

WHAT IS THE SUSTAINABLE LEVEL OF STATE REVENUES?

by

Scott Goldsmith
Institute of Social and Economic Research
University of Alaska, Anchorage

ISER Working Paper 86.9

December 1, 1986

DRAFT

SUMMARY

- Using the most recent petroleum revenue projections of the Alaska Department of Revenue (September 1986, 50 percent), sustainable revenues between \$1.35 and \$1.85 billion (1986 dollars) are possible for twenty years if the balance of the Permanent Fund is used during the period.
- The maximization of sustainable revenues requires the utilization of recurrent sources of revenue--the personal income tax and the earnings of the Permanent Fund (after inflation proofing).
- Maintenance of a sustainable budget level requires an annual determination of the percentage of current revenues which should be spent and the proper level of savings or withdrawals from fund balances. The only mechanical formula which will produce this result is a spending limit set at the sustainable level (in real dollars).

MAXIMUM SUSTAINABLE REVENUE LEVELS

Using the most recent projections of the Alaska Department of Revenue (September 1986), it is possible to calculate the maximum constant level of revenues (in 1986 dollars) which the State of Alaska will have available over various time horizons (planning periods). We assume that over the chosen planning horizon all revenues and fund balances (including the balance in the Permanent Fund) are used. Therefore, at the end of the planning horizon, the state must rely completely on recurring revenues.

Table 1 shows that the maximum constant level of revenues is, in all instances, less than the current level of state appropriations (\$2.1 billion in FY 1987). The calculation is presented for two sets of petroleum revenue assumptions, four planning horizons, and alternative assumptions regarding the use of the personal income tax and the Permanent Fund Dividend. The interpretation of the table is as follows: If the Department of Revenue's 50 percent petroleum revenue projection is accurate and a twenty-year time horizon is chosen (twenty-year life for the Permanent Fund), then the maximum constant level of revenues which can be guaranteed over that period ranges between \$1.35 and \$1.85 billion (1986 dollars). The variation between the low and the high figures depends on whether or not current revenues are augmented by reimposition of the personal income tax and by redirection of the Permanent Fund Dividend into the General Fund. Each of those actions would increase the maximum sustainable level by about \$.250 billion.

The calculations assume a five-year transition period to the sustainable level. In a year when revenues exceed the sustainable level, the excess is banked. In a year when current revenues are less than the sustainable level, money is withdrawn first from the General Fund and, if it is empty, from the Permanent Fund. At the end of the planning horizon, both the Permanent and General Funds are empty.

TABLE 1. MAXIMUM SUSTAINABLE REVENUE LEVELS

(billion 1986 \$)

Planning Horizon (years)	Permanent Fund Exhausted	Pay Permanent Fund Dividend ^a	Collect Personal Income Tax ^b	
			No	Yes
A. DOR SEPT 1986 30% CASE Department of Revenue				
40	2028	Yes	\$.725	\$.975
		No	.975	1.225
30	2018	Yes	.850	1.100
		No	1.100	1.325
20	2008	Yes	1.050	1.350
		No	1.350	1.550
B. DOR SEPT 1986 50% CASE (\$12.50 oil in 1987 rising to \$16.00 [1986 \$] in 2000)				
40	2028	Yes	\$.875	\$1.150
		No	1.150	1.425
30	2018	Yes	1.000	1.275
		No	1.275	1.550
20	2008	Yes	1.350	1.600
		No	1.600	1.850

^aDividend terminated 1989.

^bTax reinstated 1988.

Inflation is netted out of the calculation in order to produce a sustainable level which will keep up with inflation. The interpretation is as follows: If the personal income tax were reinstated in FY 1988 and the Permanent Fund Dividend were terminated in FY 1989, the maximum sustainable revenue level for a twenty-year time horizon would be \$1.850 billion in 1986 dollars. For each year over a twenty-year period, the state would have revenues at its disposal with the purchasing power of \$1.850 billion of today's revenues--independent of the rate of inflation over the twenty-year period. If the rate of inflation were 5 percent annually, actual sustainable revenues (in current dollars) would increase by 5 percent annually.

The longer we want the Permanent Fund to last (the longer the planning horizon), the lower is the maximum sustainable revenue level. If the planning horizon is doubled to forty years, the maximum sustainable revenue level ranges from \$.875 to \$1.425 billion (in 1986 dollars). The maximum sustainable levels do not fall by half when the planning horizon doubles because the balance of the Permanent Fund generates a lot more earnings over the longer period.

If the Department of Revenue's 30 percent petroleum revenue projections are assumed, the maximum sustainable level of revenues is reduced by between \$.150 to \$.300 million annually.

