

**Alaska without Petroleum:  
A Preliminary Run of a  
*Gedanken* Experiment**

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by

Scott Goldsmith  
Afosg2@uaa.alaska.edu

Institute of Social and Economic Research  
University of Alaska Anchorage  
3211 Providence Drive  
Anchorage, Alaska 99508  
907-786-7710  
[www.iser.uaa.alaska.edu/](http://www.iser.uaa.alaska.edu/)



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## I. Modeling the Alaska Economic Structure

For the purposes of this study, I have used a simple economic base model to describe the structure of the Alaska economy.<sup>1</sup> In the model each component of the economic base (the economic drivers) supports a certain number of jobs and generates a certain amount of personal income, not only directly but also through indirect and induced effects. All of the jobs and income in the economy are then accounted for when the contribution of each component of the economic base is included. The jobs and income attributed to a component of the economic base represents the potential loss to the economy if that part of the base were to disappear.

For example, mining is an important industry in Alaska, consisting almost entirely of primary production for export outside the state. The contribution of the mining sector to total Alaska employment consists of miners as well as workers at Alaskan businesses that supply goods and services to the mining industry and workers at Alaskan businesses that supply goods and services to the families of the miners and workers at the Alaskan supplier businesses. If all of the mines in the state were to close, the loss in jobs and income would include those at the businesses supplying the mines and the families of the workers.

Table I.1 shows the structure of the Alaska economy in 2005 using 14 specific economic drivers aggregated into 5 categories. Of the 361 thousand annual average jobs by place of work, federal spending (excluding retirement payments) accounted for 131 thousand; petroleum,<sup>2</sup> 108 thousand; traditional natural resources (drivers at the time of statehood and depicted on the state seal), 56 thousand; new drivers (since statehood), 48 thousand; and personal assets, 18 thousand.

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<sup>1</sup> Scott Goldsmith, Structural Analysis of the Alaska Economy: What Are the Drivers?, Institute of Social and Economic Research, 2008.

<sup>2</sup> State petroleum revenues and petroleum-based savings accounts are separately identified from production, transportation, and refining because of their size and importance as separate activities.

**Table I.1. The Contribution of the 14 Economic Drivers: 2005**

	Alaska Employment by Place of Work		Alaska Resident Personal Income	
	Thousand	Share	Billion \$	Share
<b>TOTAL</b>	<b>361.4</b>		<b>\$24.27</b>	
<b>FEDERAL</b>	<b>131.4</b>	<b>36.4%</b>	<b>\$9.74</b>	<b>40.1%</b>
Non-Defense	67.01	18.5%	\$5.576	23.0%
National Defense	64.35	17.8%	\$4.160	17.1%
<b>PETROLEUM</b>	<b>107.8</b>	<b>29.8%</b>	<b>\$6.92</b>	<b>28.5%</b>
Production	51.78	14.3%	\$3.596	14.8%
State/Local Revenues	50.16	13.9%	\$2.538	10.5%
Permanent Fund & CBR	5.87	1.6%	\$.788	3.2%
<b>TRADITIONAL RESOURCES</b>	<b>56.1</b>	<b>15.5%</b>	<b>\$2.62</b>	<b>10.8%</b>
Seafood	37.71	10.4%	\$1.481	6.1%
Mining	12.06	3.3%	\$.799	3.3%
Timber	5.90	1.6%	\$.315	1.3%
Agriculture	0.45	.1%	\$.028	.1%
<b>NEW DRIVERS</b>	<b>47.6</b>	<b>13.3%</b>	<b>\$2.31</b>	<b>9.6%</b>
Tourism	40.22	11.1%	\$1.894	7.8%
Air Cargo	7.38	2.0%	\$.415	1.7%
Other Manufacturing and Services	0.32	.1%	\$.016	.1%
<b>PERSONAL ASSETS</b>	<b>18.2</b>	<b>5.0%</b>	<b>\$2.66</b>	<b>11.0%</b>
Retirees	14.53	4.0%	\$2.147	8.8%
Non-Earned Income	3.63	1.0%	\$.516	2.1%

Source: Structural Analysis of the Alaska Economy: What Are the Drivers?

Although the simplest economic base models use employment in resource production and manufacturing (sectors that directly export goods from the region) to describe the size of each basic sector, this approach does not work well for a regional economy with Alaska's characteristics. There are several economic drivers, like the Alaska permanent fund dividend, that do not directly generate any jobs at all (except for program administration) but which indirectly generate considerable economic activity. Jobs are also not a good measure of the size and importance of several other basic sectors, including federal spending and petroleum, both of which include considerable monetary flows into the state in addition to the wages they pay to Alaska workers.

Consequently this analysis uses the inflow of dollars to characterize and measure the importance of each economic driver. Only and all dollars that flow into the economy contribute to the economic contribution of each driver. Payroll is the primary source of economic contribution for some drivers. For others, business profits and payments directly to individuals not based on employment are more important.

An example of how these inflows were calculated is shown in Table I.2 for the three components of the petroleum driver—production-related activities, petroleum revenues, and petroleum-based savings accounts. The first element of the economic contribution of each component is the payroll for wage and salary workers minus a resident adjustment for nonresident workers. For production this includes four industrial categories—the oil and gas portion of mining; pipeline transportation; refining and other petroleum manufacturing; and construction associated with exploration, development, and production. In addition, it includes an estimate of the payroll of the wholesale trade, transportation, and other infrastructure industries that sell directly to these four industrial categories.<sup>3</sup>

For petroleum revenues, the share of state and local government employment supported by those revenues is the basis for the payroll estimate. For the permanent fund and constitutional budget reserve, there are two different payrolls. The first is the payroll associated with jobs directly created in the trade and service sectors of the economy when Alaskans spend their dividend checks. The second is the state government payroll financed by the Constitutional Budget Reserve (necessary when the current state budget exceeds current revenues).

The payroll figures are augmented by net employee benefits (contributions to pensions and insurance).<sup>4</sup> An estimate of proprietor income (income of self-employed workers) is also included for petroleum production because of the presence of some self-employed workers in the construction, transportation, and infrastructure industries.

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<sup>3</sup> These industries may be thought of as the largest components of the first round of inter-industry sales described by an input-output model.

<sup>4</sup> This also nets out employee contributions to government social insurance (Social Security).

Finally, any non-earned income (any income not associated with working) paid directly to individuals is added. In the case of petroleum, this is the income paid to individuals as the permanent fund dividend.

The total dollar flow for petroleum—the estimated dollar flow that generates economic activity in the state—is \$3.75 billion. About half of that amount comes from petroleum production (including transportation, processing, and construction) while the rest comes from the expenditure of current and prior year petroleum revenues.

**Table I.2. Direct Dollar Flow Calculation for Petroleum (million \$)**

	<b>Petroleum Production</b>	<b>State &amp; Local Petroleum Revenues</b>	<b>Savings Accounts: Permanent Fund &amp; CBR</b>
<b>TOTAL</b>	<b>\$1,812.2</b>	<b>\$1,278.8</b>	<b>\$661.1</b>
<b>Payroll for Wage and Salary Jobs</b>			
Mining—Petroleum	\$975.1	-	-
Transportation—Pipeline	\$31.4	-	-
Manufacturing—Petroleum	\$15.5	-	-
Construction—Facilities	\$341.7	-	-
Sales to Industry			
Wholesale	\$96.7	-	-
Transportation	\$102.4	-	-
Infrastructure	\$231.2	-	-
State Government Operations	-	\$692.2	\$12.5
Local Government Operations	-	\$503.7	-
Retail Trade	-	-	\$39.3
Services	-	-	\$65.0
Minus: Residence Adjustment	(\$251.6)	(\$83.9)	(\$4.1)
Plus: Net Employee Benefits	\$250.1	\$166.7	\$16.3
Plus: Proprietor Income	\$19.8	\$0	\$0
Plus: Dividend-Interest-Rents and Transfers	\$0	\$0	\$532.1

Source: Structural Analysis of the Alaska Economy: What Are the Drivers?

Using this approach, we can calculate the estimated inflow of personal income dollars directly associated with each economic driver shown in Table I.3 as well as the shares. The remainder of personal income is allocated among the economic drivers based on these shares. From this allocation, employment associated with each economic driver can then be estimated.

**Table I.3. Economic Drivers—Direct Dollar Inflows in 2005  
(million \$)**

	<b>Billion \$</b>
<b>TRADITIONAL RESOURCES</b>	
Seafood	\$ .746
Mining	\$ .402
Timber	\$ .159
Agriculture	\$ .014
<b>NEW DRIVERS</b>	
Tourism	\$ .955
Air Cargo	\$ .209
Other Manufacturing and Services	\$ .008
<b>FEDERAL SPENDING</b>	
Non-Defense	\$3.739
National Defense	\$2.096
<b>PETROLEUM</b>	
Production	\$1.812
State/Local Revenues	\$1.279
Permanent Fund and CBR	\$ .661
<b>PERSONAL ASSETS</b>	
Retirees	\$1.832
Non-Earned Income	\$ .439

Source: Structural Analysis of the Alaska Economy: What Are the Drivers?

The parameters of this simple model rely to a large extent on professional judgment. This is necessitated by the paucity of good data to quantify the important relationships within the Alaska economy. But since this paper presents a general argument rather than a detailed quantitative analysis, errors of estimation are unlikely to invalidate the argument.

## **II. Stripping Away the Economic Effects of Petroleum**

The previous section demonstrated that about one-third of the jobs and personal income in Alaska in 2005 depended on the petroleum industry—its production activities, its state and local revenues, and the petroleum savings accounts of state government. If the flow of dollars into Alaska from these sources were to disappear, Alaska would lose about one-third of its jobs and personal income. Likewise, the flow of dollars into Alaska from the federal government accounted for another one-third of jobs and personal income. All other economic drivers together accounted for the final one-third.

What this analysis fails to take into account is the fact that the development of the petroleum industry in the state since statehood has contributed in several ways to the growth in the other economic drivers as well as to the “bang per buck” of each new dollar that enters the economy from these drivers.

Because of these contributions, the Alaska economy today would be about half its current size if petroleum had not been discovered in Alaska. In this section we discuss these contributions, estimate their importance, and develop a description of the size and composition of the Alaska economy under the assumption of no petroleum development. The method is that of a thought experiment, or *Gedanken*, where we begin with the economy as it is today, as described in Table I.1 and step-by-step strip away seven elements accounted for by the historical development of petroleum in Alaska.

### **II.1. Elimination of Petroleum Industry**

As already discussed, elimination of the petroleum industry would result in the loss of jobs and payroll associated with exploration, development, production, transport, refining, and manufacture of petroleum products in the state. It would reduce state general fund revenues by 85-90 percent and local government property tax revenues in several communities. The savings accounts derived from petroleum revenues—the Alaska Permanent Fund and the Constitutional Budget Reserve—would disappear and would no longer generate an annual flow of earnings.

## Production

A number of studies have estimated the employment and income impact of petroleum production activities on the Alaska economy. The most recent, completed in 2008, estimated an annual average employment impact of 42 thousand with a payroll of \$2.4 billion (Table II.1) based on an industry definition including exploration, development, production and transport and refining and manufacturing.<sup>5</sup> Although direct employment in the oil and gas industry was small (3.2 thousand in extraction), total employment was large both because of \$5 billion of purchases by the petroleum companies from Alaskan companies (Table II.2) and the high wages paid in the industry.

**Table II.1. Summary of Oil and Gas Economic Impact in Alaska 2007**

	<b>Employment</b>	<b>Payroll (million \$)</b>
<b>TOTAL</b>	<b>41,744</b>	<b>\$2,410</b>
Extraction	3,245	\$496
Refining and TAPS	1,252	\$148
Subtotal: Direct	4,597	\$644
Support	8,410	\$769
Other Indirect*	28,837	\$997

\*includes Induced impact

Source: Information Insights 2008.

**Table II.2. Oil and Gas Company Procurement:  
Expenditures on Goods and Services in Alaska, 2007  
(million \$)**

<b>TOTAL</b>	<b>\$5,042</b>
Oil Field Services	\$2,207
Services	\$971
Construction	\$546
Transportation	\$449
Trade	\$351
Other	\$519

Source: Information Insights 2008.

<sup>5</sup> AOGA Study of Oil Impact by Information Insights.

Although 2007 was a year of high oil and gas prices, payrolls and annual budgets of the petroleum companies have been large relative to the total economy. For example, it has been estimated that the oil companies had spent \$51 billion (1998 \$) through 1998 in support of their activities on the North Slope (including operation, but not construction of the Alyeska pipeline).

Table II.3 provides a sense of the types of activities that the petroleum industry in the state requires but does not provide internally. These activities create business and job opportunities in many industries.

