

# Research Summary

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## Alaska's Gross State Product, 1961-1990

Alaska's gross state product (GSP) in 1990 was almost \$25 billion. That compares with less than \$1 billion in 1961. Even if we adjust those figures to remove the effects of inflation, the real gross state product was still nearly 6 times bigger in 1990 than it had been 30 years earlier.

GSP soared, especially in the past 15 years, because it includes the value of North Slope oil. In recent years, petroleum has contributed about half of Alaska's GSP.

GSP is a crucial measure of Alaska's economic capacity: of Alaska's ability to produce for the local, national, and world markets. But only a part of GSP stays in Alaska. A big share goes to multi-national oil companies, the federal government, and others outside Alaska. So when we talk about how much GSP grew in recent times, that doesn't all translate into economic benefits for Alaskans.

Growth in the number of jobs is a much more direct measure of benefits to Alaskans themselves. Over the past 30 years, the number of jobs in Alaska roughly tripled. Many of those jobs were the direct or indirect result of petroleum development, but (as we'll explain more below) only a relatively small share of the economic value created by the petroleum industry consists directly of wages.

Gross state product is the value of everything businesses and government in Alaska produce in a year—goods, services, and capital investment.<sup>1</sup> It includes the value of both commodities produced for export (like oil and fish) and goods and services produced for residents (like medical care).<sup>2</sup>

How can we measure the economic value of everything Alaska produces? We assume the economic value of goods and services to be what consumers will pay for them, and the

GSP of businesses is valued at the market price of their final products. Government doesn't sell its services on the market. So analysts generally estimate the economic value of those services as the amount government spends (in employee wages and benefits) for roads and other services.

Who gets GSP? A large share is paid to those who helped create the economic value: wages and benefits to employees, interest to lenders, and profits to owners. Government also collects a portion of GSP in taxes, and a portion is depreciation on equipment as it wears out.

The most recent year for which we have detailed GSP information is 1989.<sup>3</sup> The figure for 1990 is a rough preliminary estimate.<sup>4</sup> (The 1989 GSP includes close to \$1 billion associated with clean-up after the Exxon Valdez oil spill; the 1990 estimate is adjusted to remove the direct effects of that spending.)

This summary includes both nominal (not adjusted for inflation) and real (adjusted for inflation) GSP figures.<sup>5</sup> Nominal figures show how changes in both prices and output influence the GSP. Real figures highlight changes in output (quantity produced) and therefore show how the structure of Alaska's GSP has changed over time.

The graph lines on this page show nominal growth in total GSP; in GSP excluding petroleum; and in GSP of Alaska's resource industries other than oil—fishing, forestry, and mining. What generalizations can we make about nominal growth in GSP since 1961?

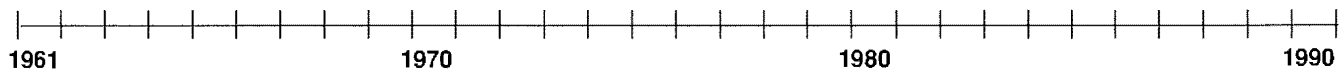
• **Petroleum led growth in GSP in the past 15 years, but its share of GSP fluctuates year-to-year with changes in oil prices and production levels.** Petroleum's GSP more than tripled

