

# ALASKA'S ECONOMY AND POPULATION, 1959-2020

STATEWIDE AND REGIONAL ECONOMIC  
AND DEMOGRAPHIC PROJECTIONS

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## Introduction

Understanding Alaska's economy and population helps us evaluate current and future transportation needs. This report summarizes how the economy and population have changed since Alaska became a state and how they are likely to change over the next 25 years. More detailed discussions and tables are included in the attached appendix. The report looks at:

- Historical and anticipated economic and demographic trends
- Projected growth in employment, population, and personal income
- Implications of change for the transportation system

Estimating future growth requires making assumptions about oil prices and production, development in other industries, state fiscal policy, trends in the national economy, and much more. Because it's impossible to predict exactly what will happen, we produce a range of projections—low, medium, and high—rather than a single projection.

### Overview of Past and Projected Change

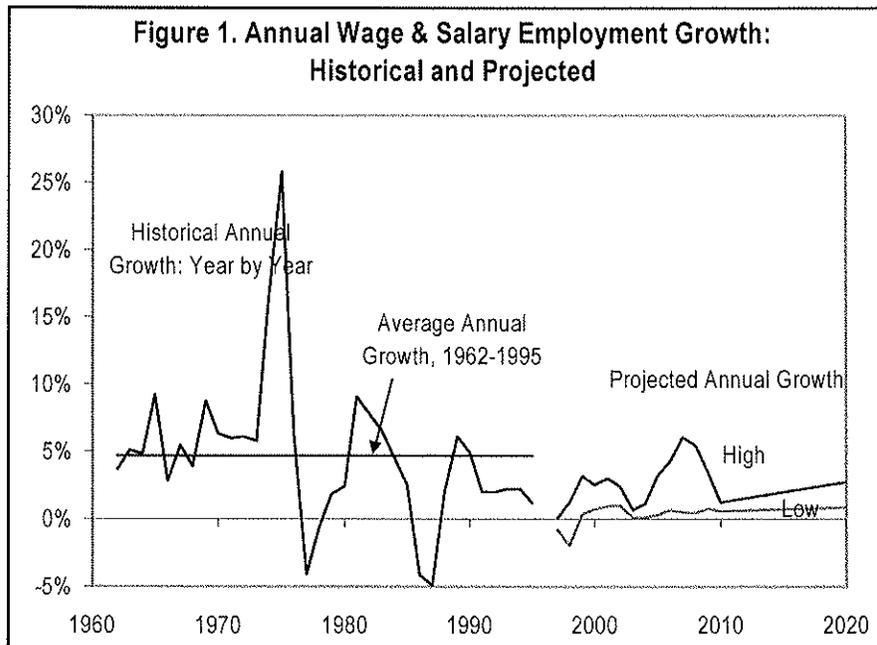
Between 1959 and 1996, Alaska's population came close to tripling, the number of jobs more than tripled, and real—adjusted for inflation—personal income quadrupled, as Table 1 shows. That impressive growth in less than 40 years was not steady but rather came in cycles of very rapid growth followed by periods of consolidation.

| TABLE 1. HISTORICAL ECONOMIC AND DEMOGRAPHIC STATISTICS |                         |             |             |             |             |             |
|---|-------------------------|-------------|-------------|-------------|-------------|-------------|
| Alaska Statewide Summary                                |                         |             |             |             |             |             |
|   |                         | <u>1961</u> | <u>1970</u> | <u>1980</u> | <u>1990</u> | <u>1996</u> |
| Population  | (thousands)             | 236,700     | 300,382     | 401,851     | 550,043     | 610,800     |
| Households  | (thousands)             |             | 79,739      | 131,463     | 188,915     | 216,400     |
| Real Personal Income                                    | (millions of<br>1995\$) | \$2,470     | \$4,901     | \$8,696     | \$13,218    | \$15,139    |
| Wage & Salary   |                         |             |             |             |             |             |
| Employment  | (thousands)             | 56.9        | 92.5        | 170         | 236.2       | 261.8       |
| Total Employment  | (thousands)             | 94.32       | 133.42      | 211.35      | 285.57      | 306.7       |

Alaska's economy is volatile because it depends so much on natural resource industries in general and the petroleum industry in particular. Resource industries are subject to quick changes as world market conditions change. Most of the ups and downs in the Alaska economy for the past 20 years can be traced in one way or another to oil development—and especially to the oil revenues the state government collects from that development.

From now until the year 2020, we expect much slower growth in population, jobs, and income; Figure 1 compares historical growth in jobs with the potential range of future growth. The state government's role in the economy will decline because it will have less oil money to spend. Resource industries will continue to be the mainstay of the economy, with petroleum, mining, and tourism having the most potential for growth.

Based on what we know right now, we estimate Alaska's population in 2020 will most likely be about 40 percent larger than it is today, but it could be anywhere from 20 to 80 percent larger. There will most likely be about 30 percent more jobs in 2020, but it could be as little as 10 percent more or as much as 80 percent more. And future growth, like past growth, will not be smooth but cyclical—although the cycles will likely be more moderate.



## Economic Changes

### History

When Alaska became the 49th state in 1959, it had a small economy dominated by military activities. The private economy depended mainly on commercial fishing, logging, and mining. But high costs and a risky investment climate limited development.

Formation of the new state government, development of Cook Inlet petroleum, and rebuilding after the 1964 earthquake fueled economic growth in the 1960s. More local businesses began opening, supplying goods and services that hadn't been available until then; this growth in support industries was the start of a trend that has continued until the present.

By the end of the 1960s, oil companies had discovered the Prudhoe Bay oil field, the largest in North America. Construction of the trans-Alaska pipeline to carry oil south from Prudhoe Bay to the port of Valdez on Prince William Sound sparked an economic boom from 1974 to 1977. Tens of thousands of people were drawn to the state by the hope of high-paying jobs. The rapid growth in local service jobs also continued during the 1970s. State and local government employment was up sharply.

Oil production from Prudhoe Bay started in 1977, but it was at the start of the 1980s that a combination of circumstances brought the state government billions of dollars in oil revenues. First, because the state owns the Prudhoe Bay oil field, it collects royalties as well as taxes from North Slope production. Second, oil production steadily increased from the late 1970s through the early 1980s. And, the Iran-Iraq war allowed the Organization of Petroleum Exporting Countries (OPEC) to triple oil prices between 1979 and 1981.

When oil money was at its peak in the first half of the 1980s, the state government used it in ways that reached throughout the economy—including construction of new public facilities, increased aid to local governments, subsidies for home mortgages and other loans, and annual cash payments to virtually all Alaskans. This spending created the largest economic boom to date in Alaska. It not only boosted direct state and local government employment, but also created thousands of new jobs in private industry.

But by 1985, Alaska had begun to move into recession; the growth created by massive state spending couldn't be sustained. And when world oil prices crashed in 1986, Alaska faced a severe recession. In 1988—after losing 10 percent of jobs statewide—Alaska's economy began to recover, and the recovery was boosted by substantial spending for clean-up in the aftermath of the 1989 Exxon Valdez oil spill.

In the 1990s so far economic growth has been slower than in previous decades. North Slope production peaked in 1988; since then, declining production and generally lower oil prices have reduced state income. Overall population, jobs, and income have continued to grow. But it is mainly trade and service industry jobs that have been added since 1990.

### **Changes in the Structure of the Economy**

The structure of Alaska's economy has changed over time, with changes in the relative size of various sectors. We group Alaska's industries into four sectors: basic; infrastructure; support; and state and local government.

**Basic** industries bring money into Alaska either by selling goods and services outside the state or selling to non-residents visiting the state. Basic industries are oil and gas, mining, seafood, forest products, agriculture, tourism, international cargo handling, and federal government spending. We include federal spending here because it brings money into the state from taxpayers nationwide.

**Infrastructure** industries make money mainly by selling goods or services to other industries, although some of their sales are to consumers. These industries are construction, transportation, communications, public utilities, and business services.

**Support** industries sell services and goods to Alaska consumers and to a lesser extent to other industries. These industries are trade, finance, services (excluding business services) and miscellaneous manufacturing for the Alaska market.

