which is independent of the federal rate schedules. This "piggy backing" has advantages and disadvantages. The advantages are primarily administrative and relate to audit, compliance and collections functions. When the IRS audits returns

and determines that there should be adjustments made they share this information with the state. This lowers the state's audit costs because it reduces the amount of information on a return the state must verify independently. The disadvantage of "piggy backing" is that when federal tax laws are changed relative to deductions and exemptions there may be an impact on state tax collections unless the state changes its tax law accordingly.

An alternative to reenacting the individual income tax as it was previously constituted might be to enact a flat rate tax on individual income allowing for no exemptions or deductions. Such a tax would be relatively simple to audit and would not be tied in any way to federal tax laws. Based on the assumption that the tax base would be individual wage and salary income, proprietor's income and dividend, interest and rental income, current projections of Alaska personal income indicate that such a tax could generate the following amounts of additional revenues per one percent of flat tax rate:

	<u>FY 86</u>	<u>FY 87</u>	<u>FY 88</u>
Individual Income Tax	86.7	88.1	89.5
Flat Rate			
(millions \$)			

These figures show the projected yield from a one percent tax rate so the yield from a higher tax rate can be calculated accordingly.

In terms of equity the incidence of a flat rate no deduction or exemption tax would be proportional with respect to income. That is, as the income level of a taxpayer increases the nominal tax rate remains the same and thus a constant proportion of income is taxed. Also, since no deductions are allowed there is no possibility of lowering the effective rate as is the case under a tax law with a nominally progressive rate schedule but which allows for deductions which can make the effective incidence of the tax much less progressive.

In terms of economic efficiency this type of tax would be more neutral than a progressive tax which allowed for deductions. There would be no incentive to engage in tax sheltered activities and less general disincentive to engage in productive economic activity and thus earn additional income.

The elasticity of the tax would be unitary with respect to income. This means that a given percentage change in income would result in an equal percentage change in tax revenues.

In terms of political feasibility, it is always difficult to reenact a tax after it has been repealed. This is especially so, as in the case of the individual income tax, when the tax was repealed only a short time before and the electorate has just readjusted their expectations accordingly. It is questionable whether the legislature would reenact

any form of the individual income tax unless an extreme fiscal emergency were to arise, such as a severe and prolonged drop in world oil prices.

Corporate Income Tax - Petroleum & Non-Petroleum

Corporate income tax rates could be raised. The existing graduated rate schedule could be extended by adding additional marginal tax rate categories. Presently all taxable income over \$90,000 is taxed at a rate of 9.4 percent for both petroleum and nonpetroleum corporate tax payers under the Alaska Net Income Tax Act, AS 43.20. If additional categories were added such that taxable income between \$1 million and \$4 million would be taxed at 10 percent, taxable income between \$4 million and \$10 million at 11 percent, taxable income between \$10 million and \$100 million at 12 percent, taxable income between \$100 million and \$500 million at 13%, taxable income between \$500 million and \$1 billion at 14% and taxable income over \$1 billion at 15% the following amounts of additional revenues are projected.

	<u>FY 86</u>	<u>FY 87</u>	<u>FY 88</u>
Corporate Income Tax (million \$)	84.8	92.5	93.0

In terms of equity, the corporate income tax is based on the benefit principle of taxation. Corporations benefit from the privilege of doing business in a state and also from government services provided. Therefore, they should pay part of the costs of government. Also, corporations are considered to have an ability to pay taxes separate and distinct from their owners who receive dividends and who are taxed under the individual income tax. This is especially true of modern large scale corporations which command extensive resources and which are controlled by professional managers who may not be equity owners. The actual incidence of the corporate income tax is uncertain and varies among industries and firms depending on market conditions which may constrain shifting of the tax burden. Although the corporation pays the tax, the burden may fall on equity owners, employees, suppliers or consumers of products produced by the corporation. It is, therefore, not possible to say whether the effective incidence is progressive or regressive even with a nominally progressive rate structure. It is possible, however, that at least part of the burden is shifted out of state to nonresident equity owners and consumers. Also, the total burden of state corporate taxes is diminished by the provisions which allow the deduction of state corporate income taxes from taxable income when computing federal taxable income.

The economic efficiency effects of the state corporate income tax should be neutral vis-a-vis consumption and production decisions as it applies uniformly to all corporations. It is possible that extremely high marginal rates could affect locational decisions by industry, all other factors being equal. This is, however, not likely, especially in

Alaska where locational decisions of major industries tend to revolve around proximity to resources.⁽³⁾ Also the state corporate income tax is relatively insignificant when compared to the level of corporate income taxation at the federal level.

The tax yield from the corporate income tax under AS 43.20 is not entirely or even primarily a function of in-state economic activity, i.e., employment, population and income growth. While there are a number of corporate taxpayers who are totally domestic within Alaska, the majority of the tax is collected from multistate nonpetroleum and petroleum corporations. Since these corporations apportion their worldwide income when computing their state tax liability, the elasticity of tax yield relative to economic growth within Alaska is difficult to determine but probably relatively low. That is, the corporate income tax is probably fairly stable relative to changes within the Alaskan economy. Eliminating the recently enacted graduated rate schedule for the lower income categories would tend to make the tax yield even more inelastic, i.e., stable. Continuing the progression of the graduated tax rates to higher income categories into which the petroleum corporate taxpayers fall would tend to increase the elasticity of the tax yield to changes to worldwide petroleum corporation income.

Changing the tax rate schedule would not entail any significant additional administration and compliance costs. It is likely, however, additional resources devoted to audit and collection compliance relative to the corporate income tax would prove cost effective in generating additional collections.

In light of all changes which have been enacted relative to both petroleum and nonpetroleum corporate taxes over the last several years, the political feasibility of enacting another such change should be considered.

Gross Receipts Business License Tax

The gross receipts tax portion of the Alaska Business License Act, AS 43.70, could be reenacted. Currently under AS 43.70 all persons or businesses must purchase annually a business license costing \$25 for the privilege of engaging in a business in the state. Previously, before it was repealed, businesses with certain exceptions paid a tax on their gross receipts equal to one-half of one percent on gross receipts between \$20,000 and \$100,000 and one-quarter of one percent on gross receipts

(3) As reference see the following: State Taxation and Economic Development, Roger J. Vaughan, Council of State Planning Agencies, 1979. Tax Incentives and Capital Spending, Gary From, Ed., The Brookings Institution, 1971.

in excess of \$100,000. If this gross receipts tax were reenacted with previously existing rates, the following additional revenues would be generated:

	<u>FY 86</u>	<u>FY 87</u>	<u>FY 88</u>
Business License Tax (millions \$)	31.7	36.1	38.4

If the gross receipts tax were reenacted but if the previous regressive rate structure were replaced with a flat rate of one-half of one percent on all gross receipts in excess of \$20,000 the additional revenues would be as follows:

	<u>FY 86</u>	<u>FY 87</u>	<u>FY 88</u>
Business License Tax (millions \$)	53.9	58.0	62.3

It should also be noted that the previous gross receipts tax was shared back 60 percent to local incorporated areas where the receipts were earned. If this aspect were also reenacted, the net to the state would be approximately 40 percent of the above amounts.