**Total GSP**  
\$25 billion

**Non-Oil GSP**  
\$12 billion

**Other Resource**  
\$1.3 billion

**Total GSP**  
\$951 million  
**Non-oil GSP**  
\$817 million  
**Other Resource**  
\$110 million



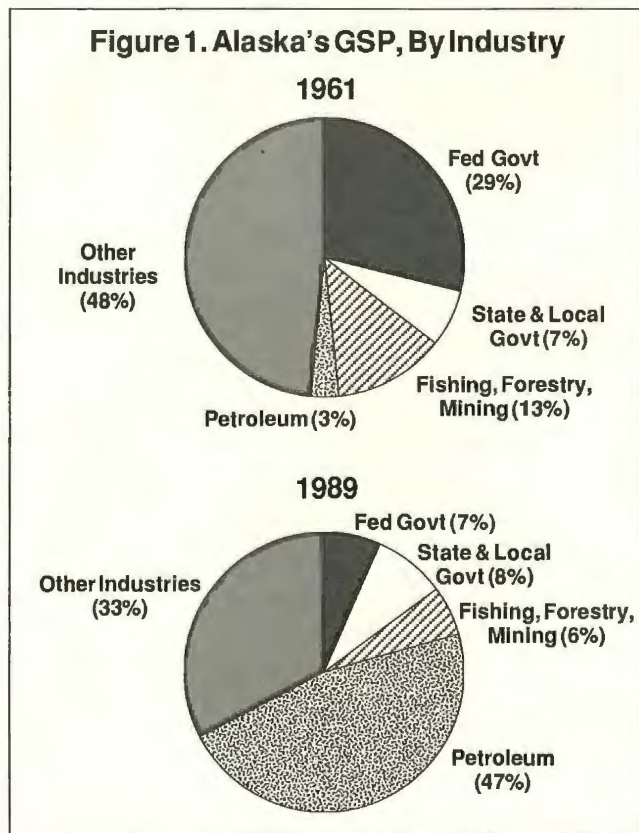
Eric Larson, ISER research associate, prepared the most recent GSP estimates. Scott Goldsmith, professor of economics, and Steve Colt, assistant professor of economics, helped develop ISER's estimation methods. The Alaska Department of Commerce and Economic Development helped support this research. More detailed GSP breakdowns by industry are available for 1961 through 1989; call ISER at 907-786-7710. This publication is printed on recycled paper.

between 1977 and 1978, after the start of North Slope oil production. It more than doubled again between 1979 and 1981, as the world price of oil tripled and production grew. Then it dropped by half between 1985 and 1986, when the price of oil crashed.

- *Alaska's GSP is very sensitive to changes in oil prices, but the total GSP doesn't fluctuate as much or as quickly as petroleum's GSP.* Between 1979 and 1981, rising oil prices pulled total GSP up nearly 80 percent. Between 1985 and 1986, plummeting oil prices reduced total GSP by 30 percent.

- *The most rapid growth in non-oil GSP occurred between 1970 and 1976 and between 1981 and 1984.* Both of those periods of growth were indirect results of petroleum development. In the first half of the 1970s, the state government spent its bonus money from North Slope lease sales and the trans-Alaska oil pipeline was built. In the early 1980s, the state government fueled an economic boom by spending billions of dollars in oil revenues that flooded the state treasury after the price of oil tripled.

- *The fishing, forestry, and mining industries have their own cycles of growth as prices and production levels change.* A combination of rising prices for salmon and increased bottomfish catches sharply increased the value of fish harvesting between 1985 and 1988, but a crash in salmon prices brought the value down in 1989. Timber harvests from Native corporation lands contributed to an increase in the value of forestry in recent years. The



kinds of minerals mined in Alaska have changed, with zinc and silver from big new mines now adding to production; earlier, Alaska produced mostly gold, coal, sand and gravel.

The pie charts on this page show both changes in GSP contributions by industry, and in the shares of GSP going to employees and to others—owners, investors, and government. How has the structure of GSP changed over time?

- *Petroleum has taken the place of the federal government as the biggest contributor to GSP, and the relative share of the other resource industries also shrank as petroleum ballooned.* (This is not to say that the dollar contribution of those industries declined. As we discuss below, almost all grew substantially—but their shares of total GSP declined because petroleum grew so much faster.)

In 1961, the federal government made up nearly 30 percent of GSP, and fishing, forestry, and mining another 13 percent. Petroleum contributed just 3 percent. By 1989, the federal government's share of GSP was only 7 percent and the other resource industries just 6 percent—while petroleum made up nearly half. The federal government has been an anchor of the volatile Alaska economy since statehood, but its ability to stabilize the economy has declined as its percentage share of GSP dropped.

- *State and local governments maintained about the same share of GSP (between 7 and 8 percent) in 1989 as in 1961, because their GSP tends to move with petroleum GSP.* State and local GSP rely heavily on petroleum revenues, which are a part of petroleum's GSP.

