

**ALASKA  
GROSS STATE PRODUCT  
1961-1998**

by  
**Scott Goldsmith**  
Professor of Economics

prepared for

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and Economic Development**

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Institute of Social and Economic Research  
University of Alaska Anchorage  
3211 Providence Drive  
Anchorage Alaska 99508  
907-786-7710

## ALASKA GROSS STATE PRODUCT

### SUMMARY

Alaska gross state product declined by \$.5 billion in 1997 and \$3.5 billion in 1998 after 3 years of growth. Figure 1. shows that the decline was primarily attributable to the weakness in the world petroleum market. Alaska gross state product net of petroleum increased by \$.8 billion in 1997 and \$.25 billion in 1998.

Gross state product measured in current dollars (Figure 1.) is useful for comparing the contribution of different sectors to total gross state product at a particular point in time. However since Alaska gross state product is dominated by petroleum, and heavily influenced by the production of other commodities which fluctuate in price over time, both the size and composition of gross state product in current dollars can change substantially from year to year independent of the change in the overall level of economic activity as measured either by employment or payroll. Much of this fluctuation is the result of changes in the prices of a few commodities including oil, gas, zinc, and seafood.

Constant dollar gross state product controls for both inflation (the general rise in prices over time) as well as the year to year price fluctuations in natural resources by measuring the value of output using the prices for a particular year. Figure 1.B shows gross state product using 1998 prices to value output in earlier years and Figure 1.C. shows gross state product using 1980 prices to value output. By controlling for price fluctuations, as well as general inflation, constant dollar gross state product shows the change in the physical output of each sector of the economy over time relative to the base year. Of course the relative importance of industries like petroleum to total gross state product in these tables will depend upon the price of petroleum for the base year chosen. That is why petroleum appears to be so much more important when valued at 1980 prices than when valued at 1998 prices.

Although falling prices and production have reduced the contribution of petroleum to the gross state product, the other private basic sectors of the economy have been increasing as a share of the total. Figure 2. shows in particular the growing importance of air cargo, mining, and tourism. Seafood is still the largest private basic sector excluding petroleum, but it has not increased in size during this decade. In contrast timber has been in decline throughout this decade.

In constant 1998 dollars (Figure 2.B.) we see the same general pattern.

The private non-basic sectors of the economy continue to expand, driven by

growing personal consumption expenditures, business investment, and federal government spending (Figure 3.) Trade, finance, and services are the largest and fastest growing sectors. The relative importance of construction is falling, and the manufacturing sector (manufacturing for the local market), remains very small. The pronounced cycles produced by the construction of the oil pipeline, the high oil prices of the early 1980's, and the Exxon Valdez oil spill are clearly evident in both the current and constant dollar figures (Figure 3.B).

The government contribution to gross state product continues to be large, but its relative importance is declining, particularly with the recent reduction in military activities in the state (Figures 4. and 4.B.).

Some production can be attributed to more than one sector of the economy. A large part of the construction industry in Alaska is working directly for the petroleum and other commodity producing sectors. Likewise many of the activities of the federal government support these same sectors. The gross state product accounts generally use the same conventions as the Alaska Department of Labor is assigning gross state product to a industry. Thus the activities of the construction industry are attributed to construction rather than to the separate industries for which they provide construction services. The one exception to this convention is Tourism. Although the gross state product of the Tourism sector is to be found within the Trade, Transportation, and Service sectors of the industry accounts, we do estimate a separate gross product figure for the Tourism sector because of its importance to the Alaska economy.

The gross state product is not only the value of output of the economy, it is also a measure of the total income paid to all factors of production used in its production. Figure 5. shows that about half of value added goes to labor as employee compensation, about 12 percent goes to the government as indirect business taxes (not including corporate income taxes), and the remainder to the other factors of production, primarily as interest, depreciation, and profits. Figure 5. clearly shows the structural change in the economy which occurred when North Slope oil production began in the late 1970's as well as the trend since that time. When oil production began from the North Slope the share of value added contributed by labor fell dramatically. Since that time its share has been increasing as oil prices and production have declined.

The change in the sectoral composition of the economy over time can be seen by comparing the shares of gross state product contributed by each sector in 1965 and 1998 (Figures 6.A. and 6.B.). The most important change has been the increased importance of petroleum compared to the federal government. In addition

tourism, mining, and air cargo have increased in relative importance while seafood and forestry have declined. Infrastructure (construction, transportation, public utilities, and communications) is also smaller as a percentage today.

The detailed gross state product figures are presented in Tables at the end of this report. Table 1. shows gross product by sector in current dollars with Alaska's important private basic sectors clearly identified. Table 2. is the same information with all output valued at 1998 prices. Table 3. shows gross product in current dollars by the industry categories used by the Alaska Department of Labor.

Table 4. presents the implicit price deflators used to convert Alaska gross state product from current to constant dollars. The 1987 US average (lower 48) value for these deflators is 100. Since most Alaska prices were higher than the US average at that time, the 1987 values for these price deflators are greater than 100.

The final Table (Table 5.) shows Alaska gross product valued at 1987 US average prices. 1987 US prices do not include any Alaska cost of living adjustment and so are directly comparable to the US gross domestic product valued at 1987 prices. It is useful to keep in mind that in 1987 the price of oil was relatively low while the price of fish was relatively high. Using this as a base year to value output in all other years thus tends to undervalue the contribution of petroleum and overvalue the contribution of seafood as measured by constant dollar gross state product.