In terms of equity, the ultimate incidence or burden of the gross receipts business license tax is uncertain due to possible shifting, as is the case with the corporate income tax. The burden may rest variably on the business equity owners, employees, suppliers or consumers. Therefore, the relative progressivity of the tax burden is difficult to determine. However, it should be noted that the previously existing rates were nominally regressive in and of themselves. Part of the burden is probably exported out of state to nonresident owners and consumers. This tax is supposedly levied on a business for the privilege of doing business in the state. However, it has little justification under either the ability to pay or benefit principals of taxation. Under a net income tax both the ability to pay and the benefit a business derives from doing business in the state are considered. Net income, however, is not necessarily a function of gross receipts. A gross receipts tax discriminates against high volume-low profit or low per unit profit operations, especially those which cannot easily shift the tax to consumers due to competition.

If a gross receipts tax is applied uniformly to all business, it should not distort consumer choices or resource allocation. If the rate, however, were increased much above the previous low levels, the tax could have a significant negative effect on marginally profitable businesses.

The elasticity of the tax yield under a gross receipts tax is uncertain. Sales in some industries are more sensitive to economic

expansion and contraction than others, so overall industry composition would affect elasticity. Also, the rate structure has some effect. Under the previous regressive rate structure, the revenue yield would be less elastic than if a flat rate structure were enacted.

Administration of a reenacted business license gross receipts tax would pose no major problems. The business license fee has been kept in effect so the Department has kept track of potential business taxpayers. Some start up, hiring and retraining, costs would be incurred. Also, additional audit and collection resources may have to be devoted especially if rates were increased significantly.

Politically, reenactment of the gross receipts tax is very questionable. The tax was always very unpopular due mainly to equity considerations mentioned above.

Selective Sales and Excise Taxes
Alcoholic Beverage Excise Tax and Cigarette Tax

The excise tax rates under the Tobacco Tax, AS 43.50, and the Alcoholic Beverage Tax, AS 43.60, could be increased. If the alcohol tax rate was doubled and allowed to increase with inflation, the following additions to revenue would result (assuming an annual inflation rate of 5.5 percent in FY 86 and 6.0 percent in FY 87):

	<u>FY 86</u>	<u>FY 87</u>	<u>FY 88</u>
Alcohol Tax (million \$)	13.1	17.9	20.7

The initial increases which would be equal to the present rates per six pack of beer would be 20¢, per liter of wine would be 22¢, and per fifth of liquor would be \$1.12. These would increase with inflation, so by 1987 the cost difference attributable to tax increases would be 24¢ per six pack of beer, 26¢ per liter of wine, and \$1.38 per fifth of liquor.

If the cigarette tax was allowed to increase with inflation, and the contribution amount per pack to the School Fund held constant at 5¢ per pack, the following additional General Fund amounts would be realized:

	<u>FY 86</u>	<u>FY 87</u>	<u>FY 88</u>
Cigarette Tax (millions \$)	0.0	0.9	1.5

If the contribution rate to the School Fund was held to a constant 5/8 ratio, the above estimates would drop by about 70 percent. The initial increase which would be equal to the present rate per pack of cigarettes times the CY 85 expected inflation rate of 4.0% or 8.32¢. This would rise with inflation to almost 9.1¢ in 1988.

Selective sales taxes on alcoholic beverages and cigarettes are usually justified on two grounds. First, they are sumptuary in nature. They are said to be levied so as to reduce consumption of products which are considered harmful to individuals, especially when consumed in excessive quantities. In practice, however, due to inelastic demand and strong individual preferences for these products, these taxes are not high enough to have this effect. Second, these taxes are said to be justified due to the social costs imposed on society as a whole by drinkers and smokers; auto accidents, crime, alcohol rehabilitation, lung disease, etc. Rates could, therefore, be based on estimates of these social costs. The incidence of these taxes is regressive on consumers of alcohol and tobacco. That is, alcohol and tobacco expenditure represent a relatively larger proportion of income for lower income smokers and drinkers than for those with higher incomes. In addition, these taxes discriminate against individuals based on personal preferences and against businesses which sell these taxed commodities.

In terms of economic efficiency, these taxes have the effect of making alcohol and tobacco relatively more expensive as compared to other commodities, thus altering consumer choices and resource allocation. However, due to inelastic demand for these products, this effect is probably not very great.

As mentioned above, the demand for alcohol and tobacco products is inelastic relative to price. Thus an increase in the tax rates on these products would have a relatively small effect on consumption and the tax yield would increase almost proportionately to the rate change. Tobacco consumption is almost totally a function of population size and tastes. A certain percentage of the population is going to smoke regardless of the price they have to pay, within reason of course. So as population size increases the yield from the tobacco tax should show a stable increase relative to population. Alcohol consumption is also a function of population and tastes, but income also plays a role. As income increases, there is a tendency for individuals to consume more liquor and wine as opposed to beer which are taxed at higher rates. This effect causes the elasticity of the alcohol tax to be greater relative to income.

As the alcoholic beverage tax and the tobacco tax are already in place, changing the tax rates would not increase administration or compliance costs.

The political feasibility of increasing excise taxes on alcohol and cigarettes is uncertain. If increases in rates were tied to estimated social or even governmental costs resulting from smoking and drinking, it might be possible to convince legislators of the validity of such a rate change. However, given the high per capita consumption of these products especially alcohol in Alaska, it is doubtful that a rate increase would be very popular. It should be noted, however, that the rates on alcohol

were increased by approximately 40 percent, from 25¢ to 35¢ per gallon of beer, from 60¢ to 85¢ per gallon of wine and from \$4.00 to \$5.60 per gallon of liquor in July 1983. The legislature enacted these rate changes partly in response to consideration of the increasing social costs of alcohol consumption.