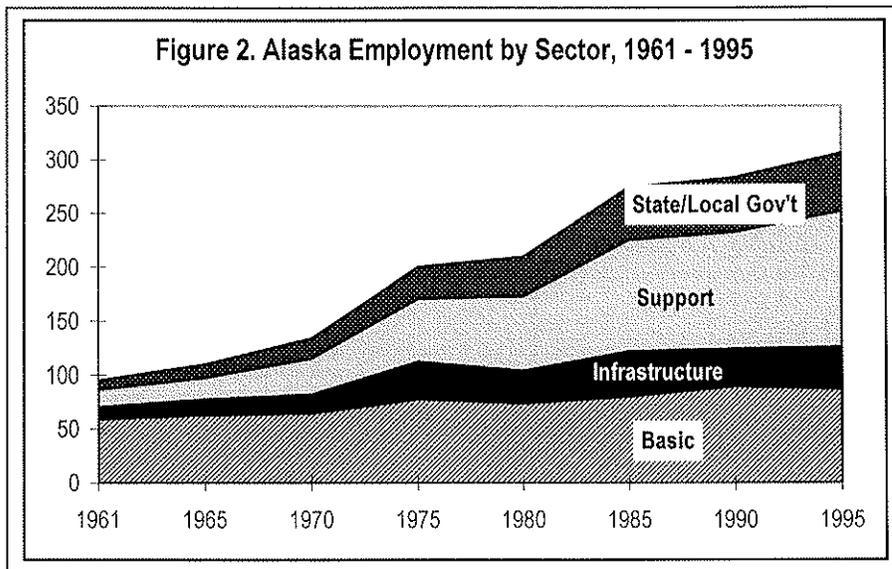
**State and local government** are often included in the support sector, because they provide services to residents. But in Alaska we consider them separately, because they are such a large part of the economy and because they depend so much on petroleum revenues.

In 1961, 63 percent of the 94,000 jobs in Alaska were in basic industries—the federal government (about two-thirds military personnel and one third civilian workers), natural resource industries, and tourism. Jobs in infrastructure industries made up another 12 percent of the total—and many of those jobs directly supported federal military activities. Support industries contributed 16 percent and state and local government 9 percent.

By 1996, just 28 percent of the 307,000 Alaska jobs were in basic industries. Infrastructure jobs still made up 12 percent of the total—but the share of support jobs had leaped to 42 percent, and state and local government jobs had increased to 17 percent.

The different growth rates among the industry sectors changed the composition of employment over time (Figure 2). The support sector grew the fastest, benefiting from growth in population, household incomes, basic sector activity, and government spending. The number of state and local government jobs was boosted by the enormous influx of petroleum revenues and by the growing population. The infrastructure sector grew at the same rate as the overall economy. Despite strong growth in tourism, basic jobs didn't grow nearly as fast, and since 1990 the number has dropped slightly—due mostly

to military cutbacks but also to reduced oil and gas employment as North Slope production declines.



## Basic Industry Employment

### Oil and Gas

#### *Past Trends*

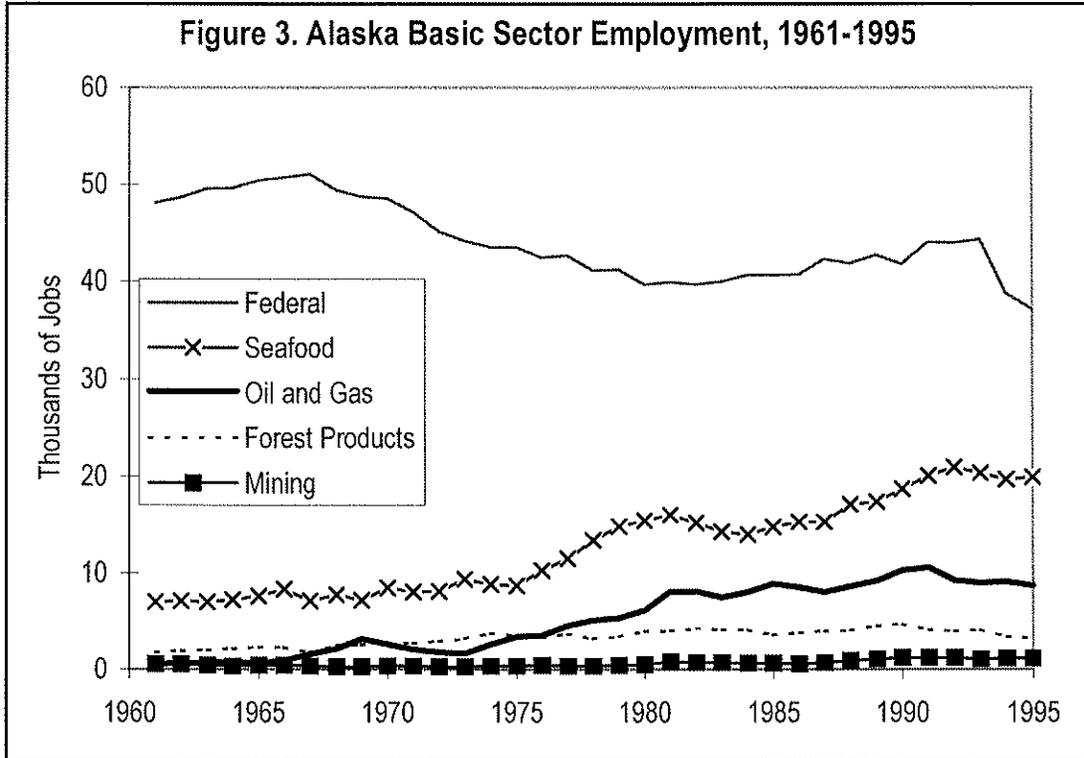
The number of jobs in the petroleum industry increased rapidly from the early 1970s to 1990, peaking at just over 10,000 and falling somewhat since then (Figure 3). Petroleum industry jobs are concentrated on the North Slope and in Anchorage. The industry also creates many jobs not included in these figures—jobs in exploration and development and in construction, transportation, wholesaling, and business services—because of large procurement budgets and capital spending. These jobs are all among Alaska’s highest paid.

Another measure of the oil industry’s economic importance is its contribution to gross state product (GSP). GSP is the value of everything businesses and government in Alaska produce in a year. It is for Alaska what the gross domestic product is for the U.S. Because the oil industry is capital intensive, it contributes a larger share of GSP than of jobs.

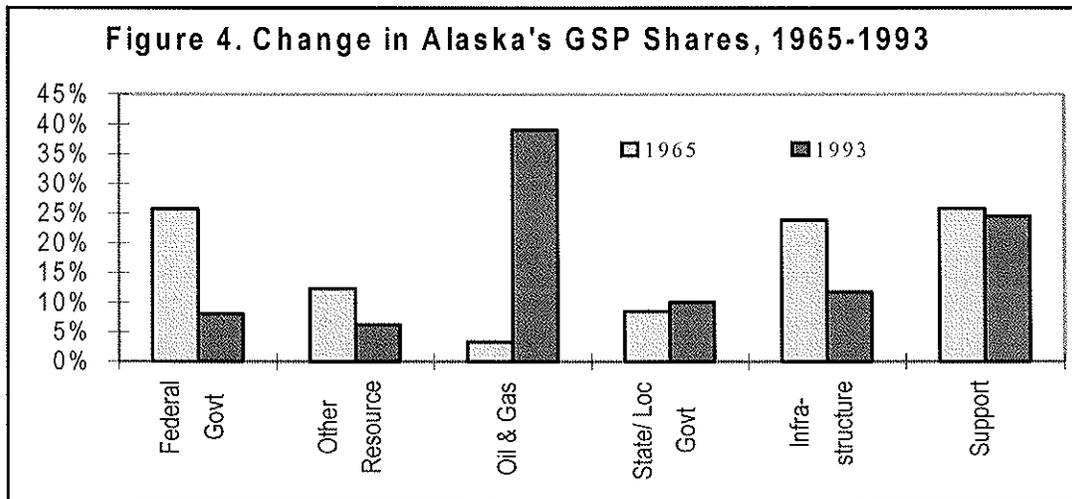
In 1965 oil and gas contributed 3 percent of the \$1.2 billion GSP. In 1993 oil and gas directly contributed 40 percent of the \$23.7 billion GSP (Figure 4). It is also indirectly responsible for some GSP of state and local government and support and infrastructure.

#### *Future Trends*

North Slope production peaked in 1988 and has declined at about 4 percent annually since then. The Alaska Department of Revenue expects production to continue falling, to below a million barrels per day by 2005. Even with less production, we expect the petroleum industry to continue to be a driver for the economy, because of the many undeveloped oil and gas fields on the North Slope. The industry will continue to view that region as the best domestic oil prospect.



Also, if transportation costs (from the North Slope to Asia) can be reduced enough to make North Slope gas competitive with gas from other sources, then Alaska could see construction of a gas pipeline and sales to the Pacific Rim market in the future.



**Seafood Industry**

*Past Trends*

Alaska's seafood industry—including both fishing and processing—has gone through a long period of expansion, driven by growing salmon harvests and development of the bottomfish industry. Fishing is important in coastal towns throughout Alaska, with concentrations in Dutch Harbor, Kodiak, Homer, Sitka, Petersburg, and Ketchikan. The 1995 annual average seafood employment was nearly 20,000. This is largely a seasonal industry; summer employment is several times higher and winter employment much lower than the average. Many fishermen and processing workers are non-residents.