The gross state product accounts are based upon estimates derived from a variety of sources. They should be interpreted as indicative of the level and year to year change in value added by industry and sector rather than as precise amounts.

## **WHAT IS GROSS STATE PRODUCT MEASURING?**

Gross state product for Alaska is the sum of the value added within Alaska in the production of all the goods and services produced in a year. It is Alaska's contribution to the US gross domestic product.

Gross product for an industry is its value added calculated as the market value of output (sales) minus the cost of purchased goods and services used in production. For example, the gross product in the fish processing sector is the wholesale value of seafood products minus the cost of fish purchased from harvesters and other purchased inputs such as utilities and accounting services. The value added in fish harvesting, utilities, business services, and other activities

providing inputs to fish processing is separately accounted for in similar calculations. If these inputs are imported from another state, they are excluded from the calculation. This method captures the total value added contributed by each industry and avoids double counting.

Gross state product measures the value of production which occurs within the physical boundary of the state, without regard to the ownership of the factors of production used, primarily labor and capital. Thus the wages paid to non-resident labor as well as the profits of non-resident corporations are included even though those payments do not accrue to Alaskans. Furthermore the Alaska gross state product excludes wages paid to Alaskans in other states as well as the profits made in other states by Alaskan businesses (as well as the income produced by the Alaska Permanent Fund from investments made outside Alaska).

Sometimes it is hard to determine where value is added in the production process. An important example is the production of Alaska crude oil. Production depends on activities not only in Alaska but also on the contributions of many oil industry workers in the lower 48 states, and abroad. Some of the value added produced in Alaska should be attributed to those non-Alaska activities, but it is difficult to determine the appropriate share. In our accounts all value added not specifically identified with a non-resident factor is allocated to Alaska. In particular all the profits and business taxes paid by the oil industry are counted as a contribution to Alaska gross state product.

Gross state product can be interpreted in several ways.

**Total Market Value of Goods and Services Produced by the Economy.** It is the sum of the value of goods and services produced in each of the industries and sectors of the economy.

**Total Final Demand Produced by the Economy.** It is the sum of purchases by consumers, output of the government, capital investment, and exports to the rest of the world.

**Total Payments (Income) to Factors of Production.** It is the sum of the income earned by all factors of production (primarily labor and capital) as well as the profits paid in the production of that output. From this perspective gross state product is a measure of the tax base of the state. However since depreciation is not netted out (because of the difficulty in estimating the economic depreciation of the capital stock in any year) gross product is really an overestimate of the tax base.

## **OTHER MEASURES OF THE ECONOMY**

Gross state product is only one of many measures of the level of economic activity within a region or for a particular industry. Other commonly used measures are sales, employment, total payroll, and personal income. The relationship among these measures is shown in the attached diagram.

Gross state product is less than the amount of sales (transactions) in the economy because it nets out the purchases by businesses from one another (inter-industry purchases). The result is a measure of the sum of the value added at each step in the production process within the region or industry without double counting the output of one industry used as an input into another industry. For example the output of the fish harvesting industry is the primary input into the fish processing industry. The sum of the sales of the fish harvesting and the fish processing industries overestimates the value added of the fishing industry, but gross state product correctly measures the value added.

Gross state product is more inclusive than payroll. Although employees constitute the most important input to production in most industries, capital and natural resources are also important, particularly in Alaska. The return to these other factors of production is included in gross state product and gives a more complete description of the total return to all factors of production for the output produced by the economy. In particular in Alaska the economic rents generated by petroleum are an important component of gross state product and of economic activity not reflected in payroll.

Gross state product is also more inclusive than personal income which only includes the portion of state income that accrues to Alaska households. Gross state product includes payments from production which accrue to businesses as returns to capital and profits as well as payments to government as indirect taxes. Thus it is a complete accounting of the value added from production paid to all sectors of the economy. (Personal income also includes payments to Alaska households from labor outside the state, dividends, interest, and rent, and as well as some payments which are not derived from current productive activities such as government transfers.)