Selective Sales and Excise Taxes

Motor Fuel Tax

If all fuel taxes were doubled and allowed to increase with inflation, the following additions to revenue would result:

	<u>FY 86</u>	<u>FY 87</u>	<u>FY 88</u>
(Million \$)			
Highway Fuel Tax	18.7	25.0	26.5
Aviation Fuel Tax	7.7	8.3	9.6
Marine Fuel Tax	4.1	6.1	7.7

In terms of equity, the Highway Fuel Tax is based on the benefit principle of taxation. An individual's consumption of fuel is generally proportional to their use of state highways and roads and the benefit they derive from state highways and roads is proportional to their use. Thus, the highway fuel tax is usually considered to be a tax in lieu of a charge as it would not be practical to set up every state highway or road as a toll road. The existing tax rates do incorporate a partial refund for off highway use of fuel as in the case of construction, logging, or recreational use. Aviation and marine fuel are taxed at different rates also. The incidence of the tax is on both consumers of highway fuel and consumers in general. A portion of the tax is paid by business on the fuel they use in producing goods and services and is passed on to consumers in general. A common incidence assumption is two-thirds on consumers of fuel and one-third on consumers in general. The incidence is also regressive as fuel expenditures represent a larger percentage of income for low income as compared to high income taxpayers. Part of the incidence is shifted out of state to nonresident tourists who consume fuel within Alaska.

In terms of economic efficiency this tax has the effect of making fuel relatively more expensive as compared to other commodities, thus altering consumer choices and resource allocation. This could be considered a partial justification for the tax as it could encourage conservation of scarce petroleum resources.

In practice the demand for fuel is fairly inelastic relative to price changes over the short term and within a reasonable price range. Thus the yield from this tax should be fairly stable and increase proportionally to any rate increase. Although as we have seen from recent national and worldwide fuel consumption trends, over the long

run demand for fuel is responsive to price changes and the level of the economy in general. The current worldwide over supply of petroleum is due partly to conservation measures in the major consuming nations. As population in Alaska increases, the highway fuel tax should show a proportional increase and yet it should be relatively insensitive to short term changes in income levels.

The administrative and compliance organizations are already in place and changing the rates would not entail any additional costs.

The political feasibility of rate changes in the highway fuel tax should be considered in light of the current decline in fuel prices due to worldwide excess supply of petroleum products relative to demand. Any rate changes could be based on estimated revenue requirements related to state construction and maintenance of highways and roads.

General Sales Tax

A general sales tax could be enacted at the State level. Alaska currently has no sales tax at the State level, however seven boroughs and fifty-nine smaller municipalities do levy some form of sales tax. The rates levied range from one percent to five percent with six percent being the maximum a municipality is allowed to levy under AS 29.53.415. The base upon which these rates are levied also varies with different exemptions being allowed in various communities. If a sales tax were enacted at the State level it would be in addition to the tax at the local level, however, it should be noted that Anchorage and Fairbanks, the two most populous municipalities in the State currently have no sales tax.

Currently forty-five of the fifty states levy some form of sales tax at the state level. Sales taxes are a significant source of state government revenues in most of the states which levy them. The sales tax base varies considerably as to exemptions allowed and the degree to which services are taxed from one state to another. Food purchases, except restaurant meals and alcohol, are exempt in twenty-eight of the forty-five states. Prescription drug purchases are exempt in forty-three states. Gas and electric utility bills are exempt to some degree in thirty-two states. Five states exempt clothing purchases to some degree. Also, nine states allow some credit for sales taxes paid against state income tax liability. These various exemptions and credits are meant to ameliorate the regressive incidence of the sales tax. Services are taxed very comprehensively including all personal and professional services in only three states. Twenty-five states either tax no services or tax services very narrowly and selectively such as laundry and cleaning or advertising and selected business services. The remaining seventeen states tax services to a considerable degree although not comprehensively with most exempting professional services. The rates levied on taxable purchases of goods and services also varies

considerably from state to state with a low of three percent to a high of seven and one half percent. The median rate levied by states which exempt food is five percent and by those which do not exempt food is four percent.

In examining the revenue yield from sales taxes per one percent of tax rate in various states relative to the state's personal income the major distinguishing factor seems to be whether food is exempted from the tax base. In states exempting food the sales tax yield as a percent of personal income per one percent of tax rate averages about 0.45 percent. In states not exempting food the sales tax yield averages about 0.75 percent of personal income per one percent of tax rate. It should be noted that there is considerable variation in the yields within the two groups of states depending on the taxation of services, the allowances for exemptions, the level of tourist activity and the absolute level of per capita personal income. With regard to Alaska the last two factors are of particular interest and may tend to offset one another. Since Alaska has a comparatively high level of tourist activity relative to its population and personal income it would be expected that the yield ratio from a sales tax compared to personal income would tend to be higher than average. However, since Alaska has comparatively high per capita personal income the percentage of personal income spent on taxable consumption purchases and hence the yield ratio from a sales tax relative to personal income would tend to be lower than average. Thus for purposes of estimating the probable yield from a sales tax the average values above were used.

Based on current projections of Alaska personal income the probable revenue yield from a one percent sales tax would be as follows:

	<u>FY 86</u>	<u>FY 87</u>	<u>FY 88</u>
Sales Tax Revenue (millions \$)	40.8-67.9	42.5-70.8	44.3-73.8

The two figures shown for each year represent point estimates of the probable sales tax revenues with and without a food exemption. Also note these figures are for a one percent tax rate so the yield from a higher tax rate can be calculated accordingly.

In terms of equity, the incidence of a retail sales tax is on the individual and business consumers of the taxed goods and services. There is no opportunity for shifting incidence of purchases by individuals. However the portion paid by businesses will ultimately be shifted to consumers of the goods and services those businesses produce. At least part of the burden will be exported to nonresident tourists who make purchases within the state. This can be a significant factor in states with large tourist industries. The incidence relative to income is regressive as the tax is levied on consumption and low income individuals consume a greater percentage of their income. ~~Also the fact that sales~~

~~taxes are deductible when computing taxable income for federal income tax purposes combined with progressive income tax rates has the effect of making the effective incidence of the sales tax even more regressive.~~ Sales taxes also discriminate against individuals on equal income levels who have higher than average consumption due to family size or taste. Thus the sales tax exhibits some inequity both vertically between income levels and horizontally across given income levels. The regressivity of the sales tax has been ameliorated in many states by either exempting food or other necessity purchases from the sales tax or allowing individuals to claim a credit against their state income tax liability. Finally, it should be noted that in a relatively affluent society in which most individuals are consuming at levels far above subsistence, the regressivity of the sales tax may not be a significant factor as far as equity is concerned. This is probably the case in urban Alaskan communities but may not be for some rural/bush areas.