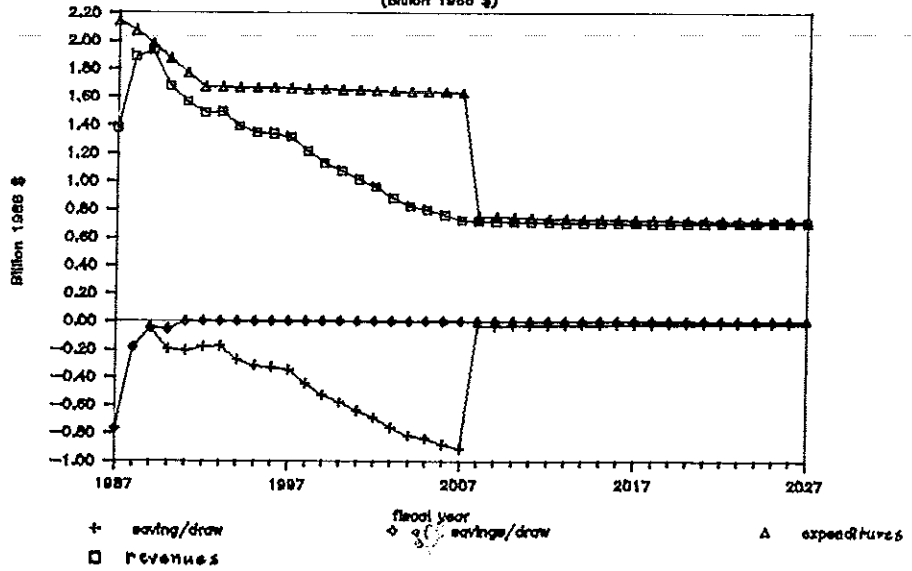
IMPLEMENTING MAXIMUM SUSTAINABLE REVENUES

Fashioning a policy which generates a maximum sustainable level of revenues is difficult because it cannot be reduced to a simple formula related to current revenues or to fund balances. This is demonstrated by reference to the attached figures. The top figure on the next page shows the maximum sustainable revenue for a twenty-year time horizon in the Department of Revenue's 50 percent case with either a reimposition of the income tax or elimination of the Permanent Fund Dividend. A five-year transition period from the present \$2.1 billion state appropriation level gets us to a sustainable level of \$1.6 billion. This is sustainable for fifteen years, until 2007, at which time the Permanent Fund is used up, and revenues fall to about \$.800 billion (1986 dollars).

During this time, current revenues, dominated by petroleum, are falling, so the gap between current and sustainable revenues is growing. The growing gap is filled by increasingly large annual withdrawals from the Permanent Fund. It is not possible to fashion a simple formula based either on current revenues or on the balance in the Permanent Fund, shown in the bottom figure, which generates the amount of revenue needed to fill the gap. Rather, the amount necessary to fill the gap in any year, and thus the amount that needs to be withdrawn from the Permanent Fund, is determined by subtracting current revenues from the chosen sustainable level of revenues, in this case \$1.600 billion.

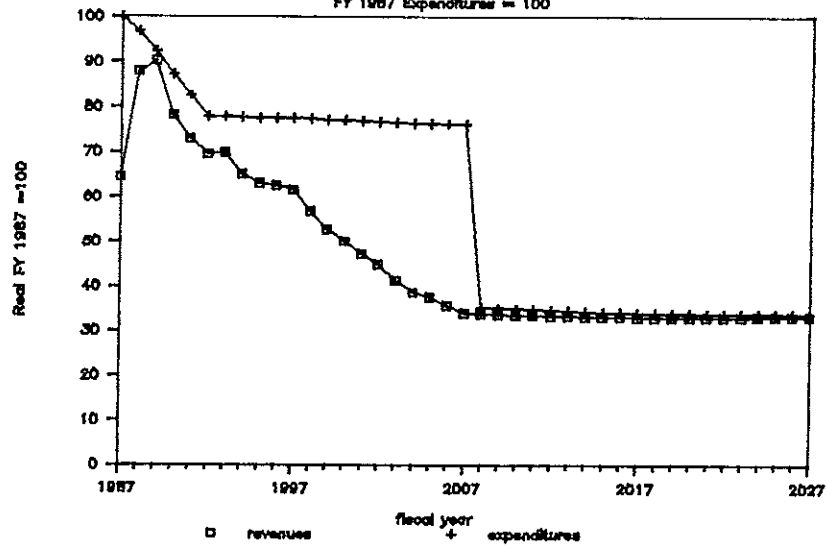
STATE FISCAL AGGREGATES

(Billion 1986 \$)