### ***Future Trends***

The offshore fisheries that created many new jobs in the seafood industry over the past couple of decades are now entirely developed. The number of jobs for Alaskans could increase, if more harvesting and processing workers were residents. More in-state processing could also expand the industry. But changes in management could reduce Alaska employment—if, for example, managers decided to impose limited entry programs in more fisheries. Competition from farmed seafood and from unexploited stocks (such as those in Siberia) could continue to reduce the value of Alaska stocks.

## **Forest Products**

### ***Past Trends***

Employment in the forest products industry (which includes loggers as well as sawmill and pulp workers) peaked in 1990 and has been declining since then, as Figure 3 shows. In 1995 there were about 3,250 jobs in forest products. The industry has historically been centered in the Tongass National Forest in Southeast Alaska. Since the 1950s, the U.S. Forest Service has issued long-term contracts for logging in the Tongass. Companies holding those contracts supplied two pulp mills and several sawmills.

A combination of aging facilities, changing markets, and re-evaluation of long-term contracts led to closing of the Sitka pulp mill in 1994 and the scheduled closing of the Ketchikan pulp mill in March 1997. Closing of the pulp mills has already led to closing of one large sawmill and threatens the others. Alaska's U.S. senators recently negotiated to keep the two sawmills associated with the Ketchikan Pulp Mill open for two more years.

Native corporations have also logged their lands in Southeast and Southcentral Alaska and profitably exported raw logs. But that production peaked in the late 1980s—and future logging on Native lands will be limited, because the remaining commercial timber is limited. There are also smaller processing and exporting facilities in the Southcentral/-Interior region, mainly producing raw lumber and chips.

### ***Future Trends***

Exporting unprocessed timber remains the most profitable option for this industry in the foreseeable future—but the size of the industry is constrained by the limited availability of commercial timber. There are a growing number of small firms that do additional processing in Alaska—for example, producing extremely precise lumber for Japanese home builders or high quality wood panels for musical instrument makers. The economic impact of these firms is limited.

## **Mining**

### ***Past Trends***

Historically, much Alaska mining has been done by self-employed miners (mostly gold placer miners) who are not included in the Department of Labor's figures for the industry. The numbers in Figure 3 include only jobs in large corporate mining firms—about 1,000 in 1995. Capital spending for mines also generates additional jobs not reflected here.

In territorial days several large mining operations existed in Alaska. But World War II ended large-scale gold mining, and for a number of years the only major operation was the coal mine at Healy in the Interior. The Red Dog zinc mine near Kotzebue and the Greens Creek silver mine near Juneau opened in the late 1980s. A number of gold mines are now under development. But many sites are remote, with no direct access to infrastructure. This makes them expensive to develop and vulnerable to world price fluctuations.

### ***Future Trends***

The combination of a large base of prospects, increasing demand, and technological advances will mean increased mining in Alaska in the coming years. This potential is reflected in current activity—including development of the Fort Knox mine outside Fairbanks, re-opening of the Greens Creek mine, and expansion of the Red Dog Mine.

Still, the general lack of infrastructure at most sites, high construction and operating costs at remote sites, and distance from markets means that only the largest deposits can be successfully developed. Mines in Alaska must also still be able to withstand the dramatic price fluctuations common in world metal and coal markets.

## **Tourism**

### ***Past Trends***

Tourism has been one of the fastest growing basic industries in Alaska for years, increasing at an estimated 5 to 7 percent annually. Communities on the road system and on cruise ship routes get the most visitors, but increasing numbers are visiting more remote places like Nome and the Pribilof Islands. Jobs in tourism are spread among the transportation, trade, and services industries and are difficult to quantify.

### ***Future Trends***

Tourism is likely to continue growing rapidly for a number of years before slowing to a gentler pace. Increased tourism in the U.S. and abroad, and an increasing market share for Alaska are driving the growth. Economic benefits of tourism depend not only on the number of visitors, but also on how long they stay and how much they spend. The industry is trying to persuade tourists to stay longer and spend more.

## **Federal Government**

### ***Past Trends***

The number of active duty military personnel has been declining since the 1960s (Figure 3), except for a brief move up in the late 1980s when a new light infantry brigade was added. Since then, bases have closed at Adak, King Salmon, and Galena. Fort Greely in the Interior will close soon, and numbers of personnel at Fort Richardson in Anchorage and Fort Wainwright in Fairbanks have been reduced. Civilian employment has increased slightly since 1961, with reductions in the last few years. In 1995 military and civilian jobs totaled about 37,000.

### ***Future Trends***

Federal employment will remain a stabilizing force in Alaska's economy. More troops could be assigned to Alaska, if the U.S. reduces manpower abroad. Unrest in many parts of the world could create a need for more military manpower. Also, a new hospital under construction at Elmendorf Air Force Base in Anchorage will require additional staff. This new hospital shows the continuing importance for the construction industry of military

capital spending and also a trend toward upgrading military jobs in Alaska—since the hospital staff will include a large percentage of higher paid officers.

Civilian employment is likely to increase in the future. Some agencies—like the Postal Service—will grow as the population grows. Other agencies will add jobs to meet increased demands on public lands. Civilian employment related to military activities is also likely to remain important. Annual appropriations for capital projects will continue to help build infrastructure and provide jobs in construction and other industries. Other programs that put money in the economy—like fire suppression—will likely continue.

#### **Other Basic: International Cargo Handling and Agriculture**

International cargo handling is a new and rapidly expanding basic industry. Alaska's location and the continued expansion of trans-Pacific trade will combine to keep this industry growing in the coming years. Agriculture in Alaska is a small sector producing mainly for the local market and is unlikely to expand much in the foreseeable future.

### **Infrastructure Employment**

#### **Construction**

##### ***Past Trends***

Construction in Alaska depends on the amount of new private investment in basic industries (particularly petroleum, mining and tourism); on government spending; and on the general health of the economy. Since all those factors change from year to year, the construction industry fluctuates more any other; in 1995, there were about 13,000 construction jobs (Figure 5). These jobs are among Alaska's highest paying, partly because many sites are remote; workers typically commute from urban areas to remote sites.

The construction industry was more important in Alaska than in other regional U.S. economies in the past few decades—because a lot of effort went into developing the state's infrastructure, and employment and population grew rapidly.

##### ***Future Trends***

Slower population and employment growth mean that future construction activity will be somewhat smaller in relation to the overall economy. Construction will continue to be Alaska's most volatile industry, because large projects don't occur smoothly over time.

#### **Transportation**

The number of transportation jobs in Alaska depends partly on the overall size of the economy but also specifically on levels of resource development and production, tourism, and construction. In 1995 there were about 17,000 transportation jobs, including those attributable to petroleum and tourism (Figure 5). Past growth in the transportation industry has closely followed overall growth in the economy, and we expect that trend to continue.

#### **Public Utilities and Communication**

Growth in public utilities and communication jobs tends to be slow, because a few workers can provide services to a lot of people. The industry employed about 6,000 in 1995 (Figure 5). Employment grew fastest in the 1970s, because utilities expanded to new areas and more utilities were provided by local rather than out-of-state workers. The increase in 1989 was related to clean up of the Exxon Valdez oil spill. We expect this industry to expand slowly with continued economic development.

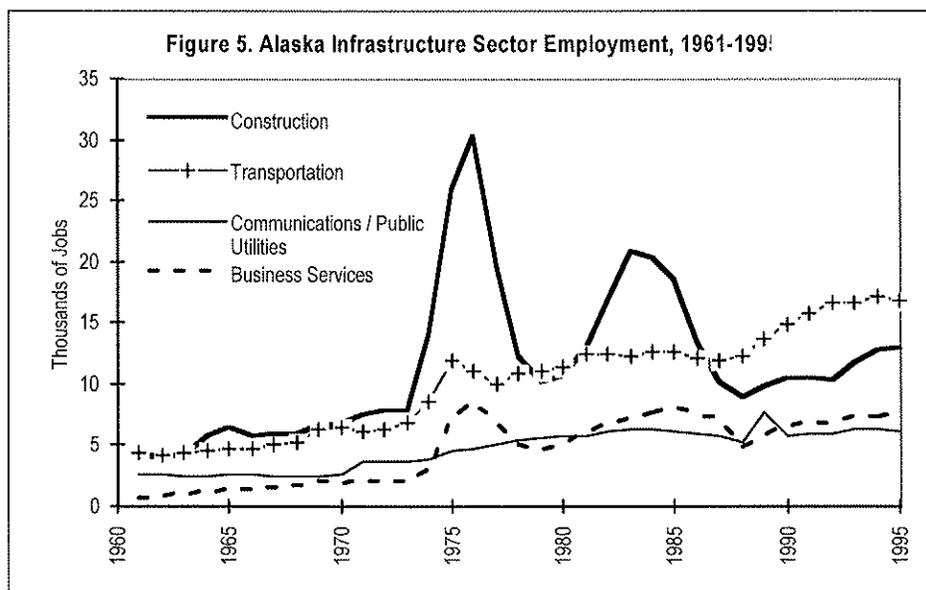
## Business Services

### *Past Trends*

Business services (advertising, personnel supply, building maintenance, computer services, and others) make up a small but growing part of Alaska's service industries, with about 7,600 jobs in 1995 (Figure 5). We analyze them as part of the infrastructure rather than the support sector because they mainly serve other businesses. The number of jobs grew because the economy grew, but also because some services were new to Alaska. And in recent years firms have been outsourcing more work. Business service jobs are concentrated in urban areas with lower costs of doing business and economies of scale.

