

# Alaska Statewide and Regional Economic Systems : Effects of OCS Exploration and Development, 1990

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**FINAL TECHNICAL REPORT**

**ALASKA STATEWIDE AND REGIONAL  
ECONOMIC AND DEMOGRAPHIC SYSTEMS:  
EFFECTS OF OCS EXPLORATION  
AND DEVELOPMENT, 1990**

*prepared for*

**Social and Economic Studies Program  
Minerals Management Service  
Alaska OCS Region**

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## **ABSTRACT**

This report contains projections and analyses of cumulative economic and demographic effects of petroleum exploration and development that may occur in Alaska from areas leased as of January 1990 on the federal Outer Continental Shelf (OCS). Econometric modeling techniques are used to develop projections for the state of Alaska and for the Anchorage-Mat-Su Region.

The projected cumulative effects of the Leasing Program include an increase of approximately 4 percent in population and employment for both the state and for the Anchorage-Mat-Su Region. The statewide effects begin with exploration activities in the first half of the 1990s, then grow quickly during construction of development and transportation facilities for OCS development near the end of the decade. The effects then decline slowly as petroleum development moves into the operations phase after the year 2000. Economic activity related to expanded OCS development yields significant new petroleum revenues for state and local governments. Including state income taxes potentially available from the expanded employment base, the revenues added by OCS development are more than sufficient to offset new demands on public services created by the larger population.

The effects on the Anchorage-Mat-Su Region are projected to be nearly as large in 2015 as in 2000 and reach the same percentage increases in population and employment as observed for the state as a whole. The effect of OCS leasing on the Anchorage-Mat-Su Region population and employment is likely to occur slightly later than for the state as a whole due to the lags in the multiplier process producing these largely indirect effects.



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## I. INTRODUCTION

This report contains projections and analyses of cumulative economic and demographic effects of petroleum exploration and development that may occur in Alaska on areas leased as of January 1990 on the federal Outer Continental Shelf (OCS). We did not assume that any development would occur on areas not yet leased in 1990. Econometric modeling techniques are used to develop projections for the state of Alaska and for the Anchorage-Mat-Su Region. For this study, the Anchorage-Mat-Su Region includes the Municipality of Anchorage and the Matanuska-Susitna Borough.

We analyze the effects of OCS oil and gas development by projecting the economy and population under two alternative economic scenarios. These scenarios contain exactly the same set of assumptions about future patterns of non-OCS economic activities around the state. However, one scenario includes a hypothetical pattern of petroleum exploration and development activity on the federal Outer Continental Shelf, while the other scenario does not include any OCS activities. The scenario which does not contain OCS activities may be considered a "base case" and the scenario including OCS development an "impact case" for analyzing the effects of OCS activities on the Alaska state and regional economies.

In the following chapters, we discuss and compare economic and demographic projections of the two scenarios. We use the projections in order to assess the potential cumulative effects on the economy and population of Alaska and its

Anchorage-Mat-Su Region of future oil exploration and development on the federal OCS. Our scenario for OCS development assumes that natural gas is not developed commercially on any OCS areas in Alaska.

We project economic and demographic effects using the Man-in-the-Arctic Program (MAP) system of econometric models developed at the University of Alaska, Institute of Social and Economic Research (ISER). Chapter II contains a brief review of the concepts and structure of the MAP economic and demographic modeling system, showing how we use this tool to help project the effects of OCS petroleum development on the economy of the state and its various regions.

Chapter III reviews the assumptions used for the MAP statewide model and presents the economic and demographic projections for Alaska under the "without OCS development" scenario. This scenario assumes no further exploration after 1990 and no development of OCS areas already leased or potentially offered for leasing in the future. This projection serves as the "base case" for the discussion of the cumulative impacts of the future OCS activities. Chapter IV then discusses the economic and demographic projections using "with OCS development" case, comparing these "impact case" projections to the base case described in Chapter III. We use these results to analyze the potential effects of OCS development on the state economy and population.

Chapter V discusses projections of the population and economy of the Anchorage-Mat-Su Region of Alaska under the same without- and with-OCS

development scenarios. Comparing these projections allows us to assess the potential effects, largely indirect, of OCS development on the region containing the bulk of the state's financial, trade, and service industries. Chapter VI reviews and summarizes the results of the statewide and regional projections presented in Chapters III-V.