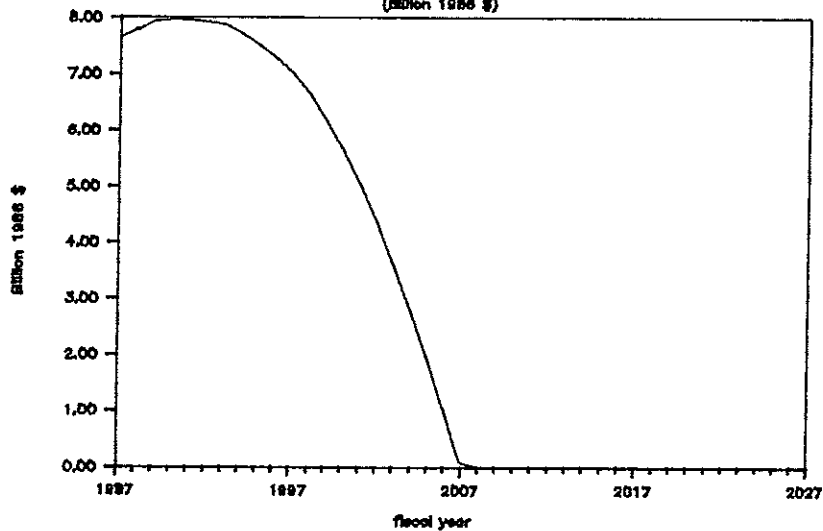
INDEX OF REVENUES AND EXPENDITURES

FY 1987 Expenditures = 100



Permanent Fund Balance

(Billion 1986 \$)



ASSUMPTIONS OF ANALYSIS¹

Annual Appropriation: Spending Limit

The annual appropriation is determined by a spending limit, or "target," defined as the maximum spending level in dollars of constant purchasing power sustainable for the number of years chosen as the planning horizon.² As with the current spending limit, debt service is excluded. No attempt is made to differentiate expenditures on capital or operations.

General Fund

Assets in the General Fund, in addition to revenues, which are ultimately available for state expenditures at the beginning of FY 1987, include the Budget Stabilization Fund and the Railbelt Energy Fund.

Permanent Fund

At the start of FY 1987, the balance in the Permanent Fund is approximately \$7.5 billion of contributed equity (dedicated funds and appropriations), inflation proofing, and the undistributed income account. Dedicated revenues from state petroleum rents and royalties are assumed to continue in future years at the same rates

¹This analysis utilizes a Lotus spreadsheet model described in an earlier Working Paper available from the author.

²Thus, if the limit is set at \$1.5 billion in 1986 dollars and the inflation rate is a constant 5 percent, the limit in 1990 would be $\$1.5 \times (1.05)^5 = \1.9 billion.

as specified by current law,³ and earnings of the Fund not distributed as dividends accrue in the inflation proofing and undistributed income accounts. Unless assumed otherwise, dividends are paid according to the current formula based upon the five-year moving average of earnings.

Other State Financial Assets

The state controls other financial assets such as the equity in Alaska Housing Finance Corporation (AHFC), Alaska Industrial Development Authority (AIDA), and the state enterprise funds. We assume the balances in these funds will continue to support these "off-budget" programs and not be available for General Fund appropriations in future years.

Savings

Unless specifically placed into the Permanent Fund, all unappropriated revenues go into the General Fund to be invested for future use.

Withdrawals

When current revenues fall below the "target" spending limit, money is withdrawn from state funds in the following sequence:

- (1) General fund
- (2) The undistributed income account of the Permanent Fund
- (3) The contributed equity of the Permanent Fund including the inflation proofing account

³Even after withdrawals from the Permanent Fund begin.

Petroleum Revenues

Two sets of assumptions are used: the September 1986 Alaska Department of Revenue 50 percent case and the 30 percent case. After 2001, revenues are assumed to remain constant in 1986 dollars. This reflects an assumption of continued development of petroleum resources beyond the depletion of the Prudhoe Bay field at a rate which generates a continuous flow of revenues to the state, albeit considerably below the current rate.

Recurring Revenues (Nonpetroleum)

This category consists of all General Fund revenues currently collected by the state, including earnings on the General Fund balance. The values through 2010 for all except General Fund earnings are taken from a simulation of the MAP econometric model. Subsequent values are based upon the annual growth rate of .75 percent (in real dollars). General Fund earnings are calculated with this model and vary with the assumptions of the particular case analyzed.

New Revenue Sources

Four additional revenue sources are considered in this analysis. The numbers are, of necessity, somewhat arbitrary, but the analysis is insensitive to fairly large changes in these assumptions.

1. Mineral Development. Development of mineral deposits such as the Red Dog mine will lead to increased state revenues. To reflect this, we assume a growth in

mineral activity beginning in 1990 which adds \$25 million annually in each of the next five years up to a maximum of \$100 million.⁴

2. Settlement of Bonus Litigation. We assume the state receives \$250 million in 1989 and in 1990 in settlement of outstanding litigation with the federal government over the ownership of disputed lands leased in the Beaufort Sea.
3. Personal Income Tax. If reimposed, we assume the personal income tax would annually produce a level of revenues equal to recurring revenues net of General Fund earnings.
4. Permanent Fund Dividend. If eliminated, this money accrues in the Permanent Fund until needed to finance General Fund spending.

Return on State Investments

The real rate of return on all fund balances is 3 percent.

Inflation Rate

The inflation rate is 5 percent per year.

⁴This is approximately equal to one new Red Dog Mine every five years for a period of twenty years.