### *Future Trends*

Business services will likely be among the fastest growing segments of the economy in the coming years. Local service providers could grow by gaining more of the market share that now goes to firms in the Lower 48; by taking advantage of the growing market as firms outsource more work; and by providing new services as technology improves.



## Support Employment

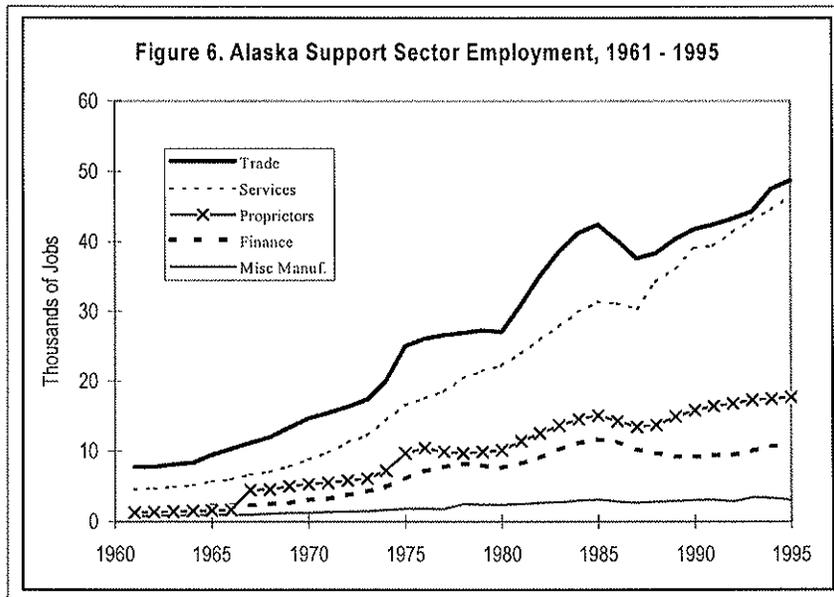
## Non-Business Services

### *Past Trends*

Industries that serve consumers have been among Alaska's fastest growing. Jobs in non-business services (including those created by tourism) increased from about 5,000 in 1961 to 45,000 in 1995 (Figure 6). They include everything from health care to hotels and are relatively immune to economic fluctuations. They grew as population and income grew and became more stable. In particular, medical services the government pays for on behalf of older and poorer households grew very rapidly. Some growth mirrored the nationwide growth of services. Service jobs tend to be lower paying; many are seasonal or part-time.

### *Future Trends*

Non-business services—particularly health services and services for tourists—will continue to grow. Both nationwide and in Alaska, Americans are expected to spend a bigger share of their incomes for services. Some services will grow less than in the past, because of slower growth in disposable income and because some Alaska markets—at least in the urban areas—have been saturated.



### Trade and Finance

Trade and finance industries—including restaurants, stores, banks, real estate businesses, and insurance carriers—have grown rapidly and for the most part steadily since the 1960s, with about 50,000 jobs in 1995, including jobs generated by tourism (Figure 6). They benefited from the same factors that benefited service industries. These industries are concentrated in urban centers where costs are low and markets are larger—although there has been some expansion of trade into the smaller communities. We expect that, like other support industries, these will continue to be among the fastest growing in the future.

### Miscellaneous Manufacturing

Manufacturing for local markets creates about 3,000 Alaska jobs in printing and publishing, bakeries, concrete products, and boat building and repair. Manufacturing in Alaska is constrained by small local markets, high costs of business, and distance from large markets. Future manufacturing will continue to be hampered by the same factors, but some small businesses will succeed by finding niches in the market.

### Proprietors

We include in the support sector most Alaskans who are self-employed (except commercial fishermen, who are included in the seafood industry figures). A majority of self-employed people are in trade and service businesses.

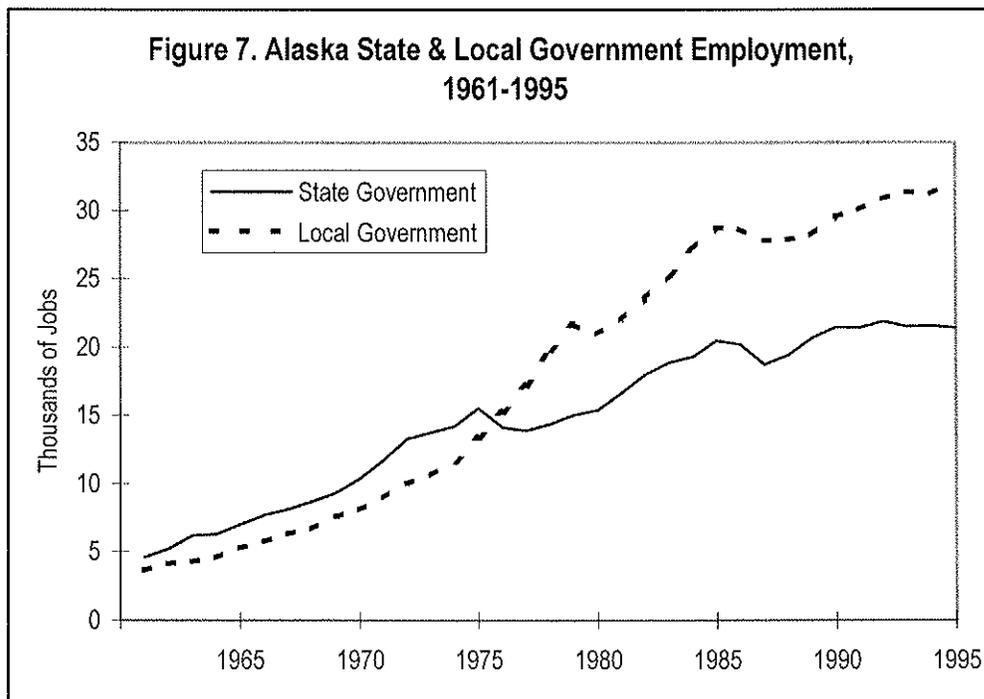
## State and Local Government Employment

### *Past Trends*

Both state and local government employment grew rapidly from statehood through the mid- 1980s (Figure 7). But since then fiscal restraint has held growth in state jobs to near zero. Local government jobs continued to grow with population, but at a slower pace than in earlier times. In 1995, state and local government employment was about 55,000.

### *Future Trends*

Less oil revenue in the future will keep state and local government employment from rising and likely will mean fewer jobs in the next decade (see later discussion of state fiscal policy). The state has already cut or eliminated several local aid programs, and local governments with small tax bases have been hard pressed to expand or even maintain services. State aid for education still pays most local school costs—and that is the one type of aid most likely to continue flowing.



## Personal Income Changes

### **Historical Changes**

From 1961 to 1990, as the state's population more than doubled, total personal income of Alaskans rose from \$628 million to more than \$11 billion. During the same period, income composition also changed. In 1961, income from wages made up 90 percent of Alaskans' income; by 1990 wages made up just 75 percent. That shift happened because income from other sources—dividends/interest/rents, government transfers, and the Permanent Fund dividend—grew faster than wage income. More income that is independent of wages has helped stabilize the economy and moderate boom-bust cycles.

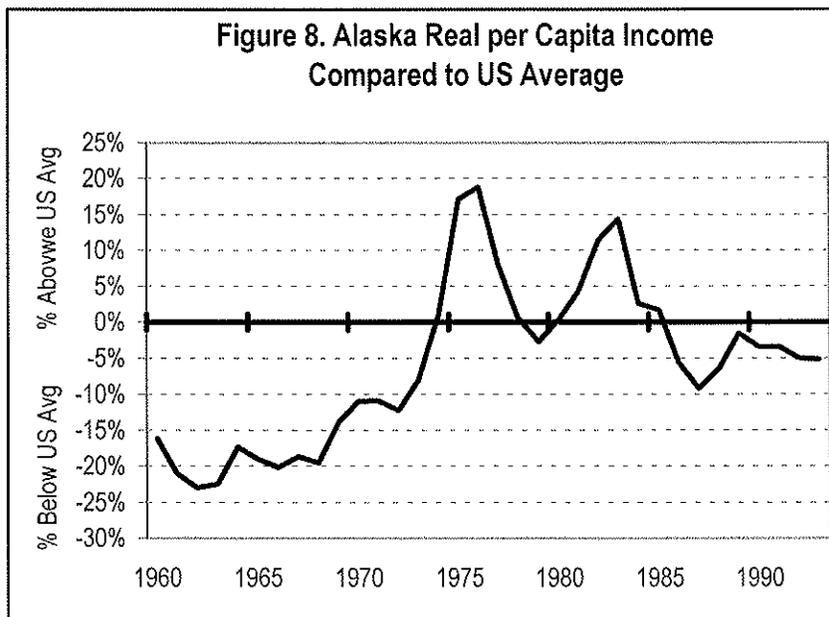
The real average annual civilian wage (adjusted for inflation) in Alaska grew rapidly in the 1960s, as did wages nationwide. Average wages continued to grow, but at a slower

rate, in the 1970s and fell during the second half of the 1980s. In the 1970s and early 1980s, many new Alaska jobs were in high-wage professional and technical occupations. Employers also had to raise wages to attract workers during the pipeline construction boom in the mid-1970s and the boom created by state spending in the early 1980s.