If a general retail sales tax is levied at a uniform rate on all goods and services and is applied to a broad base it should not distort consumer choices or alter resource allocation. Therefore, as concerns economic efficiency, the tax should be neutral. For this reason as well as for administrative and compliance reasons, it is preferable to address the regressivity of the sales tax by allowing individuals to claim a credit against their state income tax liability (if one exists) rather than to grant specific exemptions to certain commodities such as food.

The yield from a retail sales tax is usually fairly stable especially if it is broad based. This is because consumption expenditures are fairly inelastic relative to short term fluctuations in personal income. Individuals tend to hold their consumption at a certain level and allow their savings to vary in the short term. As income, population or prices increase over time the yield from a flat rate sales tax should increase proportionally. If, however, real per capita personal income increases substantially over time, the percentage of personal income spent on taxable consumption as opposed to savings and investment may decline. Thus it can be said that the revenue yield from a flat rate sales tax is relatively inelastic as compared to the yield from a progressive rate individual income tax.

In terms of administrative efficiency, the enactment of a completely new tax at the state level would entail considerable start up costs. In states with well established sales tax procedures, administration costs run about two percent of sales tax collections. In addition, many states also compensate retailers, upon whom the major burden of compliance and collection falls, between one and five percent of collections. Cost in Alaska could be higher due to Alaska's relatively small population size and large geographic area as well as high start up costs. With a sales tax there is a smaller number of taxpaying units (retailers) than with an individual income tax and so, to some extent, administration and compliance costs tend to be lower. Sales taxes, however, do require extensive audit and delinquency programs especially if there are exemptions from the tax base such as food which provide an opportunity

for tax cheating. Alaska currently has some communities with local sales taxes, however, they vary widely in both rate and base. One administrative option would be for the state to collect both local and state sales taxes and return the local portion. This would necessitate consistency in tax base but may allow some local communities to lower their tax rate and still collect the same amount of revenues as the base would be broadened. This option would slightly increase administrative costs to the state compared to without sharing and localities would lose some discretion over their own tax structure.

In terms of political acceptability, sales taxes have been traditionally supported by higher income groups fearing increased property or income taxation. They have been opposed by labor organizations primarily on equity grounds and retailers who feared loss of business and compliance costs. Sales taxes are not as visible as income taxes in that the tax is levied in small bits each time a purchase is made rather than in larger amounts through payroll withholding or payments at year end. Since Alaska has never had a state sales tax, it is questionable whether the legislature would enact such a major new tax on individuals until oil revenues decline significantly.

Licenses and Permits

Licenses and permits, including corporation/occupational licensing fees (AS 02.05, AS 08.01-.99, AS 10.05-.35, AS 21.06-.90), motor vehicle fees and permits (AS 05.30, AS 28.10-.15, AS 42.10), alcoholic beverage licenses (AS 04.10), amusement and gaming fees (AS 43.35) and fishing and hunting licenses (AS 16.05 and AS 16.43), could be increased. If all the licenses and permits were allowed to increase with inflation, the following additional General Fund and Fish and Game Fund amounts would be realized:

	<u>FY 86</u>	<u>FY 87</u>	<u>FY 88</u>
Licenses & Permits (millions \$)	1.4	3.2	5.4

If revenues from licenses and permits are still considered insufficient, a vehicle license fee could be enacted. The vehicle license fee could be levied at the time of registration in lieu of a property or ad valorem tax at a rate of 1% of vehicle market value. The following additional revenues could be generated:

	<u>FY 86</u>	<u>FY 87</u>	<u>FY 88</u>
Vehicle License Fee (millions \$)	12.3	12.8	13.4

Regulatory licenses and permits are not generally included in a tax study since they are not imposed for the purpose of raising revenue due to being insufficient revenue generators. On the other hand, license and permit charges by the state should be sufficient to recover the direct costs of administrating and policing the regulatory activities. Further, all costs should be considered, not merely those directly incurred by government in the production of the service. Regulatory charges must include those indirect costs to society such as, in the case of motor vehicle licenses, the costs of highway construction and maintenance and, in the case of alcoholic beverage licenses, the costs arising out of excessive use of alcohol.

In terms of equity, license and permit charges are not mandatory use taxes, but are dictated by the principle that persons pay for what they get. Thus, a person can be excluded from the benefits of the service if he does not wish to pay for it. Although license and permit charges by the state do not result in inequities to lower income groups, equity standards require that these lower income groups be assured of obtaining and affording these services.

The use of charges where possible instead of financing by taxation is regarded as justifiable when demand for the services has some elasticity, so that the use of hunting and fishing fees aids resource allocation and lessens waste. Other services not so easily subject to waste may have inelastic demand, but charges may be warranted on equity grounds alone and by the fact that persons or businesses subject to the provisions generally receive benefits from the state of comparable value.

The use of regulatory charges appears to have less adverse effect upon behavior than taxes (which are mandatory in nature) and therefore may appear more palatable politically. However, most licenses and permits for Alaska are either already under review and recently increased or comparable with charges in other states. In an attempt to equalize the operating budget with revenue, the occupational licensing fee structure was revised (Ch. 26 & 37, SLA 1985) to provide the additional revenue required. Currently the fee structure is under review and new fees will be implemented in the future. Both alcoholic beverage licenses and amusement and gaming fees could be slightly increased to be more in line with other states; however, current motor vehicle fees are all comparable with other states. Finally, fishing and hunting licenses were increased during the past two years, especially those regarding non-resident licenses. If additional revenue must be generated by substituting regulatory charges for taxes, then the costs must be balanced against the gains from the use of charges to determine the desirability of imposing them.

REVENUE ALTERNATIVES

**Excise Taxes
Fisheries Taxes
Licenses and Permits
December 1986**

Prepared by

**Alaska Department of Revenue
Research Section
Vincent Wright, Chief**

**Dave Tonkovich, Economist
Bob Elliott, Research Analyst**

MEMORANDUM

State of Alaska

TO: Vincent D. Wright
Chief of Research
Department of Revenue

DATE: January 6, 1987

FILE NO.:

THRU:

TELEPHONE NO.: 465-2173

FROM: Dave Tonkovich, Economist ST
Bob Elliott, Research Analyst ^{BE}
Department of Revenue

SUBJECT: Alternative Means of
Increasing Revenues -
Selective Sales Taxes,
Fisheries Taxes, and
Licenses and Permits

Selective Sales Taxes

Excise taxes are a common form of consumption tax levied on the sale of particular commodities or groups of commodities. Two main types of tax predominate: benefit taxes such as those levied on purchases of motor fuel and sumptuary taxes such as the excises on tobacco and alcohol.