**Table II.3. Examples of Activities Supported by Petroleum Industry Purchases within Alaska**

<b>TYPE OF ACTIVITY</b>	<b>EXAMPLE OF FIRM</b>
Camps and catering	Doyon Universal
Communications	Alaska Telecom
Construction	ASRC Energy Services
Construction suppliers	Flowline Alaska
Consulting	Alaska Anvil
Data processing	Haliburton energy Services
Diving	American Marine
Drilling	Nabors Alaska Drilling
Engineering and architecture	Lounsbury and Associates
Environmental response	Pacific Environmental
Environmental services	CCI Inc
Equipment sales and rentals	Totem Equipment and Supply
Fabrication	Peak Oilfield Service Co
Human resources	Alaskas People Inc
Maps	Mapmakers Alaska
Medical	Aeromed
Oilfield service and supply	Schlumberger Oilfield Services
Operations management	VECO
Permitting	Bristol Environmental and Engineering Services Corp
Photography	Judy Patrick Photography
Pipeline construction	HC Price
Security	Doyon Universal
Seismic	Kuuupik/Veritas
Space design	Kuukpik LCMF
Supply chain management	Alaska Supply Chain Integrators
Surveying and mapping	Michael Baker Jr.
Transportation and logistics	Air Logistics
Well servicing	Doyon Drilling
Wellhead control systems	Dowland-Bach

The employment impact is considerably larger than had been anticipated by early analysts of the industry, who felt that the absence of any instate manufacturing that

would provide inputs to production as well as to provide a base for value added downstream production would limit instate jobs. The obvious absence of many activities conducted out of central or regional offices and the incredibly high productivity of the early producing wells also contributed to the feeling that the employment impact of petroleum development would be small. However, it was recognized that the size and complexity of development of the resource would require an extensive “overhead” operation within the state which was a sharp contrast with the other resource industries that were represented in the state, primarily by productive activities with very little “overhead.”

Petroleum has also had a different cyclical pattern than other resource industries. Although there have been cycles, particularly associated with the \$900 million lease bonus sale, the construction of the oil pipeline, and the oil price fluctuations of the early 1980s, the industry has demonstrated more long-term stability than originally anticipated. Early analysts thought that employment would stabilize at a few thousand and quickly decline after development of the fields identified in the 1970s began production. The actual pattern has been one of much more long-term stability than some other resources like gold and crabs.

“The petroleum industry clearly differs from any other commodity-producing industries in Alaska’s experience. The petroleum industry is establishing within the state an executive and administrative component which will give its main operations and planning functions an Alaska base. Furthermore, it relies heavily upon contracting for its various supporting services. This overhead component of the Alaska salmon industry was represented within Alaska only by seasonally imported lobbyists and resident legal representatives; and the minerals and forest products industries simply comprised the Alaskan production extensions of a multitude of individual firm operations headquartered elsewhere. Stated in other terms, employment in these other Alaskan industries has been dominantly productive with a nominal overhead element, while in the emerging Alaska petroleum industry the “overhead” element far overshadows the productive” (Rogers, 1971 International Petroleum).

Furthermore, the petroleum industry practice has increasingly been to maintain relatively constant employment and contract out for services when needed, so that cyclical fluctuations tend to be concentrated among service companies, some of whom are nonresident. The size of the large firms have allowed them to do this, weathering

the cycles compared to firms in the seafood, mining, and tourism industries which do not have such large financial resources.

Several other characteristics of the industry are important to point out because of their indirect impact on the rest of the economy not reflected in the employment and payroll figures. Most of the employment is non-seasonal (year-round) or even counter-seasonal (higher in the winter when access to North Slope facilities is done using ice roads). The jobs are not only high paying (with high benefits) and year-round, but many also require high skill and educational levels. The size of the payroll represents an unutilized tax base. A large share of households have a member involved in the petroleum industry.

Charitable contributions, although small compared to payroll and procurement, are an important element of the contribution of the industry to the community. Since there are not many private Alaska foundations (except Rasmusen), the oil company contributions have historically been a large share of the total private contributions to nonprofits. For example, between 1993 and 1998, major oil directly contributed 75 percent of industry support and 1/3 of total support to the United Way of Anchorage.

Charitable contributions have been concentrated in urban Alaska where most employees live. They cover a broad range of activities, as reflected in Table II.4, which shows \$8 million of contributions in 1999. The total in 2007 was \$28 million. This excludes service companies, other suppliers, employee contributions, and in-kind contributions.

**Table II.4. Petroleum Industry Charitable Contributions, 1999 (thousand \$)**

<b>TOTAL</b>	<b>\$8,095</b>
Human Services	\$1,670
Community	\$1,553
United Way	\$1,378
University	\$1,301
Education	\$1,234
Arts and Culture	\$789
Sports	\$213
Environment	\$206
Other	\$61

Source: Information Insights, 1999.

## Petroleum Revenues

Total state general fund petroleum revenues from the time of statehood through FY 2007 have been \$105 billion (2007 \$) out of total general fund revenues of \$133 billion (Table II.5). Petroleum revenues have directly accounted for 79 percent of total revenues to the state account that has been the in-state source (excluding federal transfers) for funding most state government programs as well as many local government programs.

**Table II.5. State General Fund Revenues: 1959-2007  
(2007 million \$)**

<b>TOTAL</b>	<b>\$132,662</b>
Petroleum	\$104,677
Non-Petroleum	\$27,984
Taxes. etc.	\$20,714
General Fund Earnings	\$7,270

Petroleum accounted for 60 percent of total state revenues in 2006, including federal transfers and other state funds, but excluding fund earnings primarily from the permanent fund.

**Table II.6. Total State Revenues Excluding  
Fund Earnings: 2006 (million \$)**

<b>TOTAL</b>	<b>\$7,310</b>	
Petroleum	\$4,359	60%
Other State	\$985	13%
Federal	\$1,966	27%

After netting out local government transfers, this becomes the basis for estimating the share of state government employment that is dependent on petroleum revenues.

Petroleum property taxes paid to local governments over this same time period have totaled \$8.8 billion. In addition, the state government has used petroleum revenues to support local governments through transfers for education and other programs. About 35 percent of local revenues come directly through taxes on petroleum activities or from state transfers funded by petroleum revenues.

Beyond the government jobs supported by petroleum revenues, it is important to recognize that most of these jobs are not seasonal (and most that are have a seasonal

pattern that is the opposite of private sector seasonal jobs) and that they also tend to be stable over time, thus providing a cushion on the cyclical nature of employment in some other industries.

### **Permanent Fund Dividend and Other Savings**

In addition to the \$105 billion in general fund petroleum revenues, the state has collected \$22 billion that has been deposited into the Alaska permanent fund and the constitutional budget reserve for a grand total of \$126 billion (Table II.7). The permanent fund principal has been augmented by \$11 billion in special appropriations (transfers of money out of the general fund) as well as inflation proofing so that the current balance is in excess of \$30 billion. At a 5 percent real rate of return, the fund can generate annual earnings of \$1.5 billion, and since 1982 a share of fund earnings has been used to pay the annual permanent fund dividend to every eligible Alaska resident.

The purpose of the constitutional budget reserve (CBR) is to provide a source of funds in years when the state experiences a revenue shortfall. Thus the CBR is simply another source of funding for state government from petroleum revenues.

**Table II.7. State Petroleum Revenues: 1959-2007  
(2007 million \$)**

<b>TOTAL</b>	<b>\$126,497</b>
General Fund	\$104,677
Mandated Permanent Fund	\$14,175
Constitutional Budget Reserve	\$7,645
ITEM: Special PF Contributions	\$11,051
ITEM: Total PF Contributions	\$25,227

### **Impact of Elimination of Petroleum Industry**

Combining the impacts of the losses from elimination of production, the state and local petroleum revenues, and the payments out of the permanent fund and the CBR, we estimate the reductions for the Alaska economy in 2005 as shown in Table II.8.

**Table II.8. Impact of Elimination of Petroleum Industry on Alaska Economy in 2005**

<b>Component</b>	<b>Loss</b>
Employment (000)	108
Population (000)	184
Personal Income (million \$)	\$6,944

## II.2. Reduction in Other Private Basic Sectors

The petroleum industry has contributed to the development of the other private basic sectors of the Alaska economy in several ways. Petroleum revenues have eased the “tax burden” on these sectors.

Generous public expenditures have subsidized the costs of development and operation of these sectors, and growth in business infrastructure has contributed to lower costs for all types of businesses. Growth in the labor supply and absence of personal taxes has contributed to reductions in the cost of labor. We discuss each contribution in turn.

“Petroleum’s long-run contribution to the state’s economic development will not depend mainly on oil industry jobs or upon the business it generates directly for Alaska enterprise. Its contribution to both the pace and the shape of economic development in Alaska will be determined, above all, by the amount of revenue the state receives from its oil and gas leases and the way in which it spends this revenue” (Tussing, 1970, in *Alaska Survey and Report*)

### Tax Burden

The largest nonpetroleum resource sectors—seafood, tourism, mining, and timber—have, in recent years, contributed about \$100 million in taxes and other revenues to support state spending through the general fund. The burden has been light due to policies such as the absence of a personal income tax and tax concessions. For example, most fish harvesters are self-employed and, consequently, not subject to the corporate income tax. Without a state personal income tax, their income from commercial fishing is not directly taxed by the state. The state has long had a policy of tax concessions, which has reduced revenues from the state corporate income tax as well as from other sources. In the early 1970s, the largest tax concession was an industrial incentive law which allowed a corporate tax credit equal to 50 percent of the original investment. There were also concessions which reduced or eliminated royalty

payments for metallic minerals extracted from state lands as well as lease or rental payments for lands so used.

In Appendix A we show that without revenues from petroleum, the non petroleum resource sectors might be asked to contribute five times that amount—\$500 million. That estimate assumes a level of public spending consistent with other states as well as the sharing of its cost through taxes on businesses and households as in other states. Even if the Alaska population were cut in half, under those assumptions the additional “tax burden” on these sectors would be \$200 million—triple the current level. Such a burden would likely increase the cost of business for some firms beyond the point where they could survive.

### **Targeted State Expenditure Bonus**

Since 1975 petroleum revenues have allowed state government expenditures to consistently exceed the per capita average of other states. In Appendix B we estimate that the general fund “expenditure bonus” has amounted to about \$54 billion (2007 \$) out of total state petroleum revenues of \$131 billion through 2008. This “expenditure bonus” has been spent on operations, infrastructure, and fund capitalization—some of which has been directly targeted to lower development and operating costs for the private basic sectors and essentially to “buy” new industries to bring into the state. One can argue whether the state has invested wisely in alternative resources; some investments clearly have not paid off, like the fish processing plant in Anchorage and the grain silos in Valdez. But other efforts have been more successful.

A few large operations dominate the mining industry in the state reflecting the fact that costs are high and that only the largest deposits are profitable to produce. The Red Dog mine operated for years without covering all of its costs when zinc prices were low, and the Greens Creek mine closed for several years in the 1990s when metal prices were low.

In most cases the large mines operating in the state have not benefited from direct state support for infrastructure development. However, infrastructure paid by state oil revenues made it easier to build the Red Dog Mine. The state of Alaska, through the Alaska Industrial Development and Export Authority (AIDEA), authorized the issuance

of over \$103 million in bonds to build a road and port facility at the mine site. A new fund was created within AIDEA to support the building of the road and port project.

The commercial fishing industry has received state financial support in many forms over the years. This has included the state fish hatchery program, loans to commercial fishermen for the purchase of permits and gear, support for seafood marketing, development of ports, and management of the resource for sustained yield.

The stated purpose of the state fish hatchery program was to take oil dollars and convert them into a sustainable resource. The state provided grants and loans for 30 hatcheries—some state owned and others owned and operated by nonprofits. The objective was to enhance salmon returns that had fallen dramatically from the level of the early 1970s back to the low level of 1960.

“The development of the Alaska salmon hatchery program is timed to the rapid rise in state oil revenues in the 1970s and early 1980s, following the discovery and development of oil on Alaska’s North Slope . . . This rapid increase in state revenues led to corresponding rapid growth in state capital and operating expenditures as well as a search for a way in which the state might use its financial resources to encourage sustainable economic development based on renewable resources” (Knapp 1999).

Although the direct funding source for the program may have been taxes on fishing, in the absence of petroleum revenues those fisheries taxes would likely have been needed to pay for more basic government services.

Between 1972 and 1992, \$41 million in capital appropriations and \$74 million in bonds were authorized to pay for state hatcheries. Annual appropriations for operations gradually increased from \$1 to \$19 million. Between 1977 and 1995, \$60 million in loans were made for capital expenditures and \$41 million in loans for operation of the nonprofit hatcheries. The state received \$25 million in repayments for these loans. Overall, the program has not paid for itself in terms of either loan repayments or increases in tax revenues to offset state appropriations. Problems introduced by the hatcheries have included depressed prices for fish due to increased supply, complications in managing the resource due to the mixing of species, and competition with the private sector for marketing.