A number of appendixes contain additional supporting information. Appendix A contains tables describing the scenario assumptions for the with-OCS (impact case) economic and demographic projections for the state of Alaska. Appendix B contains the set of tables describing the with-OCS (impact-case) economic and demographic projection results. Appendix C contains a set of tables describing the without-OCS and the with-OCS projections for the Anchorage-Mat-Su region. Appendixes D and E contain details of economic development and OCS scenario assumptions.





## **II. METHODOLOGY**

This chapter describes the methodology used to project statewide and regional economic and demographic effects of Alaska OCS development. We focus the analysis principally on changes in the magnitude and composition of population, employment, and personal income. Projections of these variables are the product of a complex modeling process. The Man-in-the-Arctic Program (MAP) model system, the principal modeling tool for our economic and demographic projections, has been used extensively in the past for economic and demographic projections. This chapter summarizes the MAP model system and provides a brief description of how it works.

The MAP model system includes a statewide econometric model and a regional model allocating employment and population within the state. These models were developed at ISER and have been refined and extended periodically over the years. Berman et al. (1986) contains a description and complete documentation of the model system. We shall, however, briefly review how each of the two models projects the main economic, demographic, and fiscal variables.

### **Statewide Projections**

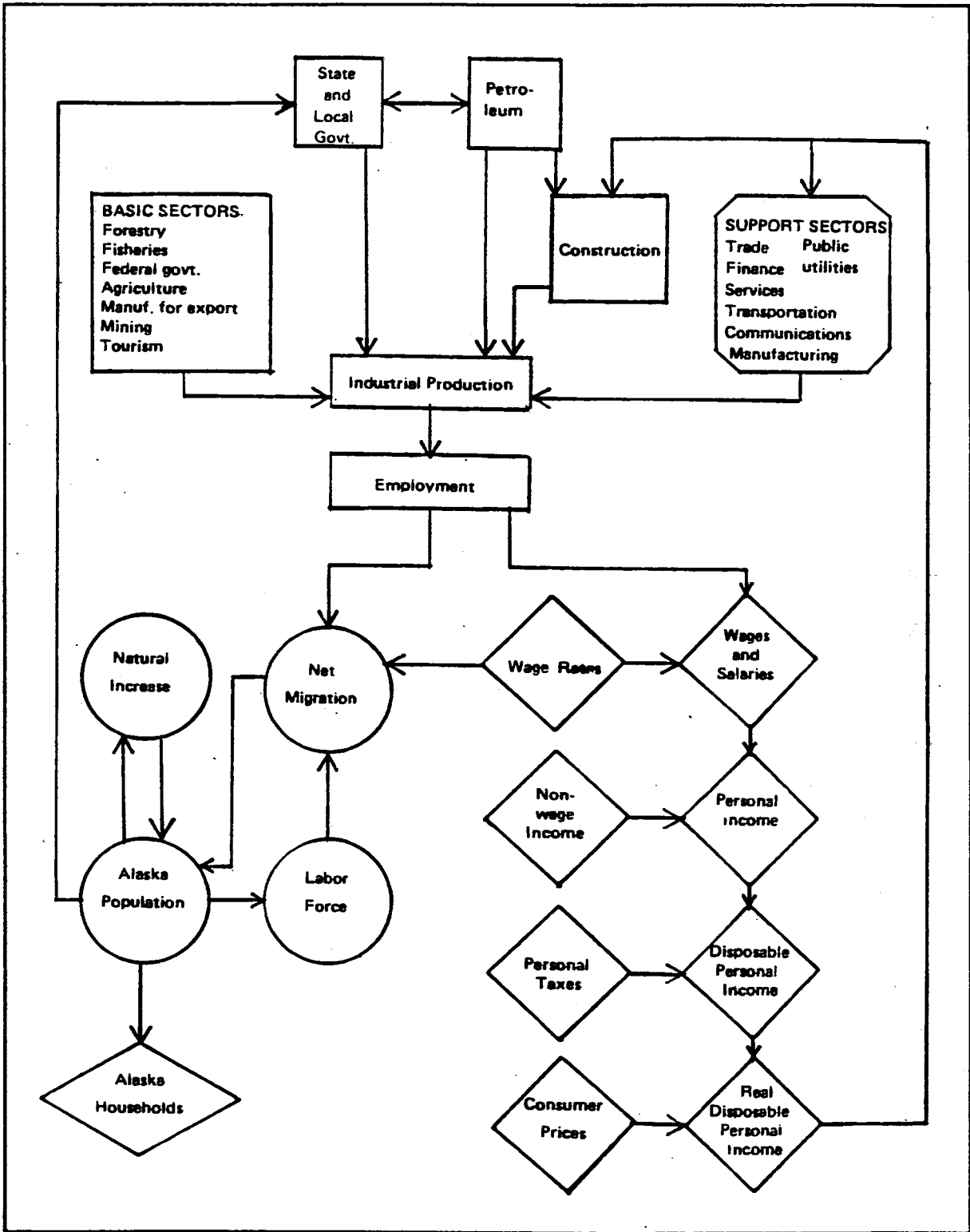
The MAP statewide econometric model has three main components – an economic model, a population model, and a fiscal model. The economic model determines the level of economic activity and employment in each industry as well as prices, wages, and total income. The population model projects values for