Starting in the mid-1980s, Alaska employment shifted more toward lower-paying service jobs, and slow growth in high-paying jobs held wages down. These changes were partly due to the state recession that followed the 1986 oil price crash, partly due to structural change in the Alaska economy, and partly due to changes in the national economy.

Alaska's median household income ranks highest in the nation— 41 percent above the national average in 1995. But Alaska households aren't as well off as these figures suggest. The figures aren't adjusted for Alaska's higher cost of living; the gap between Alaska and U.S. living costs has narrowed but not disappeared over time. Also, Alaska has few households headed by retired people, who have lower incomes. And Alaska's larger average household size and high labor force participation rate also increase median income.

Per capita personal income in Alaska has also historically been higher than the U.S. average—but adjusted for the difference in living costs, Alaska's per capita income has been below the U.S. average, except during the boom created by construction of the oil pipeline and the boom associated with state spending in the early 1980s (Figure 8).



### Anticipated Changes

The real (adjusted for inflation) average annual civilian wage in Alaska is likely to decline modestly, as employment continues to shift toward lower wage industries, as slow growth in jobs holds wages down, and as the cost of living difference between Alaska and the rest of the U.S. continues to narrow.

Income from sources other than wages is expected to keep growing, but at a slower pace. Dividend, interest, and rent income will increase as Alaska's population ages. There will be less growth in government transfers, due to the possible reduction in the Permanent Fund dividend and other state transfer programs. Also, the federal government is looking at ways to slow the growth of entitlement programs like Medicaid and Medicare. As the growth in non-wage income slows, so will growth in household income.

When Alaska plaintiffs receive their settlement from the Exxon Valdez oil spill lawsuit, income in Alaska will increase briefly. The settlement amounts to about \$5 billion, but the

decision is under appeal and some recipients are not Alaskans; we assume the settlement will add about \$1 billion to income in Alaska at the end of the decade.

Real (adjusted for inflation) per capita income will remain relatively constant, reflecting the expected drop in real wage rates and the expected growth in non-wage income. However, real per capita **disposable** income will fall slightly if the state personal income tax is re-imposed. Per capita personal income will continue to vary sharply across Alaska communities, tending to be higher and from a broader range of sources in urban areas.

### Price Levels

We estimate living costs in Anchorage are currently about 15 percent above the national average, compared with 46 percent higher in 1961. The gap narrowed as markets in Alaska got bigger, creating competition in consumer and labor markets and economies of scale. This trend is expected to continue, although at a slower rate—so Anchorage costs will move closer to but remain above the national average. In rural areas, costs are higher than in Anchorage; those higher costs will persist because so many Alaska communities are small and remote. We expect inflation in Alaska to closely track the national average.

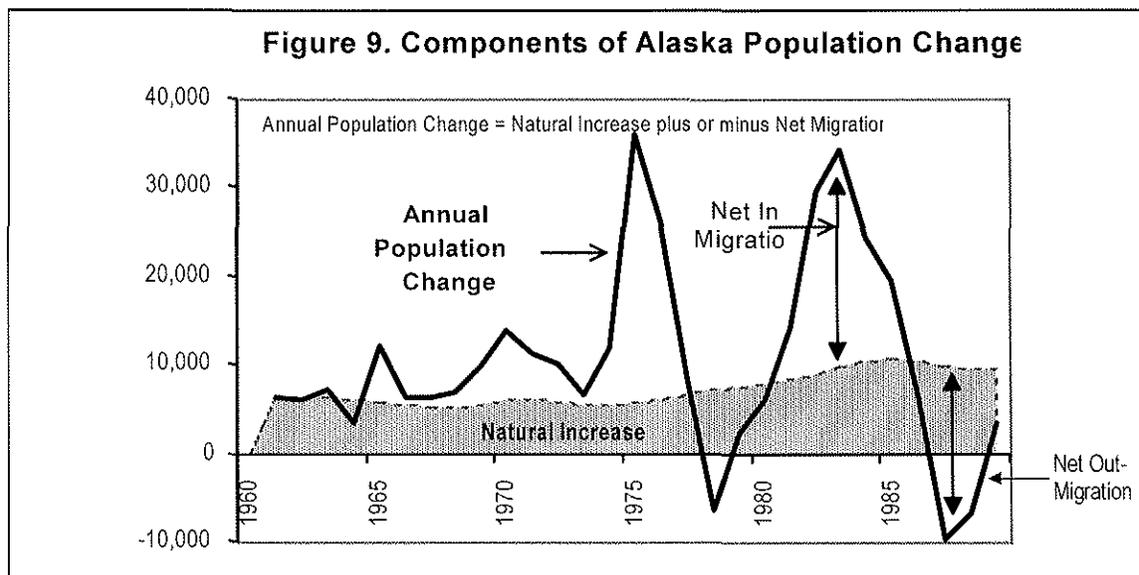
## Demographic Changes

### Population

#### Past Trends

Alaska's population in 1996 was more than 2.5 times larger than in 1959. This was considerably faster growth than in the U.S. as a whole, and both natural increase (births minus deaths) and net migration (the number of people arriving minus the number leaving)—contributed.

About 10 percent of the Alaska population turns over through migration every year—among the highest rates in the U.S. This high turnover is due to military personnel coming and going, the state's young population (which is more likely to move with economic opportunities), and the state's periods of rapid growth. Overall, more people moved to Alaska than left over the past few decades—but migration has been volatile. Figure 9 shows how natural increase and migration contributed to population change in recent decades. Clearly apparent are the arrivals and departures associated with trans-Alaska pipeline construction (many arrivals during construction from 1974 to 1977, many departures in 1978-79) and with changes in state spending (many arrivals during the boom of the early 1980s, many departures in the later recession).



### ***Future Trends***

Alaska's population is becoming more stable, as we can see by comparing information from the 1960, 1970, 1980, and 1990 U.S. censuses. The census asks the question, where did you live 5 years ago? In 1960, only half of Alaska residents reported living in the state five years earlier. By 1990 the share had grown to more than 75 percent.

## **Age, Race, and Sex**

### ***Past Trends***

As Alaska's population grew since 1950, the share of whites increased somewhat (from 72 to 76 percent); the share of Natives declined (from 26 to 16 percent) and the share of other races grew very sharply (from less than 2 percent to nearly 9 percent.) The Native share of the population declined not because their numbers declined—in fact, the Native population tripled—but because so many people of other races arrived.

Harsh winters and high living costs have traditionally caused many older people to leave Alaska, and people moving to Alaska tend to be younger people who either came for economic opportunities or were transferred here by the military. In 1995 less than 5 percent of the Alaska population was 65 years or more, compared with 13 percent nationwide; on the other hand, people 15 to 64 years old make up 69 percent of the Alaska population, compared with 65 percent nationwide.

The Native population is both younger and older than the general state population. More than 43 percent of Natives are under 18, compared with 33 percent among all residents. Also, a slightly larger share of Natives is over 65 (5.3 percent compared with 4.9 percent). The Native population does not tend to move in or out of the state in large numbers.

### ***Future Trends***

People over 65—who in earlier years were likely to leave Alaska—are now the fastest growing segment of the population. Also, Alaska had many more men than women 40 years ago, mostly because of the large number of military personnel. But that the gap has narrowed and continues to decline as numbers of military personnel here decline and as more women enter the military. Those changes are shifting Alaska's population composition more toward the U.S. average.

## **Households**

### ***Past Trends***

The composition of Alaska households changed rapidly in the past 25 years, as it did in the rest of the U.S. The percentage of "traditional" families—married couples with children—declined and the share of single-parent families increased. Many more people are living alone or in households with people who are not relatives.

Married couples made up more than three quarters of all Alaska households in 1970, and most of those were raising children. About 8 percent of families were headed by single men or women—mostly women. By 1994, married couples made up just over half of households in Alaska, and only 33 percent were couples raising children. The share of single women raising children had more than doubled. Non-family households made up more than 30 percent of all households.