Benefit taxes are rationalized as payments for services which yield measurable benefits to individuals. While it is usually not feasible to charge a motorist a user fee for each mile driven he can be indirectly charged through a tax on the amount of gasoline consumed.

Sumptuary taxes penalize consumption with the hope that this will diminish the use of products such as liquor or cigarettes. However, if such products have low demand elasticities (i.e. consumption responds relatively little when compared to price changes) there is a real question as to whether the sumptuary objective is attained.

Because these taxes have similar characteristics it is helpful to analyze the general features before the review of specific taxes.

Efficiency

Consumption taxes are never levied at a uniform rate on all goods and services and can significantly alter consumer choices and resource allocation. Excise taxes raise the price of the taxed commodity causing consumers to purchase less of the item. The economic effects of the tax depend largely on the demand and supply elasticities of the taxed item.

The burden of these taxes is borne in part by consumers and in part by distributors and producers. Most of the burden will fall on consumers where demand is relatively inelastic (consumption is reduced little relative to an increase in price). The burden will tend to fall on producers if they cannot reduce production as price declines. That is to say supply is inelastic.

Most excise tax revenues are raised from taxes on products for which demand is inelastic - tobacco, alcohol and gasoline. Supply in these industries is relatively elastic so most of the burden falls on

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consumers. Because consumption of these goods is not reduced much by the price increase the consumer has to reduce consumption of other commodities as well as those which are taxed. Because a wide range of other commodities are involved and because there is little incentive for resources to move out of the taxed industry, resource allocation is not altered significantly by taxes on these goods. This is in sharp contrast to the case of taxes on commodities which are sensitive to price as such levies can substantially alter the pattern of production and consumption. [See Joseph Pechman, Federal Tax Policy, Ch. 6)

Selective excise taxes such as those levied on motor fuel contribute to efficiency in that they collect payments from individuals who benefit from particular public services. When public programs such as the provision and maintenance of highways, airports or docks lower the cost of an activity, that activity is artificially stimulated. This causes more resources to flow into the activity than would occur in the absence of the public program. An excise tax, or some other means of charging for the service, is needed to maintain economic efficiency.

Taxes on items considered socially undesirable are sumptuary taxes and are rationalized on the grounds that their consumption creates additional costs to society which are not reflected in the price of the goods. For instance alcohol consumption leads to lost work time, family problems and accidents while the health hazards of tobacco products are well documented. The argument is made that the excise tax raises prices on these items to more accurately reflect these social costs.

Equity

Excise taxes can be criticized on equity grounds. Burdens are not distributed in accord with established principles of equity such as ability-to-pay. Rather the distribution depends on the proportion of income allocated to taxed items by various income groups. For instance, studies have found excises on beer and cigarettes to be very regressive.

Excise taxes are also criticized for their effects on people with similar incomes (Horizontal equity). Those who prefer the taxed commodities are taxed more than those who prefer other items. This argument is less critical in cases where there are valid social reasons for discouraging consumption or where user charges are impractical.

Finally excise taxes imposed on businesses may be passed onto consumers. Because lower income families spend a larger proportion of their income than do higher income families, this pass through is likely regressive. In summary, equity is frequently the major issue in evaluations of excise taxes.

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Elasticity

Excise taxes are not very elastic in that they respond no more than in proportion to changes in income. However the yield of such taxes is relatively stable which makes these taxes popular among state and local governments.

One problem with the taxes as levied in Alaska is that tax rates are expressed as a charge per unit of consumption. When rates are expressed in nominal terms the real tax rate can decline dramatically in periods with significant inflation. Two alternatives to this problem would be the periodic adjustment of rates to reflect inflation or the imposition of the tax as a percentage of sales value. For instance, 11 states employ ad valorem taxes on alcohol. The City of Juneau adds 3% to its 4% sales tax rate for purchases of alcohol.

Administration and Compliance

Probably the main attraction of excise and other consumption taxes is their relative ease of administration. In most cases there are relatively few firms or individuals who need to be monitored by tax authorities. Most difficulties arise in determining if a particular transaction or activity creates a tax liability. In some states problems occur because lower tax rates in bordering states lead to a loss of business and smuggling. Such interstate problems would be minimal in Alaska.

Political Considerations

Private and public concerns about health and problems caused by alcohol consumption generate some support for the sumptuary taxes. Because fuel prices have stabilized or started to decline in the state there is probably less resistance to tax increases on fuels than would have been the case several years ago. Problems could arise if a number of excise taxes were raised simultaneously with other taxes as this could be burdensome particularly for low income groups.

Cigarette Tax

The present cigarette tax is 8 mills per cigarette with 5.5 mills (68.75% of revenues) going to the general fund and 2.5 mills (31.25% of revenues) going to the school fund.

The January 1986 revenue forecast used these estimates of cigarette consumption:

Taxable Cigarettes
(Millions of Cigarettes)

<u>FY 87</u>	<u>FY 88</u>	<u>FY 89</u>
1,264.9	1,202.4	1,154.6

General Fund revenues for 1987 should be approximately \$7 million dollars with School Fund revenues of \$3.2 million. For a package of 20 cigarettes the 8 mill rate translates to \$.16 per pack. The highest rate among other states is Maine with a tax of \$.28 per pack. That rate would, in the absence of adjustments for higher, tax-induced declines in consumption, raise about \$17.7 million for Alaska. This is an increase of about \$7 million.

It is useful to examine the elasticity issue for the cigarette tax. The general points made about efficiency, equity and administrative costs pretty well cover the issues usually raised in analyses of cigarette taxes.

Concerns with the health hazards of smoking have tended to decrease cigarette use over time. Figures for 1982 showed that the number of adult smokers nationally had declined by 27 percent since 1965. In Alaska per capita sales peaked at 165 packs per year in 1976, fell during the post pipeline period and rose again to 148 packs in 1982. Since that time consumption has fallen to 129 packs, a decline of 13 percent in 3 years.

Given the economic outlook, it is unlikely that population will increase significantly and the yield of this tax could easily decrease.

Alcoholic Beverage Excise Tax

The January 1986 revenue forecast was based on these estimates of future sales for the three main beverage types:

Gallons of Alcoholic Beverages

	<u>FY 87</u>	<u>FY 88</u>	<u>FY 89</u>	<u>Current Rate/Gal.</u>
Liquor	1,199,863	1,152,205	1,117,870	\$5.60
Wine	1,555,228	1,508,569	1,478,399	.85
Beer	13,585,324	13,177,749	12,914,208	.35
Estimated Present Tax	\$12,796,040	\$12,346,844	\$12,036,684	

One approach taken by other states is to equalize the tax on a per ounce of alcohol basis. Consider these figures based on average alcohol content by beverage type (1 gallon = 128 ounces):

	<u>Absolute Alcohol %</u>	<u>Ounces of Alcohol/gal.</u>	<u>Present Tax per ounce of Alcohol</u>	<u>Rate to Equalize Tax per ounce</u>
Liquor	43.0	55.0	\$.1018	\$5.60
Wine	14.0	17.9	.0475	1.82
Beer	4.5	5.76	.0607	.58

On this ounce of alcohol basis the present liquor tax is over twice as high as the tax on wine and is 1.67 times the tax on beer. It is hard to justify the present structure if the goal of tax policy is to reduce alcohol consumption.