# GROSS STATE PRODUCT COMPARED TO OTHER MEASURES OF ECONOMIC ACTIVITY

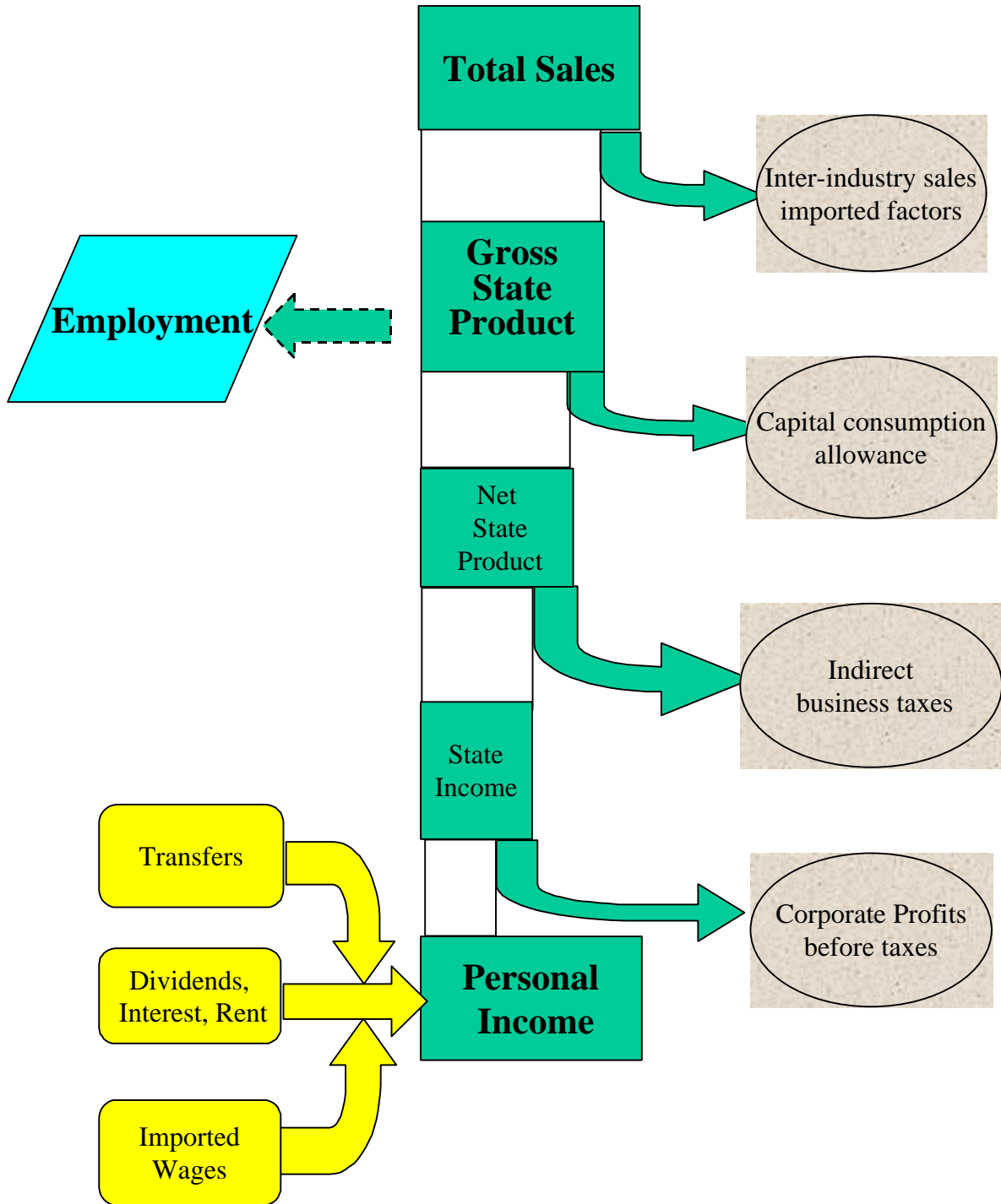