Like households nationwide, Alaska's average household got smaller in recent decades—although the downward trend has slowed in recent years and the average may not decline much from the current 2.79 persons. Among non-Native Alaskans, the changing composition of households accounts for most of the decline in the average household

size. Among Native households, a declining birth rate and a larger supply of housing in rural areas in recent years has tended to reduce household size. Despite the decline, Alaska's average household remains slightly larger than the average U.S. A higher proportion of Alaskans are in their child rearing years, so more households include children. Also, fewer Alaska households are headed by older people; such households tend to be smaller.

### ***Future Trends***

As Alaska's population continues to age, the composition of population and households will likely continue to become more like that of the U.S. as a whole, moving toward fewer households with children and more non-family households.

## **Settlement Patterns**

### ***Past Trends***

The biggest shift in Alaska settlement patterns in the past 25 years was the increasing concentration of the population in Southcentral Alaska—not only because of growth in Anchorage itself, but because of very rapid growth in the Matanuska-Susitna Borough and in the Kenai Peninsula Borough.

Alaska's overall population grew at an annual average rate of 2.9 percent between 1980 and 1995. Anchorage's population grew about 2.6 percent annually. But growth in the Mat-Su Borough north of Anchorage averaged 7.2 percent annually, the fastest in the state. Growth was also high in the Kenai Peninsula Borough south of Anchorage, averaging 4.2 percent annually. As a result, the share of Alaska's population living in Anchorage, the Mat-Su, and the Kenai Peninsula increased from under half in 1970 to nearly 60 percent in 1995.

During the same period, population in most rural areas grew less than the statewide average, and so did population in a few of the smaller urban areas. The Department of Labor has found that in most rural areas, more people left than moved in; many Native people moved from the outlying villages to the urban areas of Anchorage, Fairbanks, and the Kenai Peninsula. However, because more people were born in rural areas than moved out, these areas continued to grow, although more slowly than urban areas. The slower growth rates in Southeast Alaska's urban communities in part reflect troubled times in the logging industry and slow growth in the seafood industry.

Military base closures in the last ten years greatly changed the population composition of the western Aleutians, the Bristol Bay Borough, and some communities in Interior Alaska. In 1995 the largest concentrations of active duty military personnel were in the urban areas of Anchorage, Fairbanks, and Kodiak.

### ***Future Trends***

We expect little change in settlement patterns for the foreseeable future; a slight trend toward more concentration in the Southcentral area will continue.

## **Commuting Patterns**

Many workers in Alaska don't live where they work. A significant number live outside the state; the Department of Labor estimated that non-residents held about 22 percent of Alaska jobs in 1994. Many of these non-residents work seasonal jobs in the seafood, timber, tourism, and construction industries. A small number—particularly in the petroleum industry—hold year-round jobs and commute to and from Alaska regularly.

Among workers who do live in Alaska, there are also a variety of commuting patterns. Seasonal jobs in fishing or tourism draw some Alaskans from urban areas like Anchorage to more outlying places. Some residents of Southcentral Alaska commute (typically every two or three weeks) to North Slope oil-related jobs. Many residents of the Mat-Su Borough commute to Anchorage to work. Finally, a substantial number of jobs in urban areas require occasional travel to rural areas—for instance, public or private jobs involving service delivery.

### **Recreation Patterns**

The most pronounced pattern of recreation travel among Alaskans is that residents of urban centers travel to the smaller coastal communities for fishing and other types of recreation. We expect this pattern to persist and to intensify as Alaska's population grows.

### **Trade and Service Patterns**

Many Alaskans from outlying areas travel to larger urban places to shop, get medical attention, or attend conferences, among other reasons. The larger rural communities—like Bethel in Southwest Alaska—serve as regional hubs.

Anchorage is the main trade and service center for the state; Fairbanks also serves as a trade center for residents of the Interior. Residents of the Mat-Su and Kenai Peninsula boroughs routinely drive into Anchorage. Alaskans from communities off the road system frequently fly into Anchorage—Alaskans from outside Anchorage made an estimated 350,000 arrivals and departures from Anchorage International Airport in 1994.

### **Regional Trends**

For transportation planning, DOTPF divides the state into three regions: Southcentral/Interior; Southeast; and Western Arctic.

#### **Southcentral/Interior**

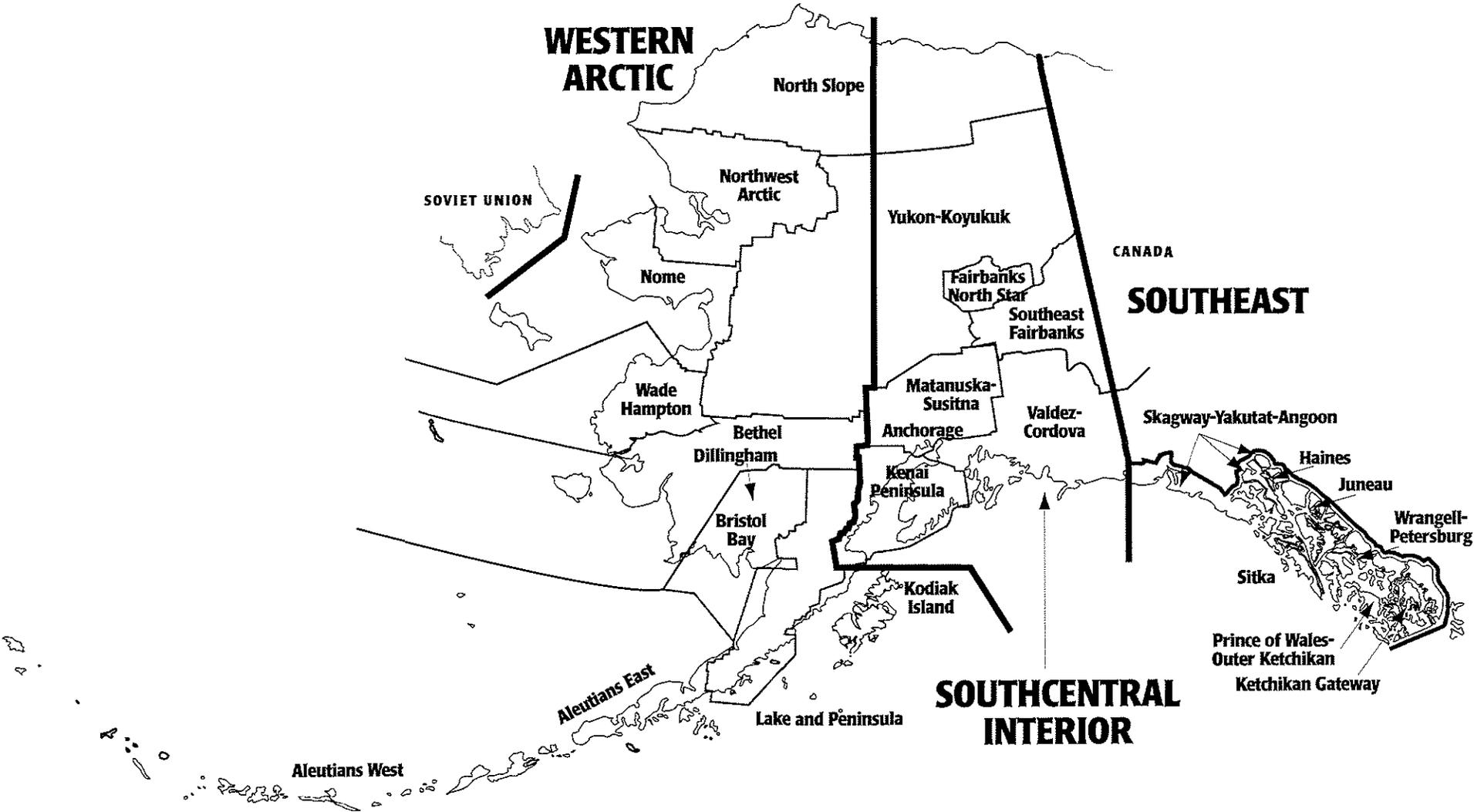
This region stretches from the Gulf of Alaska to the Arctic Ocean and includes Anchorage and Fairbanks, the state's two largest cities and the major trade and service centers. Trends in this region correspond with statewide trends discussed in earlier sections—because the majority of Alaskans live in this region and it includes oil development in Cook Inlet, as well as commercial fishing centers in Cook Inlet and Prince William Sound and major tourist destinations like Denali National Park and the Kenai Peninsula.

#### **Southeast**

The oldest industries in Southeast Alaska are commercial fishing and logging; government and tourism have also developed there since statehood. The fishing industry here has grown since the 1960s, but not as quickly as fishing statewide. The timber industry has been declining since the late 1980s, with the closing or threatened closing of regional pulp mills and saw mills that depend on timber from the Tongass National Forest and the decline in timber harvests from Native corporation lands.