It is not clear whether the marginal value of the additional fish has exceeded the cost of producing and harvesting them, particularly if the price of the rest of the harvest was lower as a result of these additional fish. If the cost of the program (operations and capital) is ignored, it is then likely that the value of the harvest to the fishermen—even after they paid the marginal cost of the harvest of the marginal fish and the additional taxes—was enhanced by the program.

The Alaska Seafood Marketing Institute (ASMI) was established in 1981 as a public corporation subject to the authority of the state, with a mission to increase the economic value of Alaska seafood primarily through marketing and quality assurance. Funding originally came from a direct annual appropriation of about \$2 million (ended in 1997, but reinstated in 2006 when petroleum revenues rebounded), supplemented by a tax on processors. In 1994 a tax was placed on the salmon catch, and from 1988 federal grants augmented state sources.

ASMI has claimed some important successes in pulling the industry through cataclysmic events—the canned salmon scare in 1982 and the Exxon Valdez Oil Spill in 1989. “In both cases, ASMI launched massive public relations campaigns to avert market disasters” (quoted in Knapp, 2007). Other specific benefits are hard to quantify, and critics point to the fact that salmon prices have continued to decline and that any tangible results may be in markets far from where the fish are harvested.

Loans to resident fishermen for the purchase of permits and gear may have helped to keep the industry “Alaskanized.”

Although port development has been primarily paid for by the federal government, operations and maintenance have been supported by state funding.

The state has been successful in managing the commercial fishery to maximize sustained yield.

Although there have been no obvious large infrastructure investments specifically targeting tourism, the industry has certainly benefited indirectly from the development of roads and harbors, the construction of convention centers, and museums. As well as other amenities.

The air cargo industry, centered in Anchorage, relies on inexpensive jet fuel refined in Alaska from Alaska crude oil. Without that supply this industry might be considerably smaller.

The other natural resource industries (timber and agriculture) have also received state support over the years.

### **General State Expenditure Bonus**

In addition to directly targeted expenditures, considerable state funds have also been spent to enhance the quality and quantity of physical infrastructure which has also enhanced the commercial viability of the operations of the private basic industries in the state. Some has also been spent to increase the level of human capital in the state. In all these ways, public spending has directly and indirectly contributed to reduced costs for the private basic sectors.

For example, good schools attract families. So investments in schools in a fishing community like Dillingham could make it a more attractive location for Alaskans considering entering into the fish harvesting industry.

### **Business Infrastructure and Services**

As indicated in Table II.3, the petroleum industry, through its annual procurement purchases, supports a wide range of companies providing services in areas such as communications, construction, transportation, medical, and engineering—thus, increasing the range of local business services available to other basic industries in the state.

### **Labor Supply**

In the same way that petroleum has expanded the range of business services available locally, it has increased the size and skill level of the labor supply. Resource industries like mining might find it easier to hire skilled workers locally as a result.

### **Wage Rate**

In theory the wage rate should be sensitive to the level of personal taxes—income and sales—that workers must pay. The wage should also be lower than other places if the level of public services is higher. As yet, neither of these propositions has been

tested for the Alaska economy. However, it is possible that private basic industries can pay a slightly lower wage because there are no general taxes on workers in Alaska and the level of public amenities is relatively high.

**Offsetting Developments**

There could well be some offsetting factors that would have favored development of the other natural resource basic industries in Alaska in the absence of petroleum. This could be the case if the development of petroleum were in competition with some other resource. The Exxon Valdez oil spill is an example of this phenomenon although it is not obvious that the fishing industry, in the long run, would be larger in the absence of petroleum. Another possibility is that the wealth from petroleum has reduced the sense of urgency surrounding the development of other basic industries in the state. This symptom of the “resource curse” is hard to measure, but anecdotal evidence suggests it exists to some degree.

**Impact of Reduction of other Private Basic Sectors**

We have not conducted a quantitative analysis of the sensitivity of the other private basic sectors in Alaska to the factors discussed above, which as a group have tended to reduce their cost of doing business in the state. Rather, for this exercise we have assumed that, without the petroleum industry, contributions to cost reduction discussed above, the other private basic sectors of the Alaska economy would be smaller by the percentages shown below in Table II.9.

**Table II.9. Assumptions: Loss of Basic Sector Activity without Petroleum**

Seafood	30%
Timber	30%
Mining	30%
Tourism	30%
Agriculture	100%
Air Cargo	50%
Miscellaneous Manufacturing	0%

However, we also assume that even though these industries would be smaller, they would offset 10 percent of the petroleum revenue loss through higher taxes that would fall on nonresidents. These additional taxes would then represent new money flowing

into Alaska. The loss to the 2005 Alaska economy from the reduction in other private basic sectors is shown in Table II.10.

**Table II.10. Impact of Reduction in Other Private Basic Sectors on Alaska Economy in 2005**

<b>Component</b>	<b>Loss</b>
Employment (000)	26
Population (000)	44
Personal Income (million \$)	\$1,187

### **II.3. Reduction in Retiree Population**

In 2004, 52 thousand retired Alaska seniors, aged 60+, directly contributed \$1.461 billion to the Alaska economy by their presence (Appendix D). This is a surprisingly large amount, considering the small size of the senior population in the state. Since retirees have the option to live anywhere, their presence in the state can be viewed as a basic industry or economic driver.

Over time the share of the 65+ population has been increasing rapidly because the number of seniors choosing to stay in the state after retirement has increased. This is a reflection of the fact that seniors are finding Alaska more attractive as a retirement option.

#### **Tax Burden**

Alaska is one of only five states with no personal income tax. There is no statewide sales tax. Homeowners aged 65 and above receive a state-mandated tax rebate on their local property tax up to the first \$150 thousand of taxable value. Some excise taxes, such as on gasoline, are quite low compared to other states.

#### **State Expenditure Bonus**

Until recently, every Alaskan aged 65 and above was eligible for the Longevity Bonus—a program that provided a cash payment of \$250 per month to help offset the high cost of living so that seniors could stay in Alaska. Although that program has been discontinued, it has been replaced by one that targets needy seniors. All senior residents are eligible to receive the Alaska permanent fund dividend, and the state provides other benefits for seniors, including support for senior centers.

## Labor Force

Retirees often relocate to where their children live. Petroleum-driven economic growth has meant that many of the children of older Alaskans have been able to find jobs in Alaska, which has contributed to the growth in the retiree population in the state.

### Impact of Reduction in Retiree Population

We have not conducted a quantitative analysis of the sensitivity of the size of the retiree population in Alaska to the factors discussed above, which as a group have tended to make Alaska relatively more attractive over time. Rather, for this exercise we have assumed that, without the petroleum industry, contributions of the retiree population would be half of what it is today and the loss to the economy would be as shown in Table II.11. The population loss includes not only the reduction in employment and the families of those workers but also the retirees themselves who move elsewhere.

**Table II.11. Impact of Reduction in Retiree Population on Alaska Economy in 2005**

<b>Component</b>	<b>Loss</b>
Employment (000)	12
Population (000)	46
Personal Income (million \$)	\$1,310

## II.4. Increase in Household Tax Burden

Petroleum revenues essentially fund the entire state's general fund operating budget. Because of this Alaska households pay no broad-based taxes—personal income or sales—and only modest excise taxes. In the absence of petroleum revenues, broad-based taxes on households would be required to fund basic public services. These taxes would take purchasing power away from households and put it in the public sector.

### Impact of Increase in Household Tax Burden

We assume that the level of household taxes replaces 30 percent of the lost petroleum revenues. This shift in purchasing power from the private to the public sector increases employment and personal income because the public spending directly creates jobs while the job losses from reduced private spending are indirect (see Table II.12).

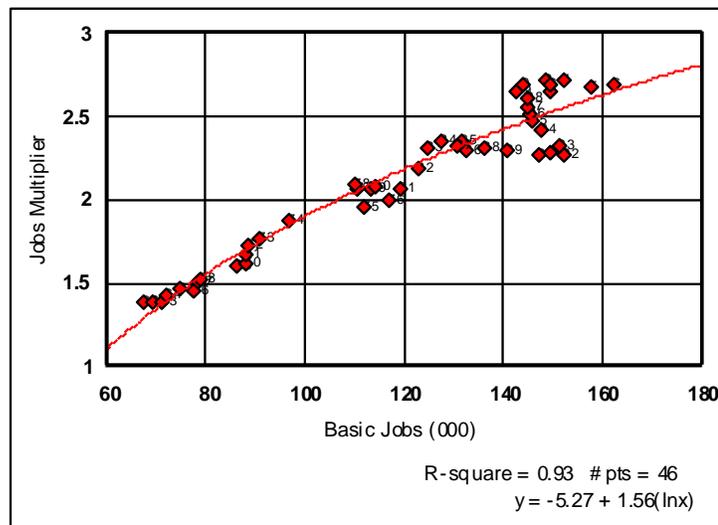
**Table II.12 Impact of Increase in Household Tax Burden on Alaska Economy in 2005**

Component	Loss
Employment (000)	-12
Population (000)	-20
Personal Income (million \$)	-\$551

**II.5. Reduction in Economic Multiplier**

The petroleum industry has contributed to the development of the support sectors of the Alaska economy (transportation, communications, utilities, trade business services, personal services, finance, manufacturing for the local market). These developments have increased the size of the economic multiplier as shown in Figure II.1, primarily by reducing the cost of business in the state and making it more attractive for these types of businesses to local here. The lower cost of business has also contributed to lower prices which have increased consumer purchasing power and also positively impacted the size of the multiplier.

**Figure II.1. Total Jobs Multiplier as a Function of Basic Plus State and Local Jobs**



Economic growth has increased the size of the regional market leading to economies of scale and increased competition. It has reduced seasonality, allowing firms to spread their fixed costs over a larger market. Petroleum revenues have eased the “tax burden” on these sectors. Generous public expenditures have subsidized the

costs of development and operation of these sectors. Growth in business infrastructure has contributed to lower costs for all types of businesses. Growth in the labor supply and absence of personal taxes has contributed to reductions in the cost of labor. We discuss each of these contributions in turn.

### **Larger Market**

The increase in consumer purchasing power from the development of petroleum has made it economic for new types of businesses, that could not be supported by the smaller market without petroleum, to locate in the state. This means that a larger share of each dollar of consumer spending remains in Alaska to circulate through the economy—a phenomenon reflected in a larger economic multiplier.

Wholesale trade, a high fixed-cost industry, provides an example. In the early days of statehood, the industry in Alaska was hampered by high fixed costs combined with small market size and the added cost of the instability associated with weather and other challenges. Consequently, costs were high and there were few local firms, equipment, or expertise. Most activity was handled out of Seattle.

Wholesale trade has also attracted more competitors to existing markets and allowed existing businesses to expand and take advantage of economies of scale in operations. This has led to both more competition and reduced costs of doing business, both of which have meant that the prices of consumer

The Alaska wholesaler is vulnerable to the uncertainties resulting from the fluctuations typical of the state—seasonality, military spending, transient labor force, and the changing bases of economic development. Higher warehouse construction costs and the large inventories required by seasonally spotty deliveries impose a heavy initial financial burden. The wholesaler must assume all these risks, yet depend completely for his business on his state alone—a small market to begin with. For all these reasons, the Alaska wholesaler has, until lately, been restricted to high turnover lines (USDC, 1959).

goods and services are lower—meaning that the real value of consumer spending has increased, which is also reflected in a larger multiplier.

### **Reduced Seasonality**

At the time of statehood, seasonal activity in commercial fishing and construction resulted in an economy with a huge influx of labor in the summer, both from Alaskans

unemployed during the winter and nonresidents who moved into the state for the summer season. Today the economy is much less seasonal in spite of the growth of commercial fishing and development of a very seasonal tourist industry (Appendix E).

The decline in seasonality is largely due to the effects of the petroleum industry. Employment in that industry is not highly seasonal, and the jobs it supports in government as well as in support sectors of the economy are also not seasonal.

Seasonal fluctuations create a challenge for businesses because they must spread their fixed costs over a few months of activity rather than the entire year. It is easier for a restaurant to be profitable if it can operate at capacity year round than if it can operate at capacity for only six months and shut down for the rest of the year. The only way that would be profitable would be to charge a higher price during the short season. The result of this situation is that a highly seasonal economy is likely to have a smaller economic multiplier than one of the same size without seasonal fluctuations.

### **Tax Burden**

Many support businesses that are sole proprietorships benefit from the absence of a personal income tax. This benefit may be shared with consumers through lower prices.