Application of the "equalized" rates to FY 87 gallonages would produce revenues of \$17.4 million, an increase of about \$4.6 million. Keep in mind that actual revenues would be somewhat lower because of a decrease in consumption caused by higher prices for wine and beer.

The general arguments made on sumptuary taxes regarding efficiency, equity and administrative costs apply to the alcohol tax. The elasticity issue warrants separate analysis because of the effect of changing lifestyles on liquor consumption.

In 1987, under the present rate structure, over half of alcohol tax revenues will come from the tax on liquor. The national trend has seen per capita consumption of liquor decline by 10 percent over the 5 year period beginning in 1980. This tendency, plus the stagnant outlook for population suggests little if any growth in this source of revenue over the near future.

It is also worthwhile to consider the political and social concerns associated with taxes on alcohol. Taxes on alcohol have appeal for several reasons. The tax is widely used and has been used over long periods of time. The first excise tax on liquor in Alaska was a 1933 levy of 5 cents a gallon on beer and wine. Second, alcoholism is a severe problem in Alaska and there is some evidence that high taxes can discourage drinking by particular groups such as young people. Finally, there are obvious externalities associated with alcohol consumption - broken homes, child abuse, and drunk driving. Public policy aimed at reducing consumption would seem to have a strong justification.

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 Fuel and Lubricants
 Month 6 - January 1962

TOTAL	AMOUNT	AVIATION GAS		AVIATION JET		MARINE GAS		MARINE DIESEL		OTHER GAS		OTHER DIESEL	
		RATE	GALLONS AMOUNT	RATE	GALLONS AMOUNT	RATE	GALLONS AMOUNT	RATE	GALLONS AMOUNT	RATE	GALLONS AMOUNT	RATE	GALLONS AMOUNT
TOTAL DISTRIBUTIONS			18471847		260256375		15156795		165297514		238042714		663695517
EXEMPT DISTRIBUTIONS			606828		261678537		307187		6850594		18623962		382241410
TOTAL DISTRIBUTIONS PERCENT	853,643,902 100.0%	0.04	17865019 8714,401	0.025	299177838 87,479,446	0.05	14749600 8737,480	0.05	98446920 84,922,346	0.00	219418752 817,553,500	0.00	280457607 822,456,669
			1.33%		13.89%		1.57%		9.14%		32.60%		41.67%
REFUND	86,635,074												
EXEMPT DISTRIBUTIONS	84,766,225		82,379		82,725,956		8125		81,367,118		821,467		8663,161
GOVERNMENT	82,567	0.04	4025 8161			0.05	339 817	0.05	3180 8159	0.00	201108 816,689	0.00	51037 84,063
NAVY	84,275									0.00	150 812	0.00	3579041 8466,323
OTHER	84,213,362	0.04	55495 82,218	0.025	109038227 82,725,956	0.05	2154 8108	0.05	27339182 81,366,959	0.00	67078 85,366	0.00	2659689 8212,775
USE CONVERSION	81,855,847		80		8227		8440		816,719		8123,281		81,715,162
TO MARINE	81,825									0.03	18260 8546	0.03	922610 827,560
TO OFF-HWY	81,822,395			0.005	45404 8227	0.03	14667 8440	0.03	557200 816,719	0.06	2045579 8122,735	0.06	28637699 81,682,274
TO JET	85,243											0.055	95410 85,248
CREDITS	817,341,774												
EXEMPT DISTRIBUTIONS	809,979		80		80		80		826,326		87,658		8635,794
GOVERNMENT	81,567									0.00	32089 82,567	0.00	80
NAVY	801,910									0.00	80	0.00	7776230 8521,618
OTHER	845,743							0.05	526526 826,326	0.00	66139 85,291	0.00	177260 814,176
USE CONVERSION	817,371,745		80		80		80		80		8216,473		810,455,323
TO MARINE	84,055									0.03	135033 84,651	0.03	233 87
TO OFF-HWY	810,667,777									0.06	3540361 8212,422	0.06	174255259 810,455,316
TO JET	81											0.055	80
TOTAL REFUNDS AND CREDITS	817,977,643		82,379		82,725,183		8555		81,410,163		8369,074		813,469,480
NET TOL	825,668,174		8712,222		84,753,263		8726,716		83,512,183		817,184,422		88,967,128
PERCENT	100.0%		1.99%		13.25%		2.05%		9.79%		47.91%		25.00%

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To summarize, discussions on ways to increase fuel tax revenues need to be based on more than a simple adjustment of nominal rates. The system of refunds and credits also needs to be considered.

Efficiency and Equity

Fuel taxes are somewhat defensible on efficiency grounds when viewed as indirect user charges paid to cover construction and maintenance of publicly built highways, airports and harbors. Generally these taxes are criticized on equity grounds.

How the burden of motor fuel taxes is distributed depends on what proportion of income is allocated to consumption of motor fuels at various income levels. Consequently, if fuel taxes represent a larger portion of income for low income groups than for high income individuals the tax would be regressive. Phares in his book Who Pays State and Local Taxes finds the motor fuel tax to be quite regressive with average effective tax rates of 2.25% for the under \$3,000 income class falling to .45% for those classes with incomes over \$35,000.

To the extent that the fuel tax is in accord with benefits received the regressive nature of the tax is of less concern. However if the connection to benefits is unclear then the regressive impact is important particularly given the necessity of the journey to work for low income families.

Elasticity

A number of factors in addition to income will influence how revenues from fuel taxes will respond to future changes in personal income. This is true nationally as well as in Alaska where the problem is complicated by uncertain economic conditions.

Nationally, rapid economic growth in 1984 ended a record 5 year downward trend in petroleum product consumption. Uncertainties about petroleum supplies and prices provided incentives for conservation, fuel switching and fuel efficiency improvements. Similarly, the falling oil prices and large inventories of the past year will work to reduce such conservation incentives. OPEC's recent efforts to control production, if successful, will translate into higher prices for petroleum products and will rekindle efforts at fuel conservation. These general uncertainties, combined with Alaska's economic problems, make it difficult to determine how this revenue source will behave in future periods.