State government, which had been a source of rapid growth in Juneau (the state capital) from the 1960s through much of the 1980s, has been relatively static in recent years. Tourism is currently the fastest growing industry in Southeast, with increasing numbers of cruise ship passengers and independent travelers and steady growth in eco-tourism firms.

# MAJOR ALASKA TRANSPORT REGIONS



## **Western Arctic**

The Western Arctic region includes some of the poorest areas of the state as well as North Slope oil development and rich fishing grounds. Communities in Kodiak, Bristol Bay, and the Aleutians depend heavily on fishing, which boomed during the 1980s with development of the Bering Sea bottomfishing industry and record salmon runs.

In the more northwesterly parts of the region, economic opportunities are much more limited. The local economies depend largely on state and local government and Native corporation jobs and on government transfers, including Permanent Fund dividends. The federal government also creates some jobs, especially through contracts for health care.

On the arctic slope, oil development employs many people at high wages, but virtually all the workers commute from other areas. The North Slope Borough, however, is able to employ many local residents using property taxes on oil development.

## **The Future**

State fiscal policy and trends in the national economy and politics will strongly influence Alaska's economy in the coming years. So we discuss them briefly before presenting our estimates of future growth in Alaska's population and employment.

### **State Fiscal Policy**

The future health of Alaska's state government is critical to the economy, because about one in three jobs in Alaska can be traced in one way or another to state government spending. And most of the state government's money—85 percent of the general fund budget—comes from petroleum revenues. But those revenues have dropped with declining production from the huge Prudhoe Bay field.

The state has dealt with declining revenues over the past decade by holding growth in spending to a minimum and filling in budget shortfalls with cash reserves. Also, a few unexpected events—like the 1991 Gulf War or the severe winter of 1995-1996—have at times boosted oil prices and increased state revenues.

Oil production will likely continue to decline, since no known fields can replace the Prudhoe Bay field. And falling production will, we believe, continue to reduce state oil revenues. (Some analysts disagree, maintaining that changes in oil production, prices, or tax and ownership regimes can maintain or even increase petroleum revenues.)

But although we think the trend for oil revenues is down, it's difficult to predict with any precision how much or how fast they will drop, or how the state government will deal with the decline. It has a number of potential tools: continued budget restraint; increased efficiency measures; new taxes; use of the Constitutional Budget Reserve; and use of Permanent Fund earnings. (Notice that we are talking only about use of some of the earnings of the Permanent Fund, not the principal.)

We assume that the state will re-impose a state income tax when it is needed to balance the budget, that the Permanent Fund dividend will decline, and that state and local governments cut real (adjusted for inflation) wages of their workers. Combined, these fiscal tools can cushion the state economy from the effects of reduced state spending. There is no assurance that state government will use them in ways that minimize economic effects. However, the special Permanent Fund contributions the Alaska Legislature made in the 1980s provides evidence that Alaskans can balance future needs against present demands.

## National Economy and Politics

Trends in the national economy also influence the Alaska economy. First, a big share of Alaska's exports are sold in the Lower 48, so the strength of the state's export industries—particularly tourism—depends on the health of the U.S. economy. Second, if real wages grow nationally, real wages in Alaska will follow—boosting purchasing power of Alaskans. Third, unemployment in the rest of the nation affects Alaska: when unemployment is high elsewhere, more people look to Alaska for jobs—and vice-versa.

The level of federal spending also affects Alaska, since Alaska receives more in federal expenditures per capita than any other state. In general, we assume no major departures from current federal policies affecting Alaska—such as the legal structure of the Alaska Native corporations and the by-pass mail system of the U.S. Postal Service, which provides subsidized freight service to rural Alaska. We do assume that the federal cost of living adjustment (COLA), paid to a large share of federal employees in Alaska, will gradually decline from its current level of 25 percent to 15 percent, and that Alaska inflation will closely track national inflation. We also assume a modest increase in real national per capita income and a national unemployment rate of between 6 and 7 percent.

## Economic and Demographic Projections

Because the future is always somewhat uncertain, we estimate a range of potential growth. The medium case projections are based on assumptions about future levels of natural resource production and other variables that seem most likely today. The high case projections are based on more optimistic assumptions about development and the low case on less optimistic assumptions. Detail about the assumptions and outputs for each case are presented in a separate appendix to this chapter.

In the future, as in the past, Alaska's economy will still go through economic cycles as prices for Alaska's resources respond to world market conditions. Although we know such cycles will happen, we can't forecast their timing. Consequently, the economic and demographic projections we present here have an appearance of smoothness and continuity—which is unlikely to be the actual pattern in the future.

### Medium Case Projections

- **Total employment**, including both wage jobs and self employment, is projected to grow just over 1 percent annually between 1996 and 2020—more slowly in the next few years and somewhat faster in the subsequent years. This is slower growth than in recent decades, and results from maturation of the economy, maturation of the petroleum industry, and the fiscal constraints on state and local governments. Growth will continue in spite of a continued decline in oil production.

Employment growth will be concentrated in the support sector—trade, services, and finance. Business services, although small, will grow very rapidly. Transportation, public utilities, and communication will grow at about the same rate as population and income, while construction remains relatively flat. Basic sector jobs will grow more slowly, with the most growth in petroleum, mining, tourism, air freight transportation, and federal civilian employment. Petroleum jobs will increase despite declining production, because exploiting smaller fields is more labor intensive. Employment in the seafood, timber, and military sectors will likely stay more or less constant over time. State and local government employment will decline at first and then grow slowly.

- **Real (adjusted for inflation) personal income** will grow about 1.6 percent annually between now and 2020. Income will grow faster than employment mainly because of growth in non-wage income; the proportion of older households will be increasing, and

older households get a larger share of their income from non-wage sources like pensions. We also expect dividend/interest/rent income to increase faster than wage income.

- **Population** will likely grow around 1.5 percent annually over the next 25 years.

Migration and natural increase will insure that population growth at least keeps pace with employment growth—but we expect population to grow faster than employment. That's because the population over 65 will grow rapidly and the working-age population will be on average older; as people age, a declining percentage choose to work. The number of households will likely grow a bit faster than population, due to a continuing slow trend toward smaller average household size.

- **The Southcentral/Interior region** will grow faster than the Southeast, and growth will be slowest in the Western Arctic. Between now and 2020, population is projected to grow 1.5 percent annually in the Southcentral/Interior, 1.4 percent in the Southeast, and 1 percent in the Western Arctic. In all regions, population will grow faster than employment.

- **The Southcentral/Interior region** will capture four out of five new residents, new jobs, and additional dollars of income in the coming years. A substantial share of the state's growth industries are in this region; it also has the transportation infrastructure to provide goods and services to remote areas.

- In **Southeast Alaska**, little growth is projected for fishing, logging, and state government, which have been the historical mainstays of the regional economy. However, tourism is a growing part of the regional economy; in particular, almost all cruise ship passengers spend at least some time in Southeast. Increased mining will also fuel economic growth in the Southeast region, which will capture two out of three new mining jobs statewide.

- **The Western Arctic region** is the least economically developed region in the state and will remain so for the foreseeable future. Commercial fishing and processing employment in the southern areas is expected to stay at about current levels. Petroleum development and mining activity will provide continuing employment in the northern area. Most new jobs in the coming years will be in the support or government sectors—but growth will be slow, because of the budget constraints state and local governments face.

- Growth in employment and in personal income will be about the same in **urban and rural areas**—an annual average of around 1.2 percent for employment and 1.6 percent for personal income. This may seem surprising at first glance— but while support and infrastructure jobs are concentrated in urban areas, oil industry and mining jobs tend to be in rural areas. Tourists visit both urban and rural areas. Also, we define what is urban and what is rural by census area—which means that regional centers like Nome and Dillingham are considered rural, and so is the Mat-Su Borough just north of Anchorage.