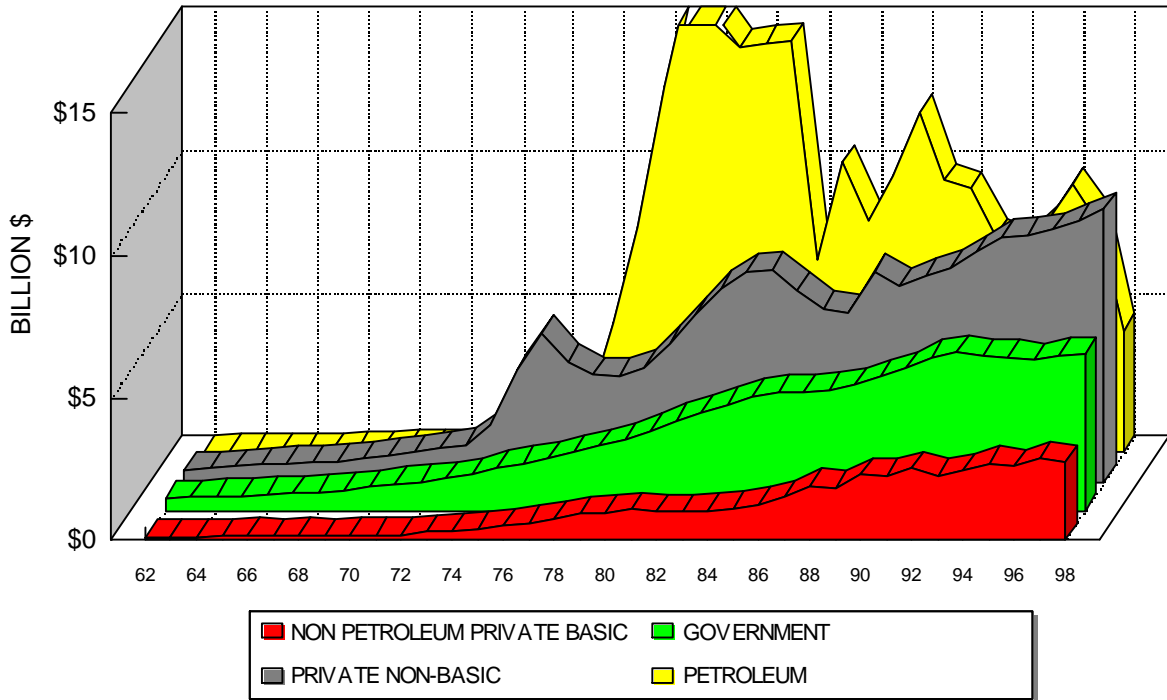
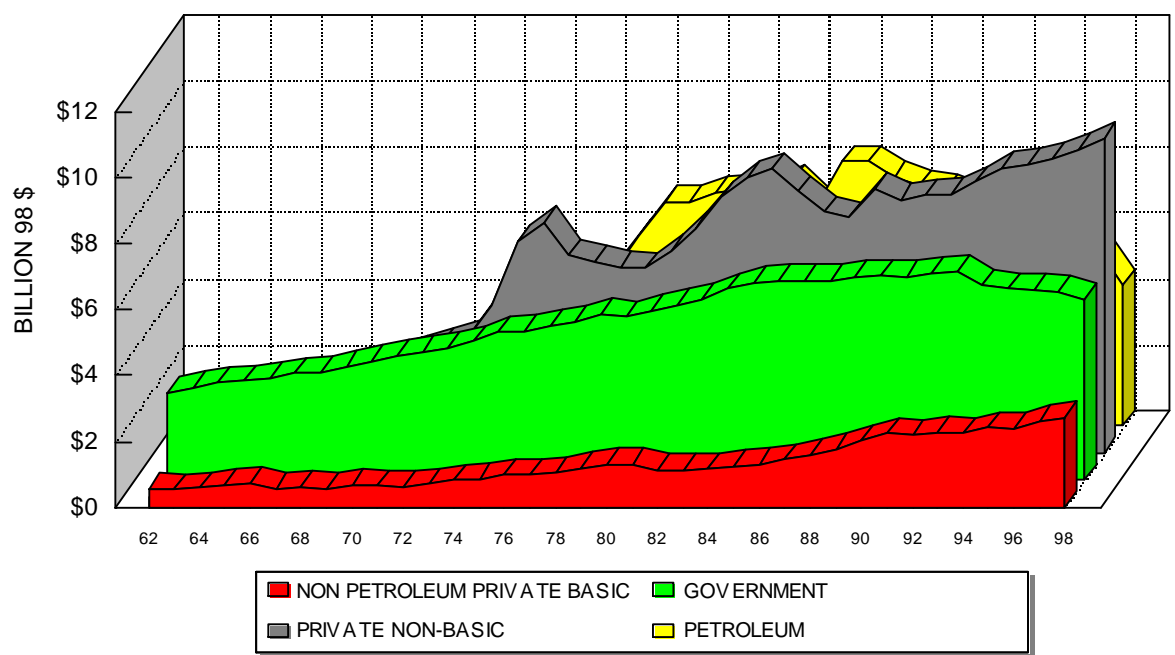