It is important to keep in mind that Alaska's motor fuel taxes are expressed in tax per unit terms rather than ad valorem or percentage of value terms. The real tax per gallon is, as a consequence, declining over time. The present 8¢ per gallon tax on highway gasoline (other gas)

Motor Fuel Taxes

Taxes in Alaska are levied on aviation fuel (4¢ on gas, 2.5¢ on jet) on marine fuel (5¢ on gas and diesel) and on highway fuel (8¢ on gas and diesel, 2¢ for off-highway uses).

Under the Alaska fuel tax system a number of fuel uses are exempt from tax. Sales to government agencies and sales of home heating oil are two examples. Most such exemptions are made outright. However, some fuel is initially taxed but because it is ultimately consumed in an exempt use the tax is fully refunded. In addition, fuel may initially be taxed at one rate but a refund or credit subsequently granted because the fuel is consumed in a use which carries a lower tax. Highway gas, can be used in an outboard motor. In this case the user can apply for a 3 cent per gallon refund, the difference between the highway and marine rates. It is important to understand the refund aspect of the fuel tax system as it has a great influence on the revenue productivity of that system. Consider these figures by fuel category for FY 86:

The table makes a comparison between the nominal revenues for those distributions initially treated as taxable, the levels of refunds and credits for each fuel type and finally shows the net tax collected. For instance the figures for other diesel can be read as follows:

1. Out of 663,699,517 gallons distributed, 280,457,607 gallons were originally put into the taxable category. The remainder went to uses exempt from the tax.
2. Subsequently an additional 8,289,767 gallons were exempted causing \$663,181 to be refunded while 7,947,430 gallons were exempted yielding credits on other fuel taxes owed of \$635,794.
3. Substantial gallonage was consumed in uses carrying lower tax rates than the nominal 8¢ per gallon figure for this category of fuel. Refunds of \$1,715,182 and credits of \$10,455,323 were created through this use conversion.
4. Out of \$22,463,609 in revenues that would have accrued if all taxable distributions were subject to the 8¢ rate, \$8,967,129 was the ultimate tax.

The purpose of this illustration is not to pass judgment on the credit/refund system. To the extent that fuel taxes for some uses (e.g. highway gas) are viewed as indirect payments for the use of publicly constructed facilities (e.g. streets and highways) then it is reasonable that a consumer not pay for this benefit when the fuel use is unrelated (e.g. running a chain saw). The illustration does, however, show how important refunds and credits are to the total fuel tax system. For instance, if total distributions of all fuel types (1,601,424,762 gallons) were the tax base, a tax rate of about 2.2 cents per gallon would raise revenues equivalent to the \$35,866,134 raised in FY 86.

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was first levied in 1970. At that time the Anchorage Consumer Price Index (CPI) was at 109.6. For 1985 the same index had increased to 275.4. Expressed in 1970 dollars the real tax rate on gasoline in 1985 was slightly over 3¢ per gallon. In fairness it needs to be pointed out that the refund for off-highway use was set that same year at \$.06 per gallon. It too has declined dramatically in real terms. At present the lowest tax for gasoline among the 50 states is \$.07 (Missouri) while the highest is \$.18 (Washington).

FISHERIES TAXES

Fisheries Business Tax (AS 43.75)

The fisheries business tax is based upon value to the fisherman by the types of processing operations and the types of fish processed. The tax was substantially increased for all processing types in 1979 with developing commercial fish operations assessed a lower rate to spur development in those species, and floating processors assessed the highest rate in hopes of encouraging permanent shorebased facilities and local employment. In 1986 a shorebased fisheries business tax credit on capital expenditures was enacted to provide an incentive for modernizing facilities and purchasing equipment for development of new fisheries and fishery products. Unfortunately tax credits usually do not generate the economic benefits as initially intended, benefitting the most would be those firms which are financially healthy and in full production. Those firms which are financially distraught and producing little or not at all would receive little or no benefit from tax credits. Furthermore, the credits were not specific in terms of what types of capital expenditures would be allowable as a credit nor was there any provision in the bill which would provide developing species any tax incentive over other species. The present tax credit will be in effect through tax year 1991 and may result in a total estimated loss to the state of approximately \$13.0 million in General Fund unrestricted revenues. However, it should be noted that municipalities will not be affected by the loss in shared revenue since revenue sharing will be calculated on total collections prior to credits. If tax credits were statutorily amended to reflect only specific equipment for only those developing commercial species the state could gain the following estimated revenues:

	<u>FY 88</u>	<u>FY 89</u>	<u>FY 90</u>
Amending Fisheries Business Tax Credit (Millions of Dollars)	1.5	1.5	1.5

Another related topic concerning the fisheries business tax regards the exporting of fishery resources outside of the State's taxing jurisdiction and not filing an Alaska Fisheries Business Tax return. Although some traditional leakages have been closed during the past few years, there still exists a substantial amount of resources illegally avoiding the tax incidence. One possible solution to the problem would require commercial and private air carriers which ship to the lower 48 or overseas to obtain proof of a fisheries business license with any manifest or cargo declaration shipping fishery resources out of state. The carrier would then be subject to substantial fine or payment of the tax due if there was a failure to comply. There are no means possible to accurately predict the amount of leakage; however, past instances which have been documented or have come to light indicate substantial amounts are being illegally shipped out of state. Based on these past events, it is estimated that the following additional revenues could be generated by reducing this leakage:

	<u>FY 88</u>	<u>FY 89</u>	<u>FY 90</u>
Reducing Leakage of Fisheries Business Tax (Millions of Dollars)	1.5	1.5	1.5

Alaska Seafood Marketing Assessment (AS 16.51)

The Alaska Seafood Marketing Assessment is levied upon eligible seafood processors at an elected rate of 0.2% of value. Although the assessment is collected as a gross receipts tax, it is essentially a charge for a governmental service, in this case, the marketing of Alaskan seafood products. Currently, the market assessment funds approximately one-half of the Alaska Seafood Marketing Institute's (ASMI) FY 87 revised budget (\$2.6 million), thus necessitating a General Fund subsidy to cover the difference. If this subsidy was not appropriated each year, the State would realize approximately \$1.4 million annually in General Fund unrestricted revenues. Although by eliminating a source of funding, the industry would have to elect to either keep the current assessment rate with a lowered budget, or vote to double the assessment to a rate of 0.4% (as provided in AS 16.51.120(E)) in order to maintain current ASMI budget levels. It should be noted that the Legislature suggested in the FY 87 operating appropriations bill (Ch. 129, SLA 1986) that "...the ASMI Board schedule a vote of the seafood industry to consider raising the level of the seafood marketing assessment in order to offset anticipated declines in available general funds for FY 88." Accordingly, it would be market forces and industry monitoring which would determine the most efficient funding level for ASMI rather than the political budget process.