### **State Expenditure Bonus**

Since 1975 petroleum revenues have allowed state government expenditures to consistently exceed the per capita average of other states. In Appendix B we estimate that the general fund “expenditure bonus” has amounted to about \$54 billion (2007 \$) out of total state petroleum revenues of \$131 billion through 2008. This “expenditure bonus” has been spent on operations, infrastructure, and fund capitalization—some of which has been directly targeted to lower development and operating costs for the private support sectors of the economy. For example, the Alaska Industrial Development and Export Authority has provided financial assistance to numerous Alaska businesses involved in trade and services targeting the Alaska market.

### **Business Infrastructure and Services**

As was indicated in Table II.3, the petroleum industry, through its annual procurement purchases, supports a wide range of companies providing services in areas such as communications, construction, transportation, medical, and

engineering—thus, increasing the range of local business services available to other basic industries in the state.

### **Labor Supply**

In the same way that petroleum has expanded the range of business services locally available, it has increased the size and skill level of the labor supply. The migration of workers bringing their spouses and families into the state has provided a supply of labor that has enhanced the opportunities for support sector activities to take hold in the economy.

### **Wage Rate**

In theory the wage rate should be sensitive to the level of personal taxes—income and sales—that workers must pay. The wage should also be lower than other places if the level of public services is higher; however, as yet neither of these propositions has been tested for the Alaska economy. But it is possible that private support industries can pay a slightly lower wage because there are no general taxes on workers in Alaska and the level of public amenities is relatively high.

### **Petroleum Product Prices**

The development of natural gas in Cook Inlet has for many years made natural gas for heating and electrical generation in south central Alaska much cheaper than in the rest of the United States. These low prices have benefited both businesses through lower costs of doing business and consumers by increasing their purchasing power.

### **Impact of Reduction in Economic Multiplier**

We have not conducted a quantitative analysis of the sensitivity of the size of the economic multiplier to the factors discussed above. Rather, for this exercise we have assumed that, without the petroleum industry contributions, the economic multiplier today would be reduced by 25 percent. The resulting loss to the economy would be as shown in Table II.13.

**Table II.13 Impact of Reduction in Multiplier on  
Alaska Economy in 2005**

<b>Component</b>	<b>Loss</b>
Employment (000)	22
Population (000)	37
Personal Income (million \$)	\$1,497

## **II.6. Reduction in Federal Spending Linked to Population**

Federal spending—excluding the Department of Defense, retirement programs for federal employees, Medicare, and Social Security—can be divided into 4 major categories. Within each category there are some programs that are based on state population (see Appendix F). In the absence of a petroleum industry in Alaska, the population would be considerably smaller today, and federal spending associated with these programs would be reduced.

### **Higher Agency Spending**

About half of federal employees are in agencies, like the Post Office, that serve the local population.

### **Higher Transfers to Persons and Others**

Excluding federal retirement, Social Security, and Medicare, most federal transfers to individuals—like unemployment insurance and food stamps—are population sensitive.

### **Higher Formula Grants to State Government**

Almost all formula grants are directed to state government. The largest is Medicaid, and most are population sensitive. Examples of other large programs are TANF and CHIP.

### **Higher Project Grants**

Project grants go to nonprofits, including Alaska Native nonprofits, as well as to state and local governments. We assume that no grants to Native nonprofits would be reduced since the size of the Alaska Native population is not sensitive to the level of economic activity in the state. Because many of the large project capital grants to governments and other nonprofits are for capital projects, we assume a very small share would be eliminated.

## Offset

It is not possible to say how—in the absence of the high level of state funding made possible by petroleum revenues—federal spending in Alaska would have been different. It is certainly possible that the level of support would have been higher, but since Alaska has enjoyed the highest per capita federal expenditures of any state for many years, that outcome is not likely.

## Impact of Reduction in Federal Spending

We have not conducted a quantitative analysis of the sensitivity of the amount of federal spending in Alaska to the size of the population. Rather, for this exercise we have assumed that without the petroleum industry, federal spending would be reduced by the percentages shown in Table II.14. The resulting loss to the economy would be as shown in Table II.15.

**Table II.14. Assumptions Regarding Reduction in Federal Expenditures by Category**

Category	2007 Spending (million \$)	Reduction
Agencies	\$1,256	25%
Transfers	\$808	25%
Grants	\$2,996	
Formula	50%	40%
Project	50%	10%

Source: Consolidated Federal Funds Report and author estimate.

**Table II.15. Impact of Reduction in Federal Spending on Alaska Economy in 2005**

Component	Loss
Employment (000)	16
Population (000)	26
Personal Income (million \$)	\$1,292

## II.7 Reduction in Private Non-Earned Income

A small flow of money into Alaska comes from foundations, settlements like the Exxon Valdez court case, and others. If Alaska had a smaller population, this flow would likely be reduced.

## Impact of Reduction in Private Non Earned Income

We have not conducted a quantitative analysis of the sensitivity of the amount of these dollar flows into Alaska in the absence of petroleum. Rather, for this exercise we have assumed that without the petroleum industry, this flow would be reduced by 50 percent with a resulting loss to the economy as shown in Table II.16.

**Table II.16. Impact of Reduction in Private Non Earned Income on Alaska Economy in 2005**

<b>Component</b>	<b>Loss</b>
Employment (000)	3
Population (000)	5
Personal Income (million \$)	\$313

### III. ALASKA TODAY WITHOUT PETROLEUM: THE ROAD NOT TAKEN

Taken together, the result of stripping away from the 2005 Alaska economy all of the effects of petroleum described in the previous section is to cut 174 thousand jobs and \$12 billion in personal income from the economy. This results in a drop in population of 322 thousand (Table III.1).

**Table III.1. the Road not Taken: Summary of Cuts**

	<b>Employment (000)</b>	<b>Population (000)</b>	<b>Personal Income (million \$)</b>
No Oil or Oil Revenues	108	184	\$6,944
Reduction in Other Private Basic Sectors	26	44	\$1,187
Reduction in Number of Retirees	12	46	\$1,310
Increase in Household Tax Burden	-12	-20	-\$551
Reduction in Multiplier	22	37	\$1,497
Reduction in Federal Support	16	26	\$1,292
Reduction in Private Non-Earned Income	3	5	\$313
<b>TOTAL</b>	<b>174</b>	<b>322</b>	<b>\$11,992</b>

These cuts reduce the economy by half (Table III.2).

**Table III.2. the Road not Taken: Values after Cuts in 2005**

	<b>Employment (000)</b>	<b>Population (000)</b>	<b>Personal Income (million \$)</b>
<b>ACTUAL 2005</b>	<b>365</b>	<b>660</b>	<b>\$24,294</b>
No Oil or Oil Revenues	257	476	\$17,350
Reduction in Other Private Basic Sectors	231	432	\$16,163
Reduction in Number of Retirees	219	386	\$14,853
Increase in Household Tax Burden	231	407	\$15,404
Reduction in Multiplier	209	369	\$13,907
Reduction in Federal Support	194	343	\$12,615
Reduction in Private Non-Earned Income	191	338	\$12,303
<b>NO PETROLEUM 2005</b>	<b>191</b>	<b>338</b>	<b>\$12,303</b>
<b>ITEM: % REMAINING</b>	<b>52%</b>	<b>51%</b>	<b>51%</b>

The reductions do not fall equally across the different economic drivers (Table III.3).

**Table III.3. The Road not Taken: Employment With and Without Cuts in 2005 (000)**

	No Petroleum	Actual	Difference
<b>TOTAL</b>	<b>191</b>	<b>365</b>	<b>174</b>
<b>FEDERAL</b>	<b>110</b>	<b>131</b>	<b>21</b>
National Defense	59	61	2
Non Defense	51	70	18
<b>PETROLEUM</b>	<b>0</b>	<b>108</b>	<b>108</b>
Production	0	49	49
Permanent Fund & CBR	0	10	10
State/Local Revenues	0	49	49
<b>TRADITIONAL RESOURCES</b>	<b>36</b>	<b>52</b>	<b>16</b>
Seafood	26	37	11
Mining	6	9	3
Timber	4	6	2
Agriculture	0	0	0
<b>NEW DRIVERS</b>	<b>30</b>	<b>45</b>	<b>15</b>
Tourism	26	37	11
Air Cargo	3	7	4
Other Mfg and Services	0	0	0
<b>PERSONAL ASSETS</b>	<b>15</b>	<b>30</b>	<b>15</b>
Retirees	12	23	11
Non-Earned Income	3	7	4

Detail for the non-petroleum economy by economic driver is shown in Table III.4. The federal government is responsible for 58 percent of total employment. The traditional natural resource economic drivers of seafood, mining, timber, and agriculture account for 19 percent. New economic drivers (primarily tourism), retirees, and external earnings account for the remaining 24 percent.

Because of the composition of employment with seafood and tourism making up a larger share of the total, the economy is much more seasonal.

**Table III.4. The Road not Taken Contribution of the Fourteen Economic Drivers: 2005**

	Alaska Employment by Place of Work		Alaska Resident Personal Income	
	Thousand	Share	Billion \$	Share
<b>TOTAL</b>	<b>191</b>	<b>100%</b>	<b>\$12,298</b>	<b>100%</b>
<b>FEDERAL</b>	<b>110</b>	<b>58%</b>	<b>\$7,813</b>	<b>64%</b>
National Defense	59	31%	\$3,649	30%
Civilian	51	27%	\$4,164	34%
<b>PETROLEUM</b>				
Production				
State/Local Revenues				
Permanent Fund & CBR				
<b>TRADITIONAL RESOURCES</b>	<b>36</b>	<b>19%</b>	<b>\$1,512</b>	<b>12%</b>
Seafood	26	14%	\$928	8%
Mining	6	3%	\$385	3%
Timber	4	2%	\$198	2%
Agriculture	0	0%	\$0	0%
<b>NEW DRIVERS</b>	<b>30</b>	<b>16%</b>	<b>\$1,314</b>	<b>11%</b>
Tourism	26	14%	\$1,110	9%
Air Cargo	3	2%	\$184	1%
Other Mfg and Services	0	<b>0%</b>	\$19	0%
<b>PERSONAL ASSETS</b>	<b>15</b>	<b>8%</b>	<b>\$1,664</b>	<b>14%</b>
Retirees	12	6%	\$1,328	11%
Non-Earned Income	3	2%	\$336	3%

The composition of the population is also very different (Table III.5).

**Table III.5. the Road not Taken: Alaska Population 2005**

	Actual	Loss	Remaining	Percent Remaining
Population	660	-322	338	51%
Civilian Non Native	480	-322	158	33%
Alaska Native	120	0	120	100%
Military, including Dependents	60	0	60	100%

The economic and demographic structure without petroleum describes a very different Alaska politically and culturally. In what other ways would Alaska be different today if oil had never been discovered in Cook Inlet or on the North Slope? Would the Alaska Native Claims Settlement Act have been passed? What would our cities and our rural areas have looked like? These are but a few of the interesting questions to ponder as part of this *Gedanken* Experiment.

## References



## Appendix A

### The No Oil “Tax Burden” on Alaska Basic Industries

Without petroleum revenues, the burden for paying for public services in Alaska would fall on households and businesses, and particularly on those basic sectors upon which economic growth depended—seafood, mining, and tourism. The state would be forced to choose between adequately funding public services and crippling its most important industries.

If Alaskans were willing to accept the minimum per capita level of state government expenditures experienced since 1975 (\$3,900 in 2007 \$) and households were willing to contribute to paying those costs through a reinstated state income tax and a new state sales tax, the tax burden on the seafood, mining, and tourism sectors would need to increase by a factor of 4 times.

From 1975 through 2008, the state government spent \$130 billion through the general fund (2007 \$). Of that total 83%—or \$108 billion—came from petroleum revenues and 17%—or \$22 billion—from all other sources of funds. Without petroleum revenues, spending would have certainly been less, but the state would have increased taxes on the rest of the economy to fund necessary public services.

During that interval per capita general fund spending ranged from a low of \$3,800 in 1979 to a high of \$23,600 in 1982 (a year of special contributions to the permanent fund and the capitalization of a number of loan programs). If we concentrate on 2004, a recent year when per capita spending was close to the minimum, \$3,900, we can develop an estimate of the tax burden our basic industries might bear in the absence of petroleum revenues.

In 2004 the general fund budget of \$2,561 million was financed by \$2,239 million of petroleum revenues (87%) and \$322 million of other revenues (13%) consisting of about \$112 million collected from the seafood, mining, and tourism sectors, and \$210 million from other sources. If general fund spending were to be maintained at \$2,561 without petroleum revenues, the state would have had to find \$2,239 million from other sources—households and businesses.

**Table A.1. 2004 Alaska General Fund Budget  
(million 2007\$)**

<b>Expenditures</b>	<b>\$2,561</b>
<b>Sources of Funding</b>	
Petroleum Revenues	\$2,239
Other Revenues	\$322
Seafood, Tourism, Mining	\$112
Other	\$210

Since Alaska already has a corporate income tax that falls on businesses, for simplicity we assume the additional revenues would have to come from some combination of a personal income tax, sales taxes, and taxes falling on the basic sectors of the economy—fishing, mining, and tourism. Although the largest basic sector, in the absence of petroleum, would be the federal government, its activities in the state are not directly taxable.