FIGURE 1. ALASKA GROSS STATE PRODUCT  
BILLION \$



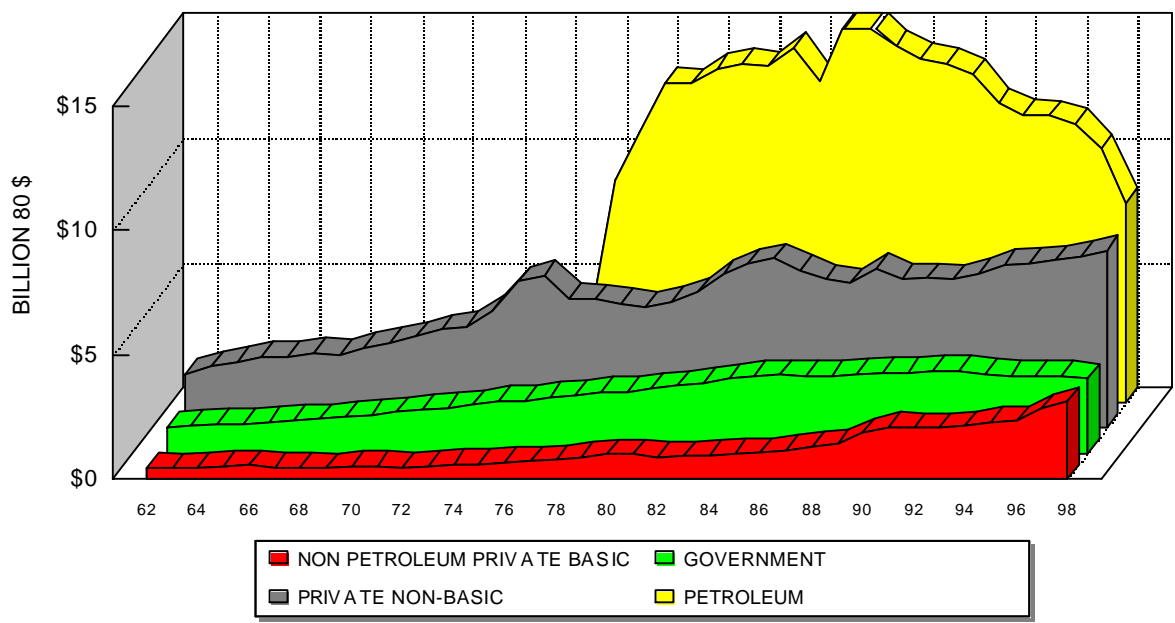
SOURCE: ISER DATABASE

**FIGURE 1B. ALASKA REAL GROSS STATE PRODUCT**  
BILLION 98 \$



SOURCE: ISER DATABASE