	<u>FY 88</u>	<u>FY 89</u>	<u>FY 90</u>
Eliminating the Seafood Marketing Subsidy (Millions of Dollars)	1.4	1.4	1.4

Salmon Enhancement Tax (AS 43.76)

Limited entry holders within qualified regional aquaculture associations elect a levied tax rate of either 2% or 3% of value of salmon. Essentially the State performs collection and regulatory functions for the current four non-profit qualified associations and retains none of the tax receipts for these services. However, the State does collect penalty and interest on the tax returns which offset the current administrative costs. Therefore, there are no current reasonable means to generate additional revenues to the State from this tax source.

In summary, the total additional estimated revenue generated by amending the credit, reducing the leakage, and eliminating the subsidy would amount to the following:

	<u>FY 88</u>	<u>FY 89</u>	<u>FY 90</u>
Total Fish Taxes (Millions of Dollars)	4.4	4.4	4.4

The fisheries business tax is currently inequitable since the assessed tax rates differ due to the method of processing (canned, shorebased, and floating) and the types of species (developing versus traditional). As a result, there is no horizontal equity or neutrality due to this rate differentiation. It should be noted that tax structuring by the type of processing is unique to Alaska. The fisheries business tax must also be considered regressive since it is levied on a commodity which to a high degree is exported outside the state thus passing a significant part of the tax incidence onto the eventual consumer. On the other hand, both the enhancement and marketing tax are elected assessments by those taxpayers who directly benefit from the services provided, and are thus fairly equitable in scope. It should be noted that although sport fishermen will benefit from the stock enhancement and conservation program, they will not be assessed the tax.

Since the fisheries taxes directly depend upon the fisheries resources, there will likely be periods, due to fluctuating market prices and/or catch production, of revenue uncertainty. This can create considerable problems for not only the State but for local municipalities which may depend heavily upon the shared revenues, as well as, play havoc with the budgets of ASMI and the regional aquaculture associations. However, this responsiveness of tax changes to market conditions, or elasticity, can work both ways, being undesirable during poor market conditions but being advantageous during good market conditions and during periods of inflation when the State would be able to receive the same real purchasing power from fish revenues without having to increase

rates. Therefore, although the fisheries taxes are quite elastic, they are somewhat inefficient due to their inconsistent revenue flow.

In terms of administrative efficiency, the fisheries tax changes would be minimal. There would be no cost involved administratively in reducing the tax credit or eliminating the subsidy to ASMI since all regulatory and compliance areas are already operational. The tax credit would only require a statutory change to be implemented while the subsidy elimination would involve no cost except omission from the appropriations bill. Actual costs would probably be reduced in regards to the tax credits, since there would be less credits claimed. Although there may be a slight increase in governmental costs due to additional compliance requirements, in terms of reducing the leakage, the actual costs would be borne by the air carriers and most likely passed on to the consumers of those services in higher rates. Consequently, total State administrative costs would be minimal especially given the expected yield.

Politically, the feasibility of enacting the above changes to the fisheries taxes would appear justifiable based on the current financial condition of the state, since it would provide a means of increasing existing fisheries revenues by approximately 18% without increasing any rates. Although processors would lose some funds due to a reduction in the tax credit, the developing species sector of the industry would still benefit. By eliminating ASMI's subsidy, seafood processors would initially lose some product marketing, however, this could be overcome if the industry deemed it necessary. Finally, by reducing the leakage, it would require that all taxpayers would each pay their fair share of the tax burden.

Licenses and Permits

Licenses and permits, including corporation/occupational licensing fees (AS 02.05, AS 08.01.99, AS 10.05.35, AS 21.06.90), motor vehicle fees and permits (AS 05.30, AS 28.10.15, AS 42.10), alcoholic beverage licenses (AS 04.10), amusement and gaming fees (AS 43.35) and fishing and hunting licenses (AS 16.05 and AS 16.43), could be increased. If all the licenses and permits were allowed to increase with inflation, the following additional General Fund and Fish and Game Fund amounts would be realized:

	<u>FY 88</u>	<u>FY 89</u>	<u>FY 90</u>
Licenses & Permits (Millions of Dollars)	1.8	3.7	5.6

If revenues from licenses and permits are still considered insufficient, a vehicle license fee could be enacted. The vehicle

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license fee could be levied at the time of registration in lieu of a property or ad valorem tax at a rate of 1% of vehicle market value. The following additional revenues could be generated:

	<u>FY 88</u>	<u>FY 89</u>	<u>FY 90</u>
Vehicle License Fee (Millions of Dollars)	13.5	13.8	14.0

Regulatory licenses and permits are not generally included in a tax study since they are not imposed for the purpose of raising revenue due to being insufficient revenue generators. On the other hand, license and permit charges by the State should be sufficient to recover the direct costs of administering and policing the regulatory activities. Further, all costs should be considered, not merely those directly incurred by government in the production of the service. Regulatory charges must include those indirect costs to society such as, in the case of motor vehicle licenses, the costs of highway construction and maintenance and, in the case of alcoholic beverage licenses, the costs arising out of excessive use of alcohol.

In terms of equity, license and permit charges are not mandatory use taxes, but are dictated by the principle that persons pay for what they get. Thus, a person can be excluded from the benefits of the service if he does not wish to pay for it. Although license and permit charges by the state do not result in inequities to lower income groups, equity standards require that these lower income groups be assured of obtaining and affording these services.

The use of charges where possible instead of financing by taxation is regarded as justifiable when demand for the services has some elasticity, so that the use of hunting and fishing fees aids resource allocation and lessens waste. Even if services may have inelastic demand, charges may be warranted on equity grounds alone, and by the fact that persons or businesses subject to the provisions generally receive benefits from the State of comparable value.

The use of regulatory charges appears to have less adverse effect upon behavior than taxes (which are mandatory in nature) and therefore may appear more palatable politically. Many licenses and permits for Alaska are either already under review or have been recently increased. In an attempt to equalize the operating budget with revenue, the occupational licensing fee structure was revised (Ch. 26 & 37, SLA 1985) to provide the additional required revenue. Both alcoholic beverage licenses and amusement and gaming fees could be slightly increased to be more in line with other states. The current motor vehicle fees are more than comparable with other states with the recent enactment of Ch. 60, SLA 1986 which increased driver licensing fees and vehicle registration