Reinstatement of the personal income tax could have generated \$674 million; and some form of sales tax, a similar amount. This would be equivalent to a tax burden of \$2,052 per capita. But the combination of these two new taxes on individuals would leave the budget still short by \$891 million to be made up by taxing seafood, mining, and tourism.

**Table A.2. 2004 General Fund Budget: Covering the  
Loss of Petroleum Revenues (million 2007\$)**

<b>Lost Petroleum Revenues</b>	<b>\$2,239</b>
Personal Income Tax	\$674
Sales Tax	\$674
Residual Shortfall	\$891

In 2004 the basic sectors of seafood, mining, and tourism contributed somewhat less than \$112 million to the state general fund. (See *The Net Return to the State of Alaska from: Timber, Tourism, Minerals, Commercial Fisheries*, prepared by the State of Alaska Department of Commerce, Community, and Economic Development. In our total we include only the portion of revenues from each sector paid into the general fund, excluding federal revenues.)

**Table A.3. 2004 General Fund Budget: Approximate Revenues from Selected Basic Sectors of the Economy (million 2007\$)**

<b>Basic Sector Revenues</b>	<b>\$112</b>
Seafood	\$75
Tourism	\$25
Mining	\$13

If the residual budget shortfall of \$891 million were to fall as an additional tax burden on these basic sectors, their aggregate tax bill would increase to \$1,003 billion—an increase of 800 percent.

However, in the absence of a petroleum industry in the state, population would be considerably less and require a consequently smaller state general fund budget. For simplicity, we can consider this case by assuming a 50% reduction in population that reduces the state budget by 50%, to \$1,281 million. With the population reduced by half, the personal income tax would generate half the revenues assumed above—\$337 million—and a sales tax would also generate half as much revenue. We assume other revenues, except for those collected from seafood, tourism, and mining would also be reduced by half to \$105 million. Seafood, tourism, and mining would still generate \$112 million, but together these revenue sources would fall short of the necessary revenues by \$390 million.

**Table A.4. 2004 Small Alaska General Fund Budget: Covering the Loss of Petroleum Revenues (million 2007\$)**

<b>Expenditures</b>	<b>\$1,281</b>
Personal Income Tax	\$337
Sales Tax	\$337
Other Revenues	\$217
Seafood, Tourism, Mining	\$112
Other	\$105
Residual Shortfall	\$390

If the residual budget shortfall of \$390 million in this case were to fall as an additional tax burden on the basic sectors of seafood, tourism, and mining, their aggregate tax bill would increase to \$502 billion—an increase of about 400 percent.

Calculation of the residual shortfall will vary from year to year with actual basic sector revenues (new tourist and mining revenues) as well as any other non-oil revenue sources that have increased. However, the general picture is clear.

## Appendix B

### State Petroleum Revenues—Tax Relief vs. Extra Expenditures

Between 1975 and 2008, the state collected \$130,874 million (2007 \$) in petroleum revenues, deposited among the general fund, the permanent fund, and the constitutional budget reserve. In contrast, \$22,198 million was collected in taxes and other revenues from all other sources and deposited in the state general fund. The total of these SOURCES available for disposition totaled \$153,072 million (excluding non-petroleum restricted revenues).

General fund appropriations of \$130,122 million over this time accounted for the largest share of USES. The remainder, \$22,950 million, was directly deposited in the permanent fund and constitutional budget reserve (Table B.1).

**Table B.1. Sources and Uses of State Revenues (billion 2007 \$)**

SOURCES		USES	
		<b>GF Spend</b>	<b>\$130.12</b>
Petroleum	\$130.87	Petroleum	\$107.92
Other	\$22.20	Other	\$22.20
		<b>Direct PF and CBR Deposits</b>	<b>\$22.95</b>
<b>TOTAL</b>	<b>\$153.07</b>	<b>TOTAL</b>	<b>\$153.07</b>

We can disaggregate the PETROLEUM SOURCES into 3 categories—tax relief, extra appropriations, and direct saving (Table B.2).

**Tax relief** was shared between households and businesses. Although we cannot identify the exact amount of tax relief or how it was shared, we can put some logical parameters around it. For households, it is the additional disposable income they retained because they did not have to pay either a state personal income tax or a statewide sales tax. For businesses, it was the revenues they were excused from paying to bring state spending up to the level of \$4,000 per capita. The benefit to households was \$32,278 million, and the benefit to businesses was \$21,297—for a total of \$53,575 million.

(HOW WAS THIS DIVISION CALCULATED.)

The **extra appropriations** of \$54,349 million represent the benefits from spending at a level higher than \$4,000 per capita. These appropriations increased the size of the operating and capital budgets, but also provided for the creation of several loan programs and included some special appropriations to the permanent fund.

**Savings** are the direct deposits into the permanent fund and the constitutional budget reserve.

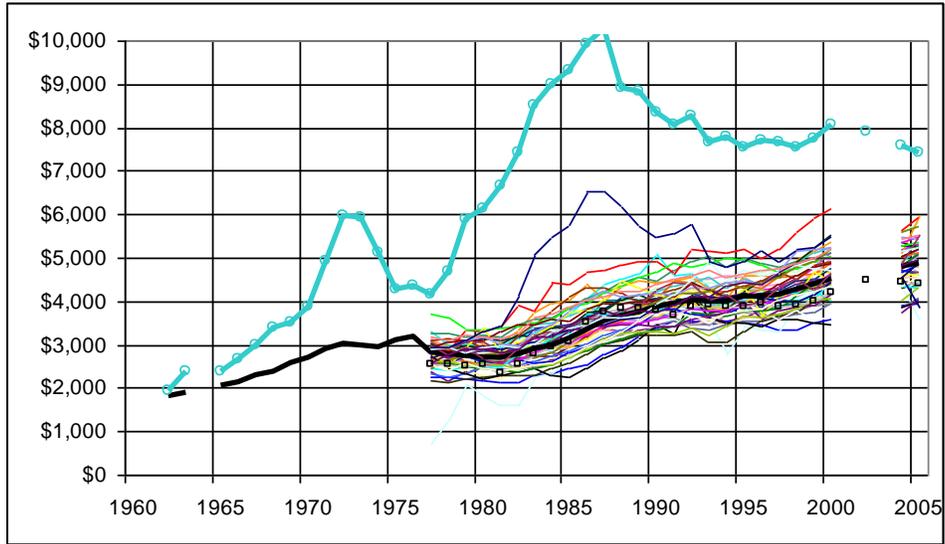
**Table B.2. How Petroleum Revenues Have Been Allocated  
(billion 2007 \$)**

<b>TOTAL</b>	<b>\$130.87</b>	
<b>Tax Relief</b>	\$53.57	41%
Households	\$32.28	25%
Businesses	\$21.30	16%
<b>Extra Appropriations</b>	\$54.35	42%
<b>Direct Savings</b>	\$22.95	18%

Another way to get a sense of the size of Alaska state government appropriations with petroleum revenues is to compare outlays in Alaska to other states using the U.S. Census of Governments State and Local finance series. The extent to which Alaska exceeds the U.S. average is a measure of the extra appropriations the state has made from petroleum revenues.

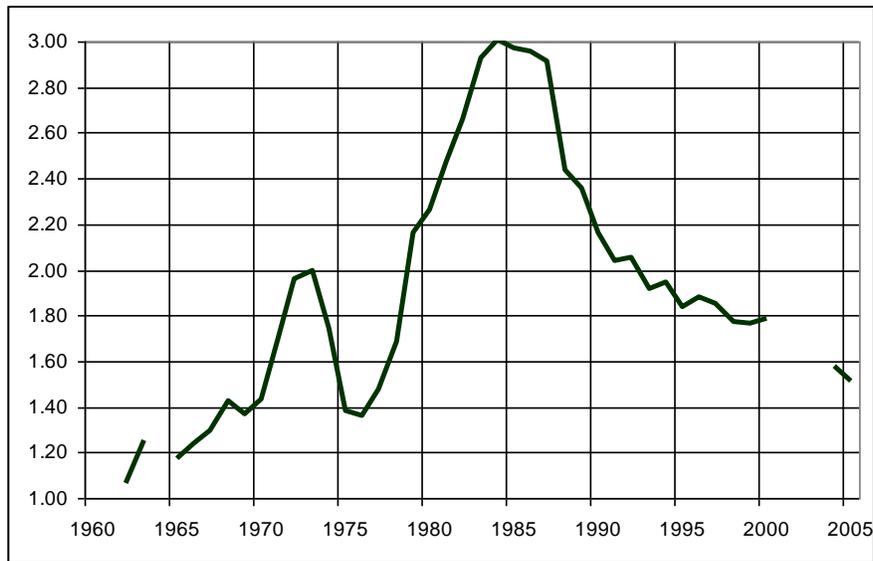
Figure B.1 shows the historical pattern of real per capita government outlays (state and local combined) from own sources (excluding federal grants and for Alaska also excluding the permanent fund dividend payments). The data are adjusted by per capita personal income, which serves as a proxy for differences across states in the cost of living. Alaska is the line consistently above the other states since shortly after statehood.

**Figure B.1. Real Per Capita State and Local Government Outlays by State**



The pattern can be summarized by taking the ratio of the Alaska per capita figure to the U.S. average, which is shown in Figure B.2.

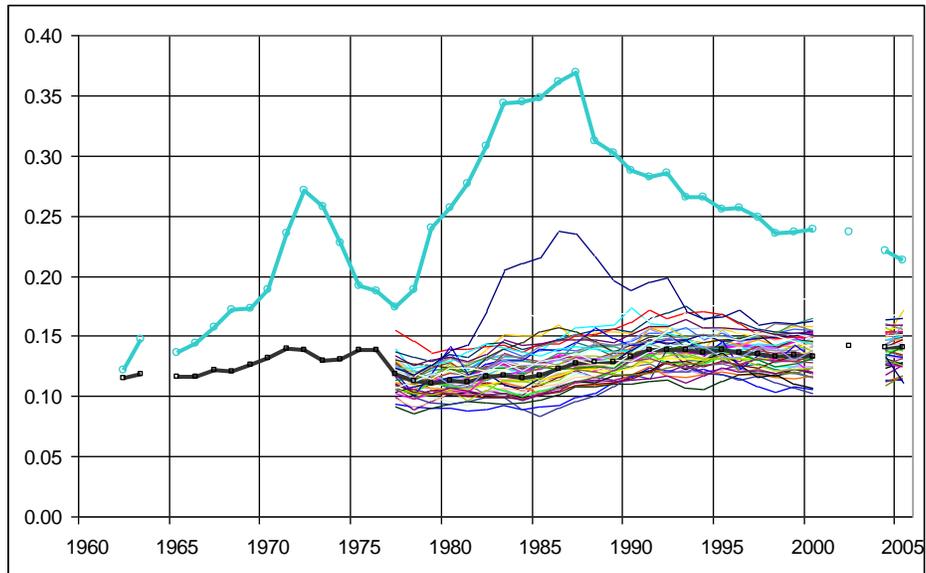
**Figure B.2. Ratio: Alaska to U.S. Average Real Per Capita State and Local Government Outlays**



It was as high as 3; and in 2005 and 2006, it was under 1.6—close to the 1.4 it was in 1970.

Government outlays as a share of personal income is another way to demonstrate that Alaska has been able to increase its public expenditures because of petroleum revenues. Figure B.3, which compares states, shows that Alaska (the highest line) has consistently been able to spend through higher state and local expenditures than any other state.

**Figure B.3. Outlays as a Share of Personal Income**



## Appendix C

### Detailed Analysis of State Spending

Review my draft paper looking at the boom and bust....and where did billions go by Linda

Even with high petroleum revenues, the state has benefited from special provisions in federal programs, like the allocation of funds from the Federal Aviation Trust fund where Alaska gets significant “supplemental” fundings over and above the normal share.

What did the extra appropriations buy—what would not be here without oil

In the absence of oil \$ a larger share of the state budget would need to be devoted to the match for federal capital (highways and airports)and operating programs (Medicaid). This would leave much less available for discretionary spending

Who pays for the big items—feds or state –education hospitals, airports, roads ports housing

#### **Direct Payments**

—longevity bonus, power cost equalization, Permanent Fund Dividend

Longevity Bonus program instituted in 1973, liberalized in 1984, and phased out beginning in 1994. Nearly \$1 billion (1995 \$) between 75 and 95.

#### **Permanent Fund Dividend**

Senior Citizen Property Tax Exemption was established in 1973 to provide local property tax relief to residents aged 65 and above. Senior home owners received a partial or total exemption on their local taxes and the state reimbursed the local government. Although the program is no longer funded, the law granting the tax exemption is still in place.