**FIGURE 1C. ALASKA GROSS STATE PRODUCT**  
BILLION 80 \$



SOURCE: ISER DATABASE

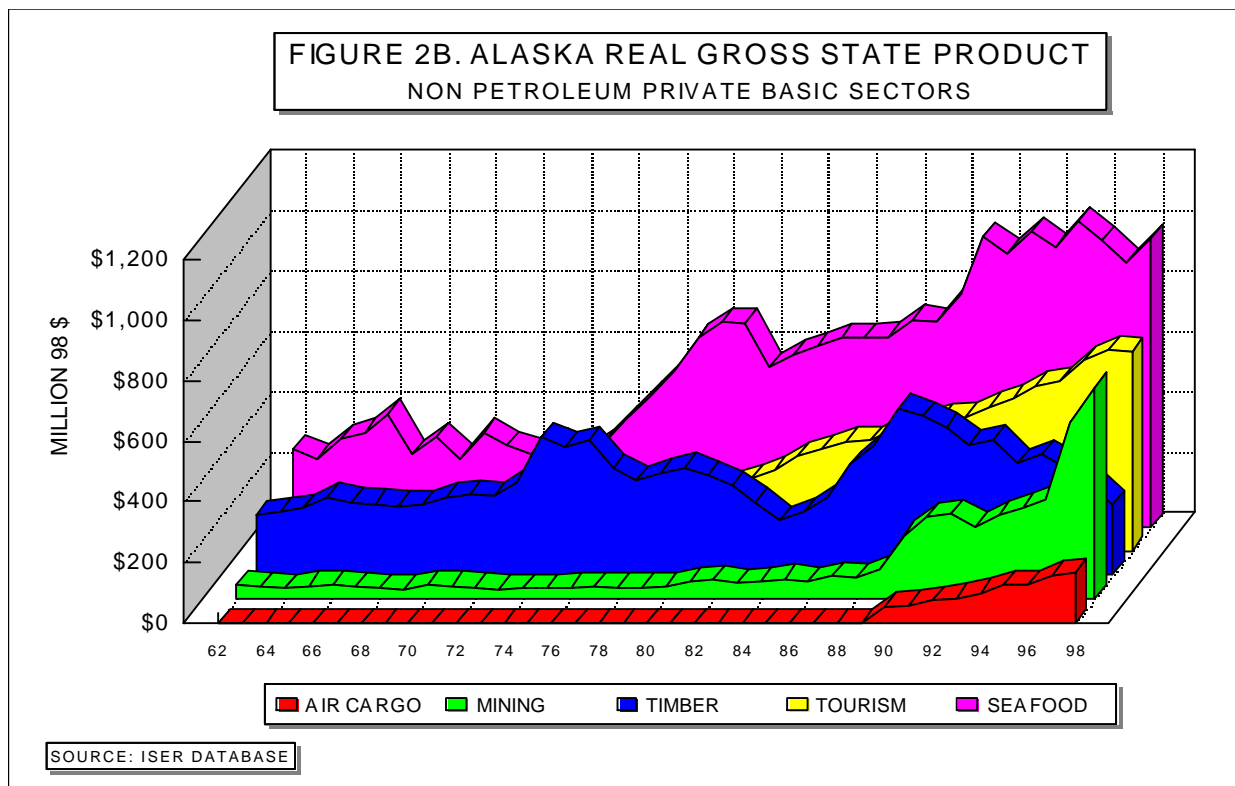
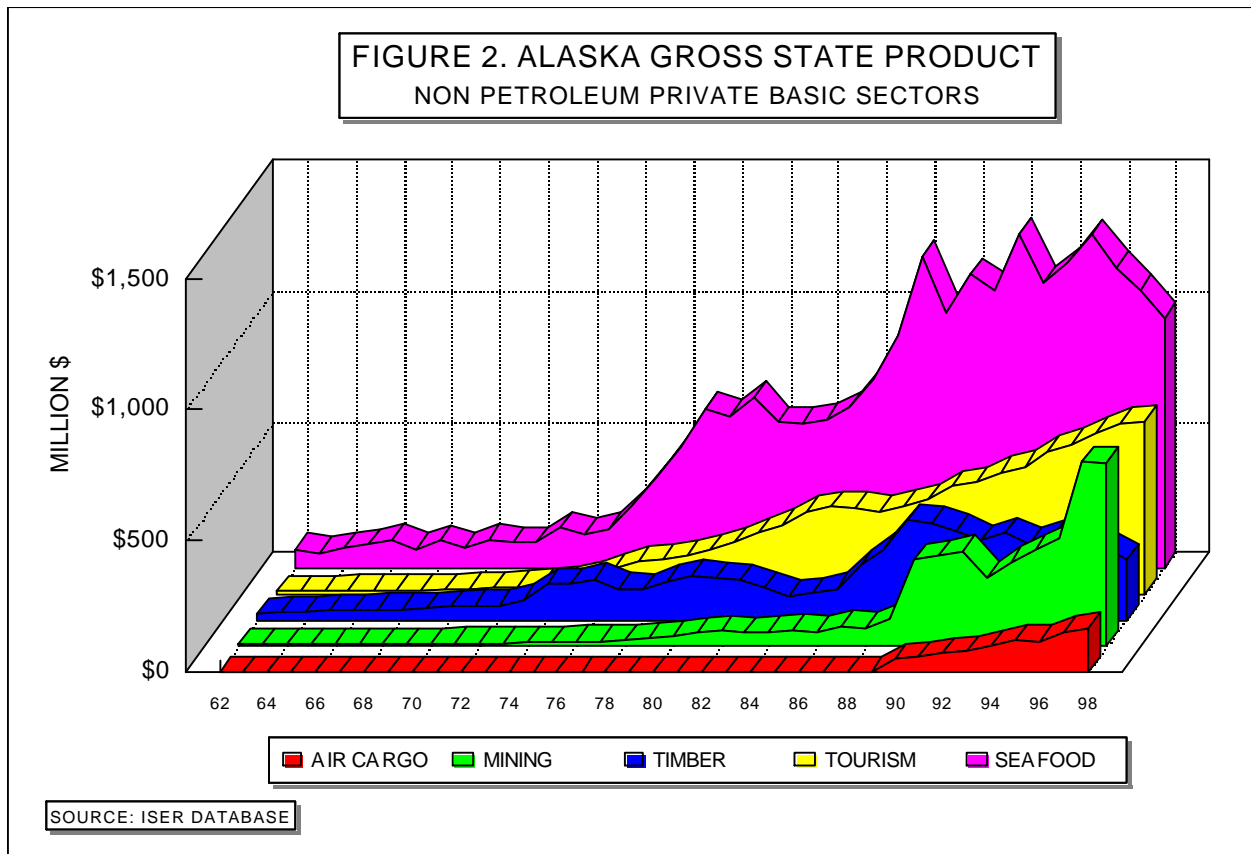
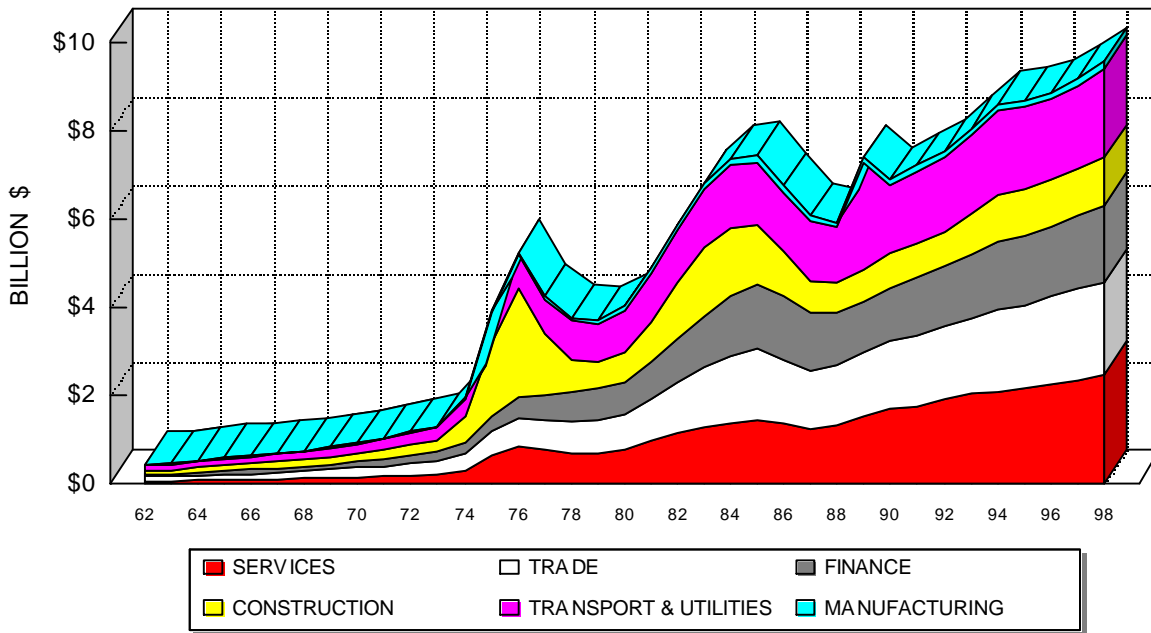
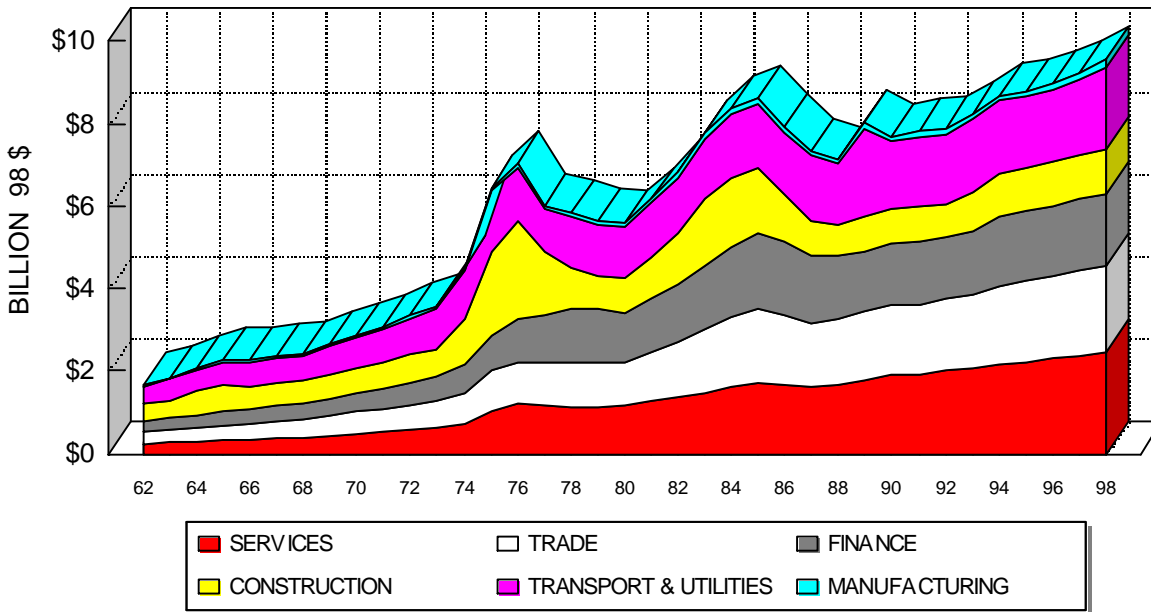