numerous demographic variables in order to determine total population and total households. The fiscal component models the revenue and spending patterns of Alaska state and local governments. The three components of the MAP model are interdependent, with linkages as shown in Figure 1. Understanding the nature of this interdependence is helpful for recognizing the powers and limitations of the model for making economic and demographic projections.

The link between the economic model and population model is the notion of a labor market. The population model produces a potential labor force while the economic model produces a labor force participation rate and the demand for labor, e.g., jobs. Net migration flows balance the supply and demand for labor, as discussed in Berman (1982). One link between the fiscal model and the economic model reflects the ability of the Alaska state government to stimulate or depress the economy through expenditures and tax policy. On the other hand, the level of government revenues depends on the level of economic activity, especially activity in the petroleum industry.

In addition to these major links among the three components of the MAP model, there are minor interdependencies such as the use of population figures in the economic and fiscal models to compute per capita income and per capita public spending. This last ratio has been significant in the past for computing state spending under the expenditure limitation initiative. Under recent revenue projections, however, spending is unlikely to reach the limit again even under optimistic scenarios.

**Figure 1. MAP Model Structure**



The economic model classifies all economic activity as exogenous or endogenous. Exogenous activities produce goods or services for a primarily national or international market while endogenous activities produce to satisfy local or state demand. Forest and fisheries products, petroleum and other mining, and federal government are the major exogenous industries. Most services sector employment is endogenous, although a portion derived from tourism is considered exogenous. Manufacturing, construction, and transportation also contain both endogenous and exogenous components, depending on the assumed location of the market for their products. State and local government spending are endogenous, but depend on revenues with major exogenous components (petroleum revenues and federal transfers). Although local markets absorb most Alaska agricultural production, state policy and resource constraints greatly influence the size and growth of the industry. Thus, we consider it more appropriate to classify this industry as exogenous rather than endogenous.

The notion of exogenous and endogenous economic activity in the MAP statewide economic model is, in many ways, similar to the basic and support sectors in an economic base model. In an economic base model, the so-called basic industries are exogenous (set outside the model), and the support industries are endogenous (computed by the model). The MAP model goes beyond the concept of the basic versus support industries by taking into account the fact that data available for various industries in Alaska to estimate and calibrate the model include both exogenous and endogenous components. Thus, some industries usually considered basic in a base model, such as manufacturing, have an endogenous

component while some support services have an exogenous component deriving from tourism.

Given the levels of exogenous economic activity, the MAP statewide model solves simultaneously for all the endogenous activities as well as for total disposable income, total population, and total employment. Though the process is much more complex than in an economic base model, the MAP model implicitly calculates an "employment multiplier," defined as the equilibrium change in total employment following a change in exogenous employment, other things equal. One may readily observe the multiplier process working in MAP model projections. Since the model assumes that much of support-sector activity depends on real income rather than employment, the actual value of the employment multiplier varies depending on the contribution of particular exogenous events to total income. Many economic variables affect real income, including state revenues and fiscal policy, wage rates, the cost of living and the mix of employment among relatively high- and relatively low-wage industries.