A number of other small programs to aid Senior homeowners and renters were also instituted during this time, and funding for them has also been phased out. Together these programs averaged \$3.7 million annually (1995 \$) between 1980 and 1995.

The Power cost Equalization program was established in 1981 (as the Power Production Cost Assistance Program) to subsidize the cost of electric power generation in small communities dependent upon diesel generation. The level of assistance has varied over time but the basic structure of the program remains the same. The local utility is reimbursed for a share of the cost of power production above a floor. The cost is reimbursable to residential customers up to a monthly ceiling as well as certain other customer categories. The average annual cost of this program between 1981 and 1995 was \$15 million (1995 \$). WHAT SHARE OF TOTAL UTILITY COST AND WHAT SHARE OF HH BILL?????????

### **Aid to Municipalities**

revenue sharing, municipal assistance, and education assistance—effects reduce local taxes and expand local govt—how much higher would local property and sales taxes have been???

Through the 1960's shared taxes (business license tax sharing) averaged between \$1 and \$2 million a year. In the 1970's those revenues averaged about \$8 million.

Revenue sharing was created in 1969 as a categorical aid program to encourage local governments to provide adequate services and reduce local tax burden. Revenues averaged about \$13 million. In 1980 the program was restructured as a tax resource equalization program.

Municipal assistance was created when the state Gross Receipts tax was eliminated in 1979. Local sharing of 20 percent of the proceeds from that tax, amounting to \$10 million in 1978, was distributed to local governments. The stated purpose of this program was to reduce local property taxes, although it also had the effect of expanding local services.

In the absence of large petroleum revenues aid to municipalities would have grown slowly from the level of the 1970s—from about \$20 million annually.

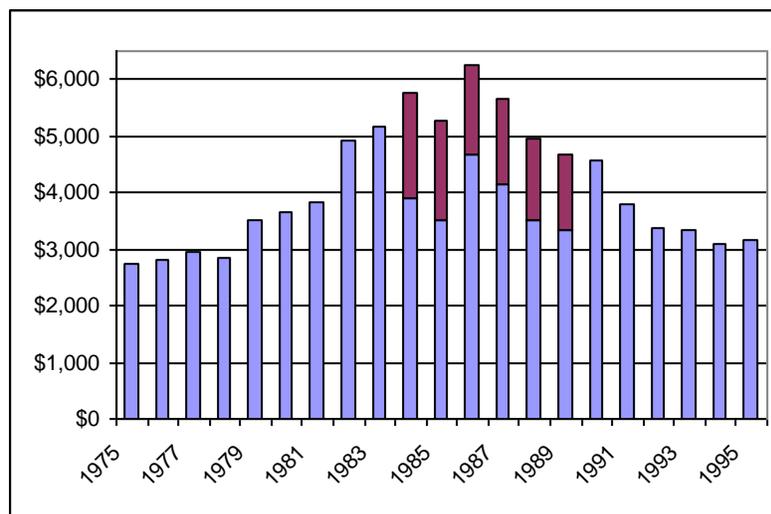
Actual revenue sharing and municipal assistance spending averaged \$131 million (1995 \$) annually between 1980 and 1995.

Therefore most of the aid to municipalities was a bonus of oil \$\$\$\$.

School debt reimbursement was created in 1970 to assist communities in the retirement of school debt. (The state directly pays for school construction in smaller communities.) Over time the state has paid between 50 and 90 percent of the debt, with certain limits on the total available. Average spending between 1980 and 1995 was \$91 million.

Local government debt increased with local reimbursement program, but not dramatically.

**Figure C.1. Real Per Capita Municipal Debt (1999 \$)**



Source: McDowell, 1999.

Note 84-89 shows state reimbursement share.

### Housing Assistance

Alaska Housing Finance Corporation (AHFC) was created in 1971 to provide financing for low to moderate income households and for housing in remote parts of the state (FHA and VA loans) by tapping into the tax exempt financing market. In 1975 it was allowed to purchase conventional mortgage loans. In 1980 when interest rates nationally on 30 year conventional mortgages hit 18 percent, AHFC essentially took over the Alaska mortgage market. It removed income limits on borrowers, increased the maximum loan amounts, and set the interest rate on the first \$90,000 of a loan at 10 percent. The state appropriated over \$1 billion to capitalize the agency and to pay the interest subsidy.

This liberalization helped to fuel the boom of the early 1980s, and the benefits were shared between purchasers of homes and the construction industry (demand bid up prices). Rapid inflation led to purchasing for investment purposes and high interest rates to panic buying to avoid higher rates later.

AHFC took over veterans loans and created programs to help ease the bust in the later 1980s. In 1992 it took over the rural housing loan program that had been administered in Department of Community and Regional Affairs. Until that time there was little state money going into rural housing. It mostly came from HUD or was ASHA money that was the proceeds of tax exempt financing.

AHFC now operates on tax exempt financing and the availability of special financing programs for low and moderate income home buyers.

Total state appropriations between 1975 and 1995 were \$1.620 billion in 1995 \$.

## **Loans**

—AHFC, AIDEA, Fishing and other

In 1971 a student loan program including partial forgiveness up to 50% for continued Alaska residence was established. Over time \$385 million (1995 \$) was invested in this program before it was replaced in 1988 by the Alaska Student Loan Corporation which taps the tax exempt bond market as the source for student loans (without the forgiveness feature).

The Agricultural Revolving Loan fund was established in 1953 and enlarged in 1979 as part of an initiative to establish an agricultural export industry in the state. Before that expansion annual appropriations to the fund averaged about \$500 thousand. Between 1980 and 1986 \$96 million was appropriated to the fund at which time new appropriations ended.

A number of revolving loan programs were established to reduce energy costs, stimulate small business, develop water resources and child care facilities, historical building restoration, and to assist veterans to obtain affordable housing. Total loans originated between 1975 and 1995 were \$1.691 billion (data on the total appropriations to capitalize these programs is not available).

**Table C.1. Cumulative Loan Originations by Program 1975-1995, Dept of Commerce and Economic Development, Division of Investments (1995 million \$)**

<b>TOTAL</b>	<b>\$1,691</b>
Veterans	\$612
Commercial Fishing	\$406
Small Business	\$404
Fisheries Enhancement	\$127
Tourism	\$51
Mining	\$33
Alternative Energy	\$24
Bulk Fuel	\$12
Residential Energy Conservation	\$11
Water Resources	\$5
Child Care	\$3
Historical Districts	\$2
Small Business Economic Development 1	\$1

Source: McDowell, 1999.

Small business lending was taken over by the Alaska Industrial Development Authority (AIDA) in 1981 that funded its lending with tax exempt financing.

Loans to veterans were transferred to AHFC in 1980.

The Commercial Fishing and Agriculture Bank (CFAB), established in 1978, took over some of the fishing related loans.

Since the mid 1980s only commercial fishing, fisheries enhancement, and small business economic development loans remain in this program.

Alaska Energy Authority ???

TAX reductions

Gross Receipts tax eliminated in 1978

Personal Income Tax

Low taxes

Motor vehicles

Exemptions and Credits

Greater Operations spending

—programs, wages, benefits, capacity building?

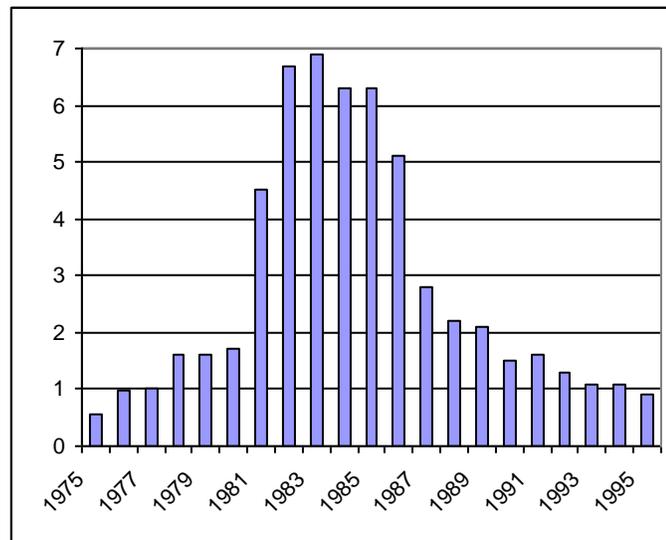
HSS mostly driven by federal mandates but there was some expansion of social service (drug and alcohol) , and perhaps liberalization of program eligibility

Education is the largest component of the operating budget. What happened to foundation funding. On a per student basis (per ADM) it increased from

\$4,274 in 1977 to  
\$6,888 in 1983 and fell back to  
\$4,890 in 1995  
(1995 \$) from McDowell, 1999.

Example of a discretionary program—Funding for the Alaska State Council on the Arts a program that provided support to the arts community

**Figure C.2. Alaska State Council on the Arts Appropriations (million 1995 \$)**



Source: McDowell, 1999.

Greater borrowing (or less?)

Greater capital spending

—infrastructure etc.—by how much was the capital budget able to expand compared to before big oil????????? I do not have the early capital budgets

During the peak oil years the capital budget was allocated 1/3 1/3 1/3 to senate, house, and administration

This table shows average general fund capital spending for the years 1980-1995. It also shows the increase by program over the prior 5 year period (1975-1979) which for the entire budget was 4.3 times. The increase spanned both programs that enhanced the well being of the population and programs that were beneficial to businesses and enhanced opportunities for economic development.

Although small in total amount, the program category that expanded the most (from a base of no spending before 1980) was Natural Resources.

Among the programs that expanded the most after oil revenues started flowing were hospitals, native and cultural, and flood and erosion control, which were beneficial to community well being.

Among the 5 largest programs Water and Sewer, Energy, and Roads expanded faster than the overall budget while K-12 and the University grew more slowly (K-12 perhaps due to rapid growth earlier in response to settlement of the rural high school litigation(Molly Hooch –adjudication was avoided when some legislators agreed to settle in exchange for higher taxes on oil industry).

Forestry, mining, senior care and economic development all increased more than the average.

State built several hospitals Petersburg, Cordova, Fairbanks.

Oil and gas, other natural resources, land, and agriculture all grew less rapidly.

Energy included 5 dams, transmission, and \$140 million for Susitna studies

State spent for village safe water programs until federal funding came in in 1992.

I think this table categorizes all \$\$\$ spending for each category and includes direct grants and department spending. For example roads—may be DOT or a grant to a local govt.

Federal \$\$ are the main source for transportation funds—road, air (Most airports state owned), and marine (covered by corps of engineers with no federal assistance program like roads or airports) [next table won't fit—so headings repeat]

**Table C. 2. Annual Average General Fund Capital Appropriations 1980-1995  
(Thousand 1995 \$) Ranked by program expansion After Oil Revenues**

Category	Average Annual Spending	Rank Among Categories in Spending	Growth Over Prior 5 Year Period
<b>TOTAL</b>	<b>\$645,046</b>		<b>4.30</b>
<b>GREATER THAN THE AVERAGE</b>			
Natural Resources	\$1,452	36	Infinite
Hospitals	\$7,059	20	1,103.0
Native and Cultural	\$382	43	212.3
Flood and Erosion Control	\$5,981	22	168.0
Pollution and Litter Control	\$831	41	51.3
Forestry	\$2,571	31	43.3
Mining	\$987	38	32.5
Other Public Safety	\$973	39	22.4
<b>Water &amp; Sewer</b>	<b>\$60,699</b>	<b>4</b>	<b>21.0</b>
Other Transportation	\$8,822	17	19.6
Fire Safety	\$4,621	25	15.4
EMS	\$1,495	35	13.4
Environmental	\$3,551	27	12.8
Youth & Family Services	\$5,534	23	12.7
Courts & Legal	\$7,792	19	12.5
<b>Energy</b>	<b>\$138,409</b>	<b>1</b>	<b>11.9</b>
Libraries	\$1,712	34	9.7
Housing	\$16,089	10	9.1
Unassigned	\$16,440	9	9.0
Senior Care	\$9,889	14	8.9
Aviation	\$19,917	8	8.1
Community Assistance	\$21,975	6	6.2
Police & Corrections	\$13,548	11	6.2
Historic Preservation	\$792	40	5.4
Economic Development	\$11,859	13	5.2
<b>Roads</b>	<b>\$89,127</b>	<b>3</b>	<b>4.9</b>
Other Social Services	\$3,259	28	4.8
Medical & Health Care	\$9,183	15	4.4
<b>LESS THAN THE AVERAGE</b>			
Parks & Recreation	\$12,951	12	4.2
Museums	\$1,155	37	4.0
Military	\$2,183	33	3.8
Oil & Gas	\$717	42	3.8
<b>University of Alaska (UA)</b>	<b>\$30,761</b>	<b>5</b>	<b>3.8</b>
Other Natural Resources	\$2,217	32	3.6
Marine Highway System	\$7,617	18	3.2
Docks & Harbors	\$19,491	7	2.7
Fish & Game	\$8,213	16	2.2
Lands	\$5,931	21	2.2
Agriculture	\$4,309	24	1.8
<b>K-12 Education</b>	<b>\$79,362</b>	<b>2</b>	<b>1.5</b>

Category	Average Annual Spending	Rank Among Categories in Spending	Growth Over Prior 5 Year Period
Legislative	\$153	44	1.0
Other Training & Education	\$2,050	30	0.9
Other	\$1,546	29	0.3
Public Communications	\$1,810	26	0.3
Employee Compensation	\$7	45	
Permanent Fund	-\$364	46	

Source: McDowell, 1999

If we look at capital spending targeting a rural area, The Northwest Arctic Borough, we see that over the entire period 1975-1995, the largest expenditures were for education, water and sewer, and aviation. Prior to 1980, essentially all spending targeting this region was for education.