FIGURE 3. ALASKA GROSS STATE PRODUCT  
PRIVATE NON-BASIC SECTORS



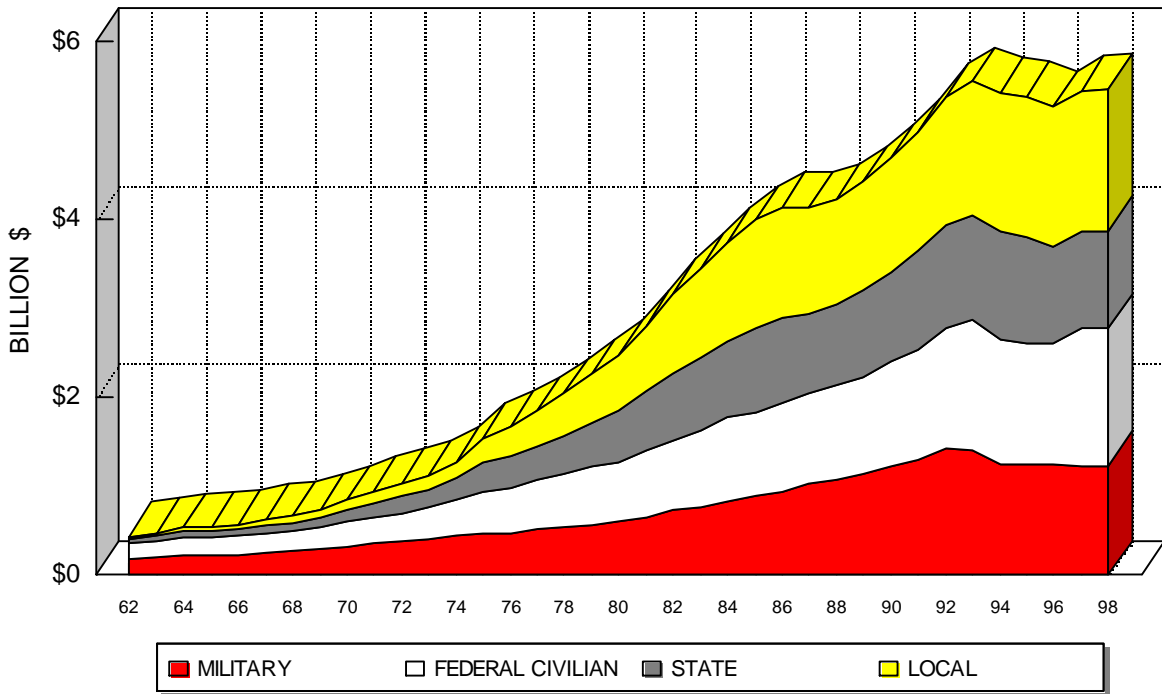
SOURCE: ISEER DATABASE  
(NET OF BASIC SHARES OF TRADE, SERVICES, AND TRANSPORTATION)

FIGURE 3B. ALASKA REAL GROSS STATE PRODUCT  
PRIVATE NON-BASIC SECTORS



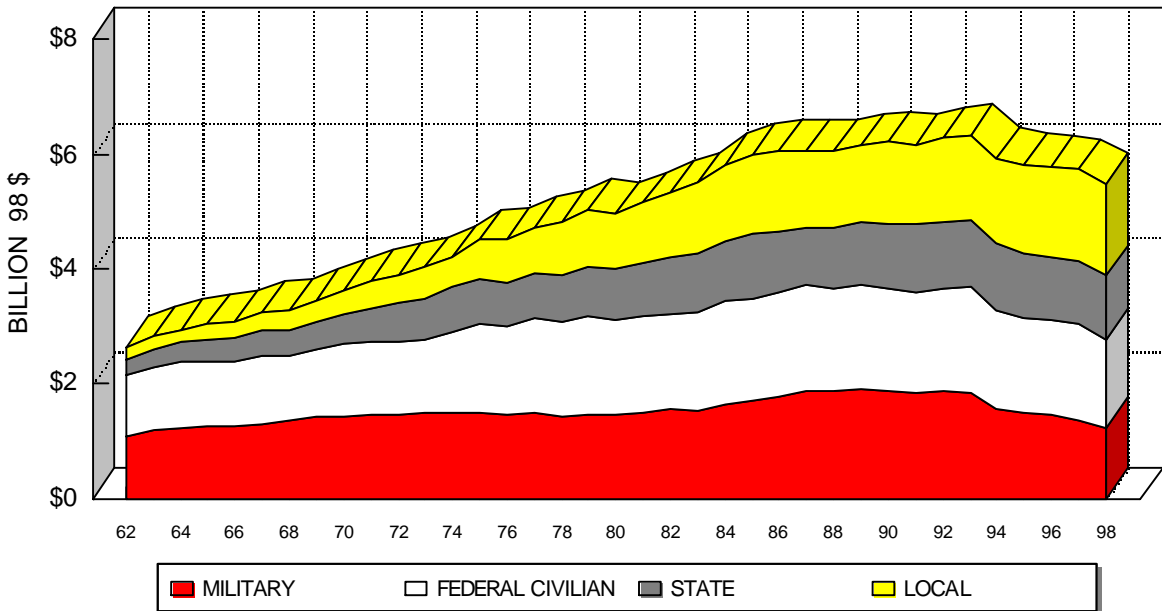
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FIGURE 4. ALASKA GROSS STATE PRODUCT  
PUBLIC SECTORS