- *Wages and benefits make up a much smaller percentage of Alaska's GSP now than 30 years ago.* Petroleum now dominates GSP, and unlike other industries, petroleum's GSP consists much more of profits, taxes,

**Alaska Gross State Product, Selected Years 1961-1989**  
 Nominal values in millions of dollars, Real values in millions of 1989 dollars  
 (Nominal values are unshaded, Real values are shaded)

	1961	1970	1976	1981	1984	1985	1986	1987	1988	1989
<b>TOTAL</b>	851	2,105	7,617	25,396	26,339	26,813	18,696	21,997	20,380	23,760
	4,263	7,086	11,032	18,827	21,783	22,461	21,857	22,880	23,232	23,760
<b>Total excluding Petroleum</b>	824	1,825	7,096	8,223	11,263	11,554	11,076	10,671	11,044	12,642
	4,117	5,707	9,670	9,816	12,137	12,241	11,739	11,312	11,330	12,642
<b>Petroleum</b>	28	280	521	17,174	15,076	15,259	7,620	11,326	9,336	11,118
	145	1,379	1,362	9,011	9,646	10,220	10,118	11,568	11,902	11,118
Oil and Gas Extraction	21	248	393	13,531	11,166	11,235	4,324	8,332	6,784	8,817
	130	1,316	1,181	7,086	7,590	8,069	7,840	9,185	9,442	8,817
Pipeline Transportation	0	0	0	3,406	3,692	3,841	3,044	2,795	2,346	2,079
	0	0	0	1,673	1,840	1,969	2,027	2,183	2,248	2,079
Chemical & Petroleum Processing	6	32	128	237	218	182	252	199	206	222
	15	63	180	252	216	182	251	201	211	222
<b>Seafood</b>	69	110	241	573	456	500	606	702	940	789
	322	377	523	743	833	660	696	639	680	789
Fish Harvesting	26	55	135	402	313	365	464	538	732	551
	219	276	265	522	438	480	493	448	471	551
Fish Processing	43	55	106	171	144	135	142	164	208	238
	103	100	257	221	395	180	204	191	209	238
<b>Forest Products</b>	31	94	203	249	177	160	177	325	413	477
	151	323	348	305	218	194	200	330	383	477
Forest Management	9	33	28	80	86	56	46	98	125	142
	75	168	55	104	120	74	48	82	80	142
Wood Processing	22	61	175	169	91	104	131	227	288	334
	76	156	293	201	98	121	152	248	302	334
<b>Mineral Mining</b>	10	11	19	47	51	57	49	59	74	82
	77	66	40	48	51	60	50	58	70	82
<b>Federal Government</b>	246	457	717	1,012	1,249	1,274	1,331	1,406	1,492	1,576
	1,587	1,695	1,531	1,458	1,492	1,492	1,499	1,556	1,544	1,576
<b>State and Local Government</b>	56	212	615	1,261	1,768	1,944	1,977	1,875	1,878	1,974
	342	757	1,192	1,561	1,876	1,988	1,972	1,880	1,907	1,974
<b>Construction</b>	72	188	2,487	971	1,616	1,383	1,003	752	682	765
	389	546	2,242	920	1,543	1,419	1,038	798	707	765
<b>Transportation<sup>a</sup></b>	48	111	445	574	676	646	591	594	641	726
	301	311	577	574	631	619	597	644	655	726
<b>Communication and Public Utilities<sup>b</sup></b>	80	111	350	596	843	875	875	854	766	1,821
	209	287	577	758	1,008	1,061	1,069	1,052	1,006	1,821
<b>Trade</b>	100	234	670	1,044	1,618	1,703	1,546	1,435	1,469	1,573
	275	506	930	1,139	1,571	1,667	1,563	1,500	1,535	1,573
<b>Finance</b>	53	141	474	800	1,252	1,387	1,352	1,225	1,144	1,110
	185	364	792	996	1,273	1,384	1,310	1,192	1,134	1,110
<b>Services</b>	57	146	840	1,033	1,494	1,574	1,492	1,380	1,478	1,684
	206	405	1,005	1,148	1,455	1,570	1,558	1,503	1,572	1,684
<b>Agriculture</b>	2	2	4	4	8	8	15	14	14	11
	15	10	8	5	11	10	16	11	9	11
<b>Other Misc. Manufacturing</b>	2	8	32	59	54	46	63	50	52	55
	4	16	45	63	54	46	63	50	53	55

<sup>a</sup> Excludes trans-Alaska pipeline, which is included under pipeline transportation.