### **Regional Projections**

The MAP regional model allocates MAP statewide model projections for population and basic, support, and government employment among 29 regions, given the regional distribution of exogenous industry employment. The MAP model regions correspond exactly to 1970 census divisions.

The methodology of the regional model is based upon the use of two large matrixes. One relates basic employment in each region to support sector employment in that and in other regions while the other matrix relates employment in each region to population in that and in other regions. The model also distributes government employment to regions based upon population and past trends. The model begins with allocations proportional to distribution of population and employment in 1980. Changes since 1980 in the pattern of basic employment in the regions affect the distribution of support sector employment and population in all the regions.

Personal Income and disposable Personal Income are calculated for 23 regions corresponding to 1980 Census areas. State wage income is distributed among the regions based on employment levels and adjusted for average wage differences among regions. Regional nonwage income is related to wage income, and personal taxes is related to total income.

### **III. ALASKA ECONOMIC GROWTH WITHOUT OCS DEVELOPMENT**

This chapter discusses the projected growth and development of the Alaska economy and population to 2015, assuming that no further petroleum exploration or development activities take place on the federal Outer Continental Shelf after 1990. We assume in the projection discussed in this chapter, however, that exploration and development of petroleum resources continues onshore and in state waters throughout the projection period. We call this the without-OCS projection.

In Chapter IV we will compare the without-OCS projection to an analogous projection that includes the effects on the economy and population of exploration and potential future development of OCS areas. We call this the with-OCS projection. We use these two sets of projections in order to assess the potential cumulative effects of future OCS petroleum development activities. In this chapter, we first discuss the assumptions used for the without-OCS projection. Then we analyze the results of a simulation of the MAP statewide model under the without-OCS scenario.

#### **Scenario Assumptions**

Using the MAP model to project the Alaska economy and population requires an input scenario containing five types of assumptions. These are (1) projections for the level of activity in various industries which primarily serve markets outside the state (exogenous industry assumptions); (2) public revenue sources, including



projections of state petroleum revenues and state and local tax policy; (3) state fiscal policy, including assumptions regarding state taxation, spending, revenue sharing, and saving decisions; (4) national economic variable assumptions relevant to Alaska's economy; and (5) demographic assumptions for the Alaska population. Table 1 summarizes the assumptions we use for the MAP base-case projections, following the outline of the five categories.

The scenario assumptions represent, in the aggregate, a median outcome for future demographic, economic, and fiscal conditions affecting the Alaska economy. This means that we consider it equally likely that the value is higher or lower than the assumed value. Since it is unlikely but possible that a very high level may result for some scenario assumptions, the median value generally is lower than the average level of all possible outcomes (the mean). Goldsmith et al., 1985 (Appendix K, Section K.1) discusses this problem in greater detail.

**TABLE 1.**  
**1990 MINERALS MANAGEMENT SERVICE STUDY**  
**ASSUMPTIONS USED IN ECONOMIC PROJECTIONS**  
**Without-OCS Case (Case Name MMSB)**

**A. INDUSTRY ASSUMPTIONS**

- |   |  |
|---|--|
| 1. Trans-Alaska Pipeline                            | Operating employment remains constant at 885 through 2010 with 390 at headquarters in Anchorage and the remainder along the pipeline corridor. [Source: personal communication with Alyeska Pipeline Company] (TAP.S90). |
| 2. Pipeline Corrosion                               | Corrosion-related repairs and maintenance results in construction employment peaking at 1200 in 1991 and 1992, falling to a constant level of 150 in 1994 (COR.S90N).  |
| 3. Oilspill   | The Exxon Valdez oilspill generated employment of 2,650 in 1989 and \$700 million in additional personal income to Alaskans (SPL.S90).   |
| 4. North Slope Petroleum Development and Production | This case (NSO.S90H) is based upon an expansion of production to include West Sak or a comparable major new field in the 1990s.  |
| 5. ANWR   | Exploration but no development in ANWR (ANWR.S90L).  |
| 6. Upper Cook Inlet -- Petroleum Production         | Employment in exploration and development of oil and gas in the Upper Cook Inlet area declines gradually (1 percent annually) as the major oil fields are depleted (UPC.S90).  |
| 7. Oil Industry Headquarters                        | This case (OHQ.S90) is associated with additional development of North Slope fields.   |
| 8. TAGS Pipeline                                    | Not constructed  |

---

NOTE: Codes in parentheses indicate ISER names for MAP Model SCEN\_ case files, and codes in brackets indicate MAP variable names.