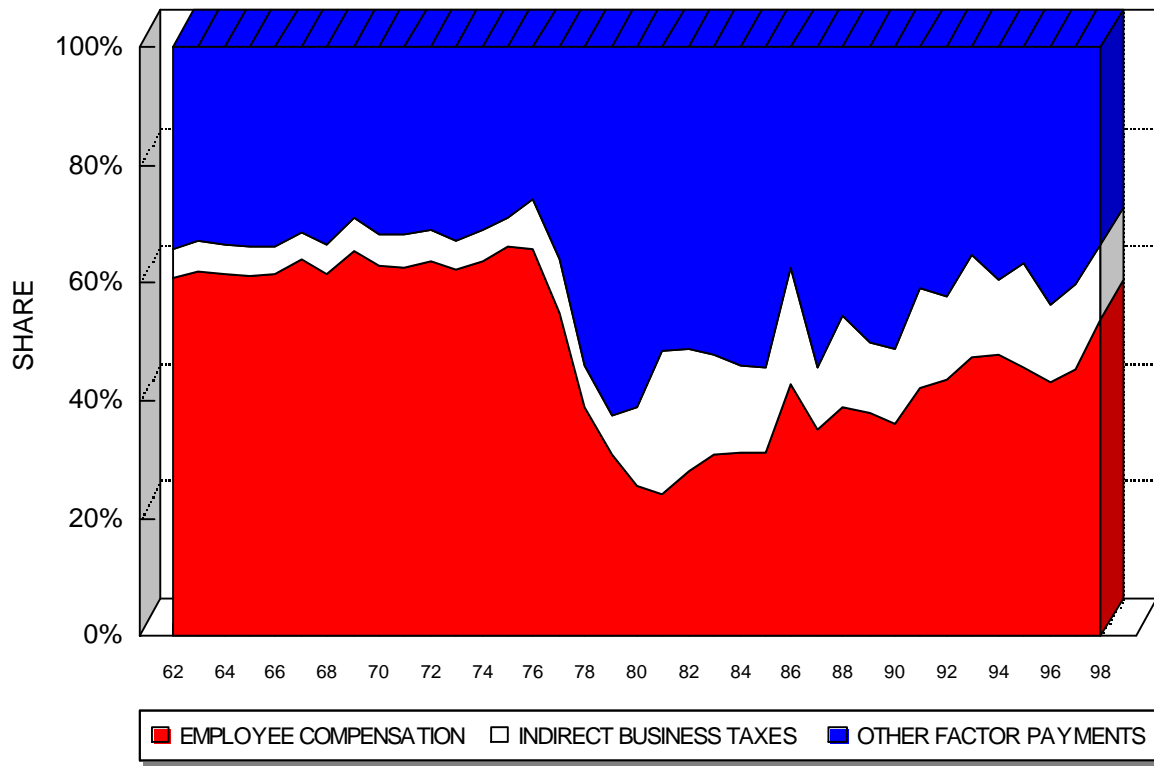
SOURCE: ISER DATABASE

FIGURE 4B. ALASKA REAL GROSS STATE PRODUCT  
PUBLIC SECTORS



SOURCE: ISER DATABASE

FIGURE 5. ALASKA GROSS STATE PRODUCT SHARES



SOURCE: ISER DATABASE

FIGURE 6A. ALASKA GROSS STATE PRODUCT SHARES  
1965

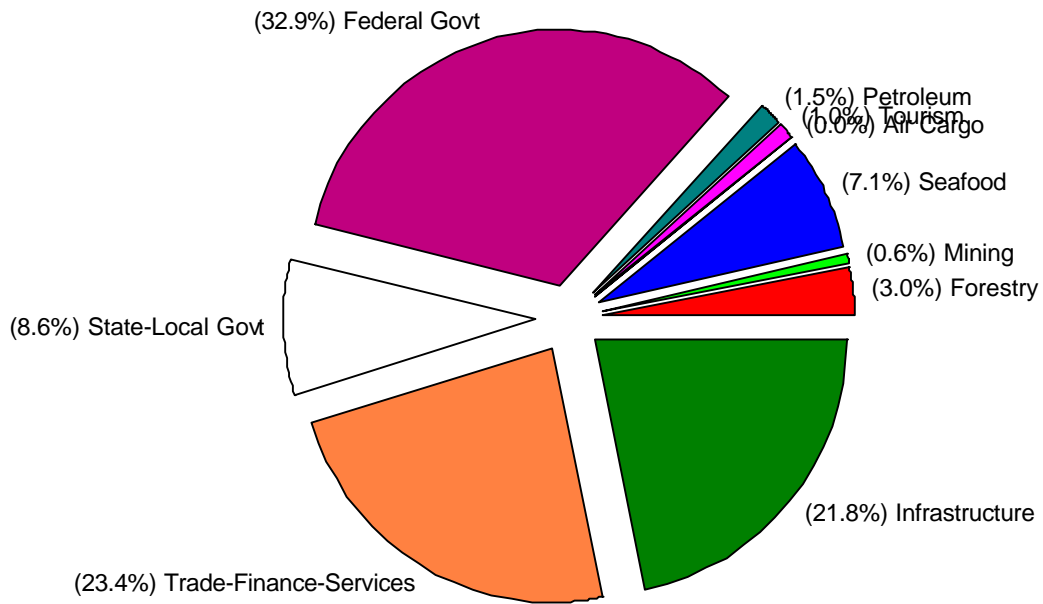


FIGURE 6B. ALASKA GROSS STATE PRODUCT SHARES  
1998