<sup>b</sup> Most of the \$1 billion in direct spending for clean-up of the Exxon-Valdez oil spill is in 1989 GSP for sanitation services in public utilities.

and interest than it does of wages. So in 1989, wages and benefits made up just 28 percent of GSP. In 1961, when the federal government was the biggest contributor to Alaska's GSP, wages made up 63 percent of Alaska's total GSP—because the federal contribution consists almost entirely of wages and benefits for employees. That shift explains why total GSP has grown more rapidly than employment, which is related to the wage share of GSP.

- *In the U.S. as a whole, wages make up about half of gross product, as compared with 28 percent in Alaska.* Again, that's because the petroleum industry, with its relatively smaller share of wages, dominates Alaska's GSP.

The table on page 3 includes both nominal and real GSP figures by industry for selected years. How has Alaska's real (inflation-adjusted) GSP changed?

- *The real value of Alaska's production grew nearly six-fold over the past 30 years.* Petroleum was responsible for a large share of that growth, but the output of most major Alaska industries is much higher now than it was in 1961.

- *Even if we exclude petroleum, the rest of Alaska's real GSP increased faster than the U.S. GNP over the past 30 years.* Real U.S. GNP grew 2.5 times bigger between 1961 and 1990, while Alaska's non-oil GSP tripled.

- *The real GSP of the fishing, forestry, and mining industries was more than twice as large in 1989 as in 1961.*

- *The real GSP contributions of trade, finance, and services were six to eight times larger in 1989 than they had been in 1961.* GSP in these industries dropped during the 1986-88 recession. Except for finance—which continued to decline through 1989—they had gained back lost ground by the end of the decade.

- *The construction industry's GSP fluctuates quickly with changes in government spending and with new activity in petroleum and other resource industries.* In 1989 construction's GSP was much smaller than it had been when the trans-Alaska pipeline was built in the

mid-1970s, and during the construction boom of the early 1980s.

- *The real federal government GSP was nearly the same in 1989 as in 1961.* It changes with military and other federal policies rather than local economic conditions.

What will Alaska's GSP look like in the years ahead? Petroleum production has already started to decline as the Prudhoe Bay field ages, and it will continue to shrink. Less oil production will mean a smaller GSP. But Alaska's employment will not necessarily decline as much as GSP does—because a big share of petroleum's GSP doesn't go to Alaskans anyway. State and local governments will be hit hardest by shrinking oil production, because they depend most directly on petroleum revenues.

As petroleum's contribution shrinks, Alaska's GSP may look more like that of the entire U.S.—with wages and benefits making up a larger share. If Alaska is able to broaden its economic base in the coming years, the economy could create jobs even as GSP declines.

## Endnotes

1. Alaska's GSP is technically analogous to the U.S. gross domestic product (GDP). The GDP measures all production that physically takes place within U.S. borders, just as Alaska's GSP measures production that takes place within Alaska's borders. The gross national product (GNP) measures production owned by U.S. citizens that takes place anywhere in the world.
2. In calculating Alaska's GSP we exclude the value of imports (because they're not produced in Alaska) and take care to count only the additional economic value each business adds.
3. ISER's GSP estimates require information from the U.S. Bureau of Economic Analysis (BEA); this data is currently available just through 1989. The BEA also estimates Alaska's GSP. Those estimates differ from ISER's because we use more detailed information on costs of production in Alaska. The BEA uses the same estimation methods for all states. ISER's estimates are not directly comparable to BEA's estimates for other states.
4. The 1990 estimate takes into account changes since 1989 in oil production and prices, in oil spill clean-up spending, and in total wages and salaries in the economy.
5. Each industry has its own inflation adjustment, reflecting its unique cost structure.

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