TABLE 1 (continued)

9. Beluga Coal Production	Development of a 3.5 million ton/year mine for export beginning in 1993 results in employment of 375 in 1995 and beyond (BCL.S90-3).
10. U.S. Borax	Does not begin operations
11. Greens Creek Mine	Production from the Greens Creek Mine on Admiralty Island begins at the end of 1988. Employment in the mine is constant at 250 through 2010. [Source: personal communication, Greens Creek Mining Company] (GCM.S90).
12. Red Dog Mine	The Red Dog Mine in the Western Brooks Range begins operation in 1990 with production employment of 350 (RED.S90).
13. Wishbone Hill	This coal mine in the Matanuska-Susitna Valley begins operation in mid-1991, employing 250 in the extraction and export of coal to Japan (WIS.S90).
14. AJ MINE	Echo Bay Mining Company begins production from this gold mine in Juneau in mid-1993. Operations employment is 450 (AJM.S90).
15. Kensington Mine	Echo Bay Mining Company begins production from this mine north of Juneau in mid-1993. Operations employment is 340 (KEN.S90).
16. Other Mining Activity	Mining employment net of specifically identified projects increases from 650 in 1989 by 3 percent annually (OMN.S90).
17. Agriculture	Employment in agriculture is constant at 1989 level of 525 (AGR.S90).
18. Logging and Sawmills	Logging and milling employment in the Southeast declines in the 1990s by 800 as the Native Corp. harvest falls to a sustainable level. Employment growth in Southcentral reflects new Native Corp. activities (FML.S90).

TABLE 1 (continued)

19. Pulp Mills	After 1991 employment declines at a rate of 1 percent per year because of productivity gains (FMP.S90).
20. Commercial Fish Harvesting-- Nonbottomfish	Employment levels in traditional fisheries harvest remain constant at 8,200 through 2015 (SFH.S88).
21. Commercial Fish Processing-- Nonbottomfish	Employment in processing of traditional fisheries harvest increases to 7,500 and then remains constant (SFP.S90).
22. Commercial Fishing-- Bottomfish	The total U.S. bottomfish catch expands to allowable catch. Onshore processing is centered in the Aleutians and Kodiak with additional activity in Anchorage, Kenai Peninsula, and Bristol Bay (SBO.S90).
23. Federal Military Employment	Strength level not associated with special projects remains constant at current level (MIL.S90).
24. Light Infantry Army Division Deployment	A new Army division is deployed to Fairbanks and Anchorage beginning in 1986, augmenting active-duty personnel by approximately 3,000 in 1989 and 3,400 by 1992. [Source: personal communication, Fort Richardson Office of Public Affairs] (LID.S90)
25. Navy Cruiser Homeporting	None assumed
26. Federal Civilian Employment	Employment rises at 0.5 percent annual rate consistent with the long-term trend since 1960 (CIV.S90).
27. Tourism	Index of tourist visitors to Alaska increases by 3 percent per year (TRS.S90).
28. State Electric Projects	Construction employment from Alaska Power Authority projects includes Bradley Lake (SHP.S90).

TABLE 1 (continued)

B. FISCAL ASSUMPTIONS

B.1. Revenues

State revenue assumptions are based on an expected world oil price (Saudi Light delivered to the U.S. Gulf), in real 1989 dollars, as follows:

<u>1990</u>	<u>2000</u>	<u>2010</u>
\$18	\$19	\$21

\$18 Saudi Light delivered to the U.S. Gulf corresponds to \$17 ANS crude delivered to the U.S. Gulf. (\$17 in 1989\$ is \$18.75 in 1991\$.)