**Table C.3. Total State GF Capital Appropriations for Northwest Arctic Borough 1975-1995 (thousand 1995\$)**

TOTAL	\$235,451	
K-12 Education	\$77,596	33%
Water and Sewer	\$41,877	18%
Aviation	\$22,457	10%
Community assistance	\$14,664	6%
Energy	\$11,680	5%
Flood and erosion control	\$10,606	5%
Roads	\$7,709	3%
Youth and Family Services	\$5,632	2%
Agriculture	\$5,120	2%
Senior Care	\$5,062	2%
Military	\$4,915	2%
Economic Development	\$4,710	2%
Pollution and Litter Control	\$4,033	2%
Fire Safety	\$2,851	1%
Unassigned	\$2,673	1%
Police and Corrections	\$2,159	1%
Other Social Services	\$2,146	1%
Docks and harbors	\$1,320	1%
Other Public Safety	\$1,300	1%
EMS	\$1,060	0%
Other	\$5,881	

Source: McDowell, 1999.

Was all this money wasted or was it well spent?

Could the state have paid even the maintenance cost of the road system without oil \$\$\$\$?

Have oil \$ allowed the conservation movement to take root in the state?

Development strands—

Hydro-like Scandinavia

Rampart, Yukon Taiya (up to 1 million kilowatts and a new city of 20 thousand), Susitna (The big project syndrome)

Compare Alaska with Scandinavia on a persons per square mile basis

Transportation will open up the land

Homesteading (but it ended up mostly as speculation, abandoned or as residential)

There is no doubt that prior to statehood the federal govt was not doing a good job of developing the territory—too many agencies. But territorial govt also had its problems.

The villains were federal govt and outside interests. Economic development was a political problem. Get rid of the villains and it would happen.

## Appendix D

### Retirees

Since retirees can choose to live in any state, those who reside in Alaska represent one of our basic industries. The retiree cash flow comes primarily from retirement income and third-party health-care spending, with a small amount contributed from non-health-related federal funds targeting seniors.

In 2004, 52 thousand retired Alaska seniors, aged 60+, directly contributed \$1.461 billion to the Alaska economy by their presence. The cash flow was equal to about \$28 thousand for the average retired senior.

**Table D.1. Cash Flow to Alaska in 2004 from Retired Seniors 60+**

	Million Dollars	Per Capita
<b>Total</b>	\$1,461	\$28,167
Retirement Income	\$1,139	\$21,947
Health Care	\$302	\$5,821
Other	\$21	\$400

Source: ISER Calculation

The majority of this contribution, more than \$1.1 billion, was composed of retirement income from Social Security, public retirement accounts, private pensions, and income from accumulated assets. Some personal income from Social Security, retirement accounts, pensions, and other assets is paid to people under the age of 60, and some goes to people older than 60 who are not retired. We include here only the share of income from these sources paid to Alaskans aged 60+ who are retired.

**Table D.2. Cash Flow to Alaska in 2004 from  
Senior Retirement Income (million \$)**

	<b>60+ Retirees</b>	<b>60+ Total</b>	<b>Total Paid to Alaskans</b>
<b>TOTAL</b>	<b>\$1,138</b>	<b>\$1,344</b>	<b>\$1,803</b>
<b>FEDERAL</b>	<b>\$589</b>	<b>\$683</b>	<b>\$915</b>
Social Security	\$392	\$461	\$461
Federal Civilian Retirement	\$95	\$112	\$172
Federal Military Retirement	\$48	\$57	\$174
Veteran Compensation	\$54	\$54	\$108
<b>STATE-LOCAL</b>	<b>\$265</b>	<b>\$311</b>	<b>\$489</b>
Public Employee Retirement System (PERS)	\$148	\$174	\$287
Teachers' Retirement System (TRS)	\$113	\$133	\$197
Other Retirement	\$4	\$5	\$5
<b>PRIVATE</b>	<b>\$285</b>	<b>\$350</b>	<b>\$400</b>
Pensions	\$135	\$150	\$200
Investment Income	\$150	\$200	\$200

Source: ISER.

The other large component of money flowing into Alaska due to the presence of the retired senior population is health-care spending for seniors from both public and private sources. This totaled \$302 million, an average of \$5,821 for each retired senior. Federal Medicare and Medicaid payments together accounted for about 75% of health-related dollars (including long-term care). The rest was insurance payments associated with private and public retirement programs. The total of \$302 million is less than the total amount of spending on health care for these seniors. It excludes self-paid health insurance, out-of-pocket expenditures by retired seniors for health care, and state government spending on senior health care (the state shares in the cost of the Medicaid program).

**Table D.3, Cash Flow to Alaska in 2004 from Spending for Senior Health Care (million \$)**

<b>TOTAL</b>	<b>\$302</b>		
Medicare		\$167	
Federal Share of Medicaid		\$71	
Nursing Homes			\$26
Waivers			\$13
Personal Care			\$19
Dual Eligibles			\$12
State Public Employee		\$33	
Federal Public Employee		\$12	
Private Retirement Plan Insurance		\$19	

Source: ISER.

In addition to retirement income and health-care spending, small amounts of cash flow into the state from federal programs for low-income Alaskans, including some seniors. These totaled about \$21 million in 2004. There are also a number of federal grant programs that target seniors, but the dollar amount of these grants is not directly related to the size of the senior retiree population. One cannot assume that the flow of dollars into the economy from these grant programs would increase if the senior retiree population were to grow.

**Table D.4 Cash Flow to Alaska from Other Federal Programs Benefiting Seniors, 2004 (million \$)**

<b>Federal Programs for Low-Income Seniors</b>	<b>\$21</b>
Social Security (SSI)	\$16
Food Stamps	\$5

Source: ISER.

A large share of the income associated with retirees comes from the federal government. We avoid double counting these dollars by excluding them from the determination of the importance of federal spending in Alaska in the previous section.



## Appendix E

### Seasonality of the Alaska Economy in 2006

**Table E.1. Alaska Employment in Summer and Winter 2006**

	Employment			Seasonal Increase
	January	July	Ratio	
Total	299,799	349,218	1.16	49,419
Wage and Salary	292,499	329,018	1.12	36,519
Fish Harvesters	7,300	20,200	<b>2.77</b>	12,900
Government (excluding military)	78,991	66,228	0.84	(12,763)
Private	220,808	282,990	<b>1.28</b>	62,182
Fish Harvesting and Processing	14,632	38,370	<b>2.62</b>	23,738
Harvesting	7,300	20,200	2.77	12,900
Processing	7,332	18,170	2.48	10,838
Tourism Related	25,486	41,993	<b>1.65</b>	16,507
Eating and Drinking	16,569	21,806	1.32	5,237
Hotels	5,776	11,687	2.02	5,911
Travel Agents, Reservations	497	1,433	2.88	936
Scenic Transport	501	3,808	7.60	3,307
Other Amusement	2,143	3,259	1.52	1,116
Mining	1,582	1,872	1.18	290
Petroleum	9,442	10,627	1.13	1,185
Timber Harvest	162	470	<b>2.90</b>	308
Construction	14,450	21,373	1.48	6,923
Water Transportation	653	981	1.50	328
All Other Private	154,401	167,304	1.08	12,903



## Appendix F

### Civilian Federal Spending in Alaska

The first category of civilian federal spending in Alaska is agency spending. The most important agencies are shown in Table F.1.

**Table F.1. Nondefense Federal Employment in Alaska by Department, 2000**

	<b>Number</b>	<b>Share</b>
<b>TOTAL</b>	10,396	
Interior	2,325	22%
Postal Service	2,185	21%
Transportation (FAA)	1,615	16%
Agriculture (Forest Service)	1,139	11%
Health and Human Services (HHS)	957	9%
Commerce	961	9%
Veterans' Administration	440	4%
Treasury	234	2%
Justice	215	2%
U.S. Courts	140	1%
All Other	185	2%

Source: Alaska Economic Trends, February 2002.

Excludes the Department of Defense civilian employees

The second consists of the direct payments (transfers) to individuals and private and public entities. The most important programs in terms of dollar amounts are Social Security, federal-civilian retirement, and health-related programs like Medicare ( most of these are allocated to Retirees in this analysis)..

**Table F.2. Nondefense Federal Transfers in Alaska, 2004**

	<b>Amount (million \$)</b>	<b>Share</b>
<b>TOTAL</b>	<b>\$1,625</b>	
<b>Retirement/Disability Payments to Individuals</b>	<b>\$960</b>	<b>59%</b>
Social Security	\$663	41%
Civilian Retirement	\$153	9%
Veterans Disability Compensation	\$99	6%
Other	\$45	3%
<b>Direct Payments to Individuals</b>	<b>\$516</b>	<b>32%</b>
Medicare	\$232	14%
Unemployment Compensation	\$142	9%
Food Stamps	\$64	4%
Excess Earned Income Tax Credits	\$51	3%
Other	\$26	2%
<b>Direct Payments to Others</b>	<b>\$150</b>	<b>9%</b>
Tribal Self Governance	\$70	4%
Temporary State Fiscal Relief Fund	\$25	2%
Other	\$54	3%

Source: USDC, Consolidated Federal Funds Report, 2004.

The third component consists of capital and operating grants to state and local governments as well as to nonprofits, including the Alaska Native nonprofit corporations. The largest are the federal share of Medicaid, transportation funding for state infrastructure, and health-care programs for the Alaska Native community. The range of grants, however, is quite broad in terms of both categories and geography.

**Table F.3. Nondefense Federal Grants to Alaska, 2004**

	<b>Amount (million \$)</b>	<b>Share</b>
<b>TOTAL</b>	<b>\$3,146</b>	
Medicaid	\$653.8	21%
Highway Planning and Construction	\$486.3	15%
Indian Health Services Management	\$329.8	10%
Airport Improvement Program	\$222.0	7%
Education Impact Aid	\$124.8	4%
Indian Housing Block Grants	\$ 90.5	3%
Temporary Assistance for Needy Families	\$ 68.9	2%
Special Purpose Grants (EPA)	\$ 45.1	1%
Water and Sewer for Rural Communities	\$ 36.1	1%
Housing Vouchers (Section 8)	\$ 35.6	1%
Alaska Native Education	\$ 33.0	1%
Head Start	\$ 30.8	1%
Special Education Grants	\$ 30.4	1%
Other (less than \$30 million each)	\$958.9	30%

Source: USDC, Consolidated Federal Funds Report, 2004.

Detail on the composition of federal grants comes from a 2002 analysis of grants received which totaled \$3.127 billion—almost evenly divided between formula and project grants.

Almost all of the formula grants went to state government (94%) with most of the rest going to local governments and school districts (5%). The largest were Medicaid and highway planning and assistance.

**Table F.4. Formula Grant Programs in Alaska in 2002 (thousand \$)**

<b>Total</b>	<b>\$1,594,866</b>
Medical Assistance Program (Medicaid)	\$500,079
Highway Planning and Construction	\$401,044
Impact Aid for Maintenance and Operations of Schools	\$103,934
Temporary Assistance for Needy Families	\$68,175
State Children's Insurance Program (CHIP)	\$45,602
Federal Transit-Capital Investment Grants	\$45,419
Federal Transit Formula Grants	\$30,646
Title I Grants to Local Education Agencies	\$23,582
Unemployment Insurance	\$23,270
Special Education—Grants to States	\$22,200
Special Supplemental Food Program for Women, Infants, and Children	\$19,630
National School Lunch Program	\$18,697
Child Care Mandatory and Matching Funds of the Child Care and Development Fund	\$15,737
Coastal Zone Management Administration Awards	\$13,859
Adoption Assistance	\$12,086
Foster Care Title IV E	\$11,047
Low Income Home Energy Assistance	\$10,881
WIA Dislocated Workers	\$10,738
Child Care and Development Block Grant	\$10,341
Indian Education—Grants to Local Educational Agencies	\$9,936
Child Support Enforcement	\$9,615
21st Century Community Learning Centers	\$9,131
Rehabilitation Services—Vocational Rehabilitation Grants to States	\$8,228
Capitalization Grants for Drinking Water State Revolving Fund	\$8,053
Capitalization Grants for State Revolving Funds	\$7,960
State Administrative Matching Grants for Food Stamp Program	\$7,743
Migrant Education Program—State Grant Program	\$6,855
Child and Adult Care Food Program	\$6,546
Employment Service	\$6,475
School Renovation Grants	\$5,869
Special Programs for the Aging—Title III, Part C—Nutrition Services	\$5,647
All Other Programs	\$115,839

Source: Consolidated Federal Funds Reports

A detailed listing of project grants shows not only the large number but also the great variety of programs funded by federal grants. The largest project grant programs were the Indian Health Services and the airport improvement program.