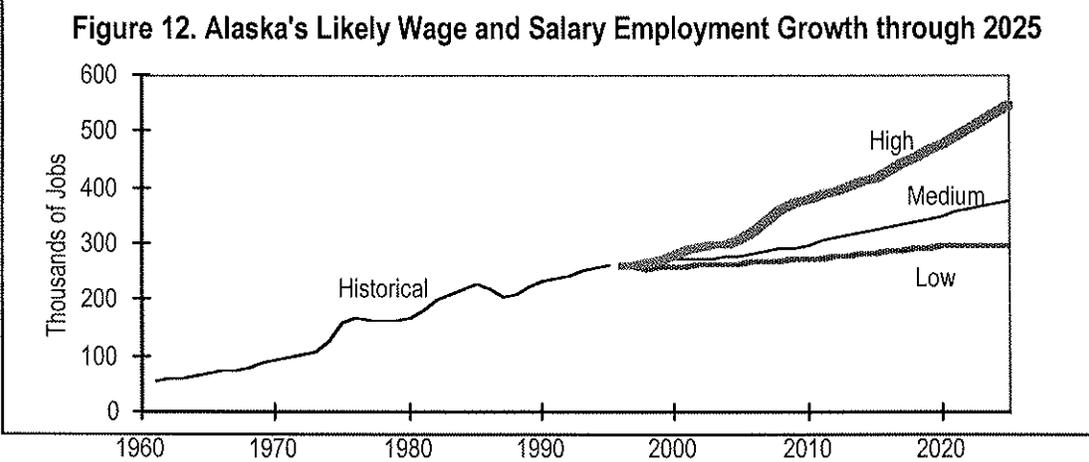
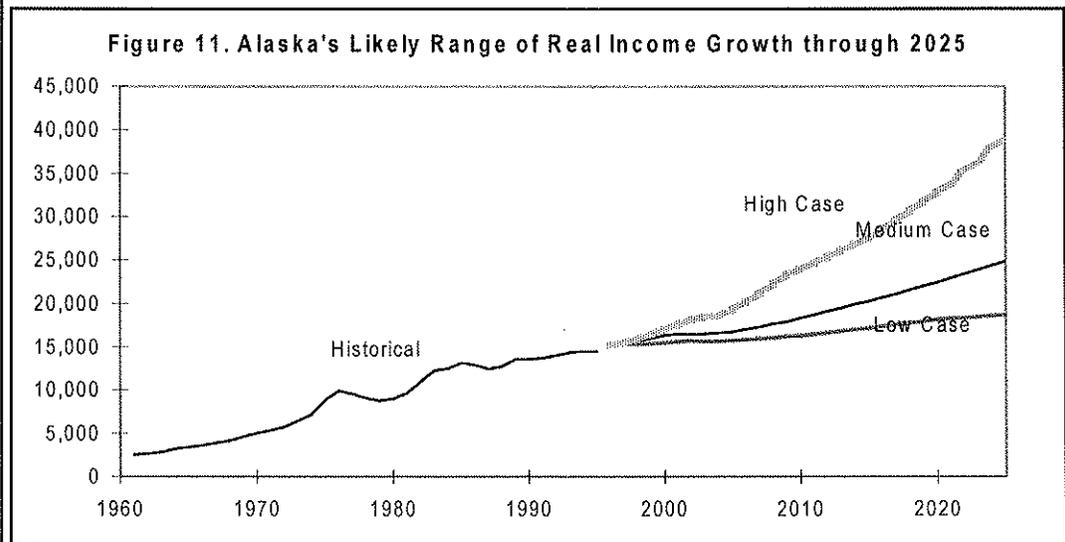
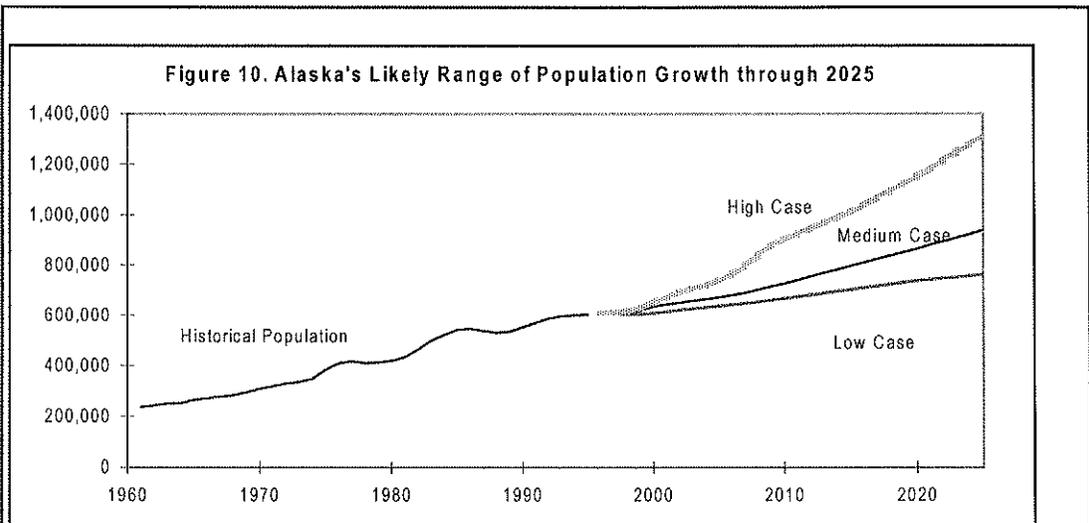
- **Rural areas** statewide will see slightly faster population growth than urban areas (1.6 percent annually, compared with 1.4 percent)—but much of the difference can be traced to growth in the Mat-Su Borough—which although it borders on Anchorage is classified as rural. Differences in rural and urban growth within the three regions are mostly due to how entire census areas are classified rather than to actual urban/rural differences.

### High Case Projections

- **Employment growth** in the high case is projected to be about twice the rate as in the medium case—about 2.5 percent annually until 2020. This case assume full development of the North Slope gas fields and construction of a gas pipeline. Growth is also projected to be faster in mining and tourism; state petroleum revenues are assumed to be higher; and non-wage income grows faster.
- **Population and households** would—as in the medium case—grow somewhat faster than employment, largely because of the aging of the population and the continuing slow trend toward smaller households.
- **Urban areas** would see somewhat faster employment growth than rural areas under this case (2.6 percent annually, compared with 2.5), but population growth would be a bit faster in rural areas.
- Growth in population and employment under this case would still be fastest in the **Southcentral/Interior region**, followed by the Southeast region and then the Western Arctic.

### Low Case Projections

- **Employment growth** under the low case would be about half the rate as in the medium case—about 0.5 percent annually over the next 25 years. Job growth would be concentrated in the support and infrastructure sectors, with virtually flat levels of employment in basic industries and state and local government.
- Like in the medium and the high cases, **population and household growth** would be faster than employment growth in the low case—again, because of the aging of the population and a slow trend toward smaller households. With slower economic growth, population growth would be more concentrated in rural areas.
- Growth would still be fastest in the **Southcentral/Interior region**, followed by growth in the Southeast. Employment in the Western Arctic would be virtually flat—although population would still grow.



## **Implications for the Transportation System**

Alaska's economy will continue to grow over the next 25 years, but slowly as compared with the past 25 years. Under what we consider the most likely scenario—the medium case—the economy will grow at only about half the rate we've seen in the recent past. Oil development will continue to be a driver for the economy; tourism and mining will also grow. Population will continue to grow, contributing to economic growth.

Growth in wage income will likely lag growth in jobs, because new jobs will be concentrated in service industries, which tend to be pay less. Real income growth will come mostly from growth in dividend/interest/rent income, because a bigger share of Alaskans will be older people, who have more non-wage income.

Future economic growth will include diffuse development in remote areas and more concentrated development in urban areas. Tourism, mining, infrastructure, and trade and services will create new jobs in rural regional hubs. Anchorage and Fairbanks will continue to see growth as trade and service centers, and as headquarters for support and infrastructure industries that depend on economies of scale.

The overall patterns of settlement and economic activity won't change much, although the Southcentral/Interior region—which already has the majority of the state's population and jobs—will increase its share somewhat. This region also has the most developed transportation infrastructure, with road, rail, air, and water transportation links already in place. These existing transportation facilities will have to absorb most of the growing demand, and growth in the transportation system will mostly be in improvements to existing links and facilities. A few remote mining operations may demand new transportation links or routes.

The concentration of job growth in the service industries (including tourism) will tend to shift transportation demands away from freight and cargo facilities and toward transportation of people. The exceptions to that general shift will be continued growth in international freight handling at the Anchorage and Fairbanks airports, and the construction of ore transport facilities where mines are developed or expanded.

In the Southcentral region, growth in jobs in Anchorage will lead to continued population growth in the neighboring Mat-Su Borough, where many residents commute to jobs in Anchorage. That population growth will increase use of the Parks and Glenn highways. We expect increased demand between the Mat-Su Valley and Anchorage to exceed the current highway capacity some time between now and 2020.

This growth in the Mat-Su Borough is indicative of the potential for more dispersed settlement patterns around urban areas in the future. One of the continuing attractive features of Alaska is that it offers rural environments that are readily accessible to urban areas. We anticipate continued growth in demand for transportation links that expand the opportunity to live in rural areas and commute to urban jobs.

In Southeast Alaska, population and employment are expected to grow most in the larger communities of Juneau, Ketchikan, and Sitka. Air transportation demand between those communities and the larger urban centers of Anchorage and Seattle may increase. Also, as the infrastructure and support sectors of the larger Southeast communities grow, transportation demand between them and the smaller regional communities will grow.

Transportation demand in the Western Arctic region will remain diffuse and relatively sparse. We foresee rather modest increases in demand on existing facilities.