### F.5. Project Grant Programs in Alaska in 2002 (thousand \$)

<b>Total</b>	<b>\$1,533,648</b>
Indian Health Services Health Management Development Program	\$674,435*
Airport Improvement Program	\$123,549
Special Purpose	\$47,434
Administration for Children and Families–Head Start	\$34,995
Pacific Coast Salmon Recovery–Pacific Salmon Treaty Program	\$32,202
Section 8 Housing Choice Vouchers	\$30,594
National Guard Military Operations and Maintenance Projects	\$29,185
Water and Waste Disposal System for Rural Communities	\$27,826
Assistance to High Energy Cost Rural Communities	\$25,000
Interior Dept–Shared Revenues with States (includes Mineral Leasing Act)	\$24,765
Community Facilities Loans and Grants	\$23,717
Community Health Centers	\$22,219
Polar Programs	\$18,266
Fund for the Improvement of Education	\$16,744
Indian Environmental General Assistance Program	\$15,122
Native American Program	\$13,872
Improving Teacher Quality State Grants	\$13,567
Alaska Native Educational Program	\$13,410
Unallied Science Program	\$12,586
Renewable Energy Research and Development	\$11,797
Marine Mammal Data Program	\$11,286
Fossil Energy Research and Development	\$9,467
Employment and Training Administration Pilots, Demos, and Research	\$9,083
Byrne Memorial State and Local Law Enforcement Assistance Discretionary Grant	\$8,718
Consolidated Knowledge Development and Application Program	\$8,259
Public Safety and Community Policing Grants	\$7,459
Community Services Block Grant–Discretionary Awards	\$6,840
Special Program for the Aging–Title VI, Part A, Indian Program	\$6,397
Research Centers in Minority Institutions	\$6,368
Youth Opportunity Grants	\$6,134
Corporation for Public Broadcasting–Grants	\$5,908
Fishery Management Councils	\$5,903
Performance Partnership	\$5,478
Economic Development–Grants for Public Works and Dev Facilities	\$5,432
Econ Development Assistance–Sudden Economic Dislocation	\$5,375
Congressionally Identified Construction Projects	\$5,172
Comprehensive Community Mental Health–Children/ Serious Emotional Disturbances	\$5,000
All Others	\$204,083

Source: Consolidated Federal Funds Reports.

\*Data from the CFFR is considerably higher than reported by the Alaska Indian Health Service in 2002.

Tribal governments (including nonprofits) were the recipients of the largest share of project grants. State and local governments as well as other non profits received most of the rest.

### F.6 Project Grant Recipients in 2002

	Million Dollars	Share
<b>TOTAL</b>	\$1,416	
Tribal Government	\$657	46%
State Government	\$291	21%
Other Nonprofits	\$223	16%
Local Government	\$219	15%
Universities	\$56	4%

Source: Federal Assistance Awards Data System. Total is less than reported by CFFR because it excludes a small other category and definitions are slightly different.

### F.7 Project Grants to Alaska Indian Tribes in 2002 (thousand \$)

<b>Total</b>	<b>\$657,359</b>
Indian Health Services–Health Management Development Program	\$520,100
Administration for Children, Youth and Families–Head Start	\$38,081
Native American Program–Financial Assistance Grants	\$10,000
Temporary Assistance for Needy Families	\$9,321
Community Health Centers	\$8,085
Indian Environmental General Assistance Program	\$7,785
Low Income Home Energy Assistance	\$5,769
Comp. Community Mental Health Services for Children with Serious Emotional Disturbances	\$5,000
Indian Community Development Block Grant Program	\$4,194
Special Programs for the Aging–Title VI, Grants to Indians Tribes and Hawaii	\$4,163
Consolidated Knowledge Development and Application Program	\$4,150
Projects–Non-Acute Care and Long-Term Care Facilities	\$2,953
Family Violence Prevention And Service	\$2,866
Cooperative Agreements for State-Based Comprehensive Breast and Cervical	\$2,348
Airport Improvement Program	\$2,233
Tribal Youth Program (TYP)	\$2,119
Community Access Program	\$2,102
All Other Programs	\$26,089

Source: Federal Awards Assistance Data System. Data on Indian Health Service grant level is inconsistent with total reported independently by the agency.

## F. 8. Project Grants to Alaska State Government in 2002 (thousand \$)

<b>Total</b>	<b>\$290,674</b>
Infrastructure Grant–Native and Rural Alaska Villages	\$38,000
Pacific Coastal Salmon Recovery Initiative	\$27,000
Not Available	\$26,322
Construct New Ferry Construct New Ferry	\$25,000
Improving Teacher Quality State Grants	\$13,214
Environmental Conservation Safe Drinking Water State Revolving Fund	\$8,053
Improve Existing Airport Construct New Airport	\$6,152
South Anchorage Double Track Project	\$5,622
School Renovation, Idea And Technology Program	\$5,484
Improve Existing Airport Construct Apron	\$5,019
Ketchikan Shiplift	\$5,000
Fund for the Improvement of Education–FIE Earmark Grant Awards	\$4,900
Repair or Replacement of Disaster-Damaged Facilities	\$4,887
Norton Sound Disaster Relief Program	\$4,646
Anchorage Ship Creek Intermodal Facility	\$4,268
Improve Existing Airport Construct Snow Removal Equipment Building	\$3,652
Grants for State Assessments and Related Activities	\$3,558
Redesign Alaska Public Safety Information Network	\$3,218
2001 Earmark for Denali Depot	\$2,971
Prince of Wales Intertie	\$2,893
Fiscal Year 2002 State Domestic Preparedness Program	\$2,783
Improve Existing Airport Noise Mitigation Measures for Residences	\$2,400
Improve Existing Airport Construct New Airport, Phase 3	\$2,333
WIA Pilots/Demos/Research	\$2,300
Performance Partnership Grant	\$2,193
Special Education–Grants for Infants and Families with Disabilities	\$2,043
Special Grant to Department of Environmental Conservation	\$2,020
Fairbanks Intermodal Facility Fairbanks Intermodal Facility	\$2,000
Alaska Native Education Program—Alaska Native Earmark	\$2,000
Alaska Native Education Program—Alaska Native Earmark	\$2,000
Grants to St. Paul and St. George Islands for New Solid Waste Landfills	\$2,000
All Other Programs	\$66,751

Source: Federal Assistance Awards Data System.

### F. 9. Project Grants to Alaska Nonprofits in 2002 (thousand \$)

<b>Total</b>	<b>\$223,311</b>
Indian Health Services–Health Management Development Program	\$119,846
Administration for Children, Youth and Families–Head Start	\$25,012
Community Health Centers	\$11,254
Youth Opportunity Grants	\$6,000
Marine Mammal Data Program	\$5,924
Employment and Training Administration Pilots, Demonstrations and Research	\$5,332
Administration for Children, Youths and Families–Child Abuse and Neglect–Discretion	\$4,000
Secretary's Fund for Innovation in Education	\$3,700
Research Grants for the Space Program	\$3,278
Narcotics Control Discretionary Grant Program	\$3,113
Native American Program–Financial Assistance Grants	\$2,481
Fish and Wildlife Enhancement	\$2,268
Fishery Management Councils	\$2,019
All Other Programs	\$29,084

Source: Federal Awards Assistance Data System.

### F. 10. Project Grants to Alaska Local Government in 2002 (thousand \$)

<b>Total</b>	<b>\$218,806</b>
Indian Health Services, Health Management Development Program	\$67,669
Water and Waste Disposal System for Rural Communities	\$27,826
Community Facility Loans	\$23,717
Indian Education Formula Grants to Local Educational Agencies	\$9,467
Public and Indian Housing	\$8,062
Indian Environmental General Assistance Program	\$7,493
Secretary's Fund for Innovation in Education	\$7,278
Public Safety and Community Policing Grants	\$7,152
21st Century Community Learning Centers	\$7,123
Urban Mass Transportation Capital Improvement Grants	\$6,023
Renewable Energy Research and Development	\$4,944
Special Purpose	\$4,439
Special Economic Development and Adjustment Assistance Program	\$4,425
Airport Improvement Program	\$3,385
Performance Partnership	\$3,364
Congressionally Identified Construction Projects	\$3,172
All Other Project Grant Programs to Local Government	\$23,269

Source: Federal Awards Assistance Data System.

### F. 11. Project Grants to Alaska Universities in 2002 (thousand \$)

<b>Total</b>	<b>\$55,663</b>
Research Centers in Minority Institutions	\$6,368
Administration for Children, Youth, and Families–Head Start	\$3,000
Employment and Training Administration Pilots, Demonstrations, and Research	\$2,500
Undersea Research	\$2,364
Higher Education–Institutional Aid	\$2,077
Fund for the Improvement of Postsecondary Education	\$2,000
Sea Grant Support	\$1,492
Teacher Quality Enhancement Grants for States and Partnerships	\$1,272
Fund for the Improvement of Postsecondary Education	\$1,250
University of Alaska Southeast Forest Products Program	\$1,192
Seafood Harvesting, Processing, and Marketing Program	\$1,068
All Other Project Programs to Universities	\$31,080

Source: Federal Awards Assistance Data System.



## Appendix G

### MISCELLANEOUS NON-EARNED INCOME

Some economic activity in Alaska is generated by the purchasing power that flows into the state that is not directly related to current production of goods and services in Alaska. There are a number of sources for this non-earned income. (The flows of income from the Permanent Fund and retiree assets both fall in this category, but they are accounted for separately because of their magnitude and clearly identifiable sources.)

One modest but stable source consists of the dividends, interest, and rents earned by Alaskan households on their assets held outside the state. These assets consist of things like ownership shares in corporations, bonds, and real estate. Of course, a large share of the non-earned income of Alaskan households comes from Alaska assets, and this income should be attributed to the basic sector where it is earned. For example, if an Alaskan household owns stock in an oil company operating in the state, the purchasing power of the dividends paid to that household should be attributed to the petroleum sector. (Since the portion of this oil company stock owned by Alaskans is small, we can effectively ignore it when considering the importance of the petroleum industry within the state.) Rent earned on a retail mall should be attributed to non-basic activity.

The largest asset for most households is their home. The net worth of housing (its market value minus any outstanding mortgages) occasionally can change rapidly if interest rates are falling and mortgages can be refinanced. This can free up large amounts of cash that increase the purchasing power of households.

Another source of purchasing power flowing into the state consists of institutional donations to individuals and nonprofit organizations. An example of this type of income is the distributed earnings of foundations such as the Rasmuson Foundation. Of course, this flow into the economy is largely offset by the donations of Alaska institutions to organizations outside the state.

Private transfers like child support and alimony payments can also supplement Alaska incomes and purchasing power. A potentially large transfer would be the payment of

damages by Exxon to Alaska households and businesses in compensation for the Exxon Valdez oil spill of 1989.

The median U.S. household net worth in 2000 was \$55 thousand, and of that about half was held in financial assets and real estate that produced dividends, interest, or rent. The rest consisted of housing, vehicles, and retirement accounts.

**Table G.1 Asset Ownership in the U.S. in 2000**

	Percent Households Owning	Percent of Household Net Worth
<b>ALL ASSETS</b>		<b>100%</b>
Own Home	67.2	32.3%
Stocks and Mutual Funds	27.1	15.6%
401K and Thrift Savings Plans	29.9	9.7%
Interest Earnings Assets at Financial Institutions	65.0	8.9%
IRA and Keogh Accounts	23.1	8.6%
Business or Profession	10.8	7.7%
Vehicles	85.5	3.7%
Rental Property	4.9	3.7%
Other Real Estate	6.6	3.6%
Other Interest Earning Assets	3.3	1.7%
Other	3.9	1.6%
U.S. Savings Bonds	14.7	.5%
Regular Checking Accounts	37.5	.3%
Unsecured Liabilities	52.7	-3%

Source: USDC Bureau of the Census.