1. Severance Taxes [RPTS]

No changes from current tax structure (REVN.90).

2. Royalties [RPRY]

Current royalty structure continues. These revenues are distributed between the General Fund and Permanent Fund (REVN.90).

3. Bonuses [RPBS]

Based on projections published by Alaska Department of Revenue (REVN.90). No change in regulations.

4. Property Taxes [RPPS]

Based on projections published by Alaska Department of Revenue (REVN.90) augmented by taxes on onshore facilities related to OCS development. (See OCS case.)

5. Petroleum Corporate Income Tax [RTCSPX]

Based on projections published by Alaska Department of Revenue (REVN.90). No change in tax regulations.

6. Rents [RPEN]

Constant in real terms at current level of \$8 million.

7. Miscellaneous Petroleum Settlement Revenues [RP9X] [EXPF2]

Alaska receives \$2 billion (1990\$) over the period FY 1991 to 2000 in settlement of disputed offshore leases in the Beaufort Sea and in settlement of lawsuits and tax disputes regarding the valuation of North Slope oil. These revenues are evenly distributed between the General Fund and the Permanent Fund (WIN.S90).

TABLE 1 (continued)

- |   |   |
|---|---|
| 8. Federal-State Petroleum-Related Shared Revenues [RSFDNPX]          | Increasing \$1 million annually from current level of \$25 million.   |
| 9. Personal Income Tax [EXPIT]  | Reimposed at previous level when state appropriations fall below the FY 1988 level in real terms. Income tax is reimposed prior to elimination of the dividend but only after Permanent Fund earnings have been appropriated to the general fund. |
| 10. Large Project Corporate Income Taxes [RTCSX]                      | Zero.   |
| 11. Miscellaneous Local Revenue Sources [RLTX]<br>[RLPTX]<br>[RLTFPX] | Miscellaneous state-local transfers, large project property taxes, petroleum-related federal transfers all set to zero.   |
| 12. New Federal-State Shared Revenues [RSFDNX]                        | Zero.   |
| <u>B.2. State Expenditures</u>  |   |
| 13. Aggregate Appropriations [EXWIND]                                 | Annual appropriation equals current revenues plus 50 percent of general fund balance available for appropriations.  |
| 14. Capital/Operations Split [EXSPLITX]                               | 90 percent operations; 10 percent capital.  |
| 15. General Obligation Bonds  | Bond sales for capital expenditures occur at a rate which maintains annual debt service payments at a level no more than 5 percent of current state revenues.   |
| 16. Federal Grants-in-Aid for Capital Expenditures [RSFDNGAX]         | Constant at \$75 million.   |
| 17. State Loan Programs [EXKTR1X]<br>[EXLOAN2]<br>[EXCPSR1]           | Appropriations from the general fund for program capitalization terminated after FY 1987. Programs continue functioning on existing capitalization including AHFC and APA revenue bond expenditures.  |

TABLE 1 (continued)

18. Municipal Capital Grants [RLTMCAP]	Funding terminated after FY 1987.
19. State-Local Revenue Sharing [RLTRS]	Continuation proportional to total state expenditures.
20. State-Local Municipal Assistance [RLTMA]	Continuation proportional to total state expenditures.
21. Permanent Fund/Other Appropriations in Excess of Spending Limit [EXGFOPSX] [EXSPCAP]	Special appropriation to Perm. Fund of \$150 million in 1991. Special capital appropriation from Railbelt Energy Fund in 1991.
22. Permanent Fund Principal [EXKPF1]	Deposits from petroleum revenues continue at current rates; inflation-proofing eliminated when complete withdrawal of nominal earnings commences.
23. Permanent Fund Dividend [EXPFDIST]	Continued at the rate of 50 percent of earnings averaged over the previous 5 years until revenues from all other sources are insufficient to maintain state appropriations at real 1988 level. When that milestone is reached, the dividend is phased out.
24. Permanent Fund Earnings [EXPFTOGF]	After payment of the dividend, the remaining Fund earnings are added to the corpus of the Permanent Fund--inflation proofing and undistributed income. When state appropriations begin to fall below the real 1988 level, earnings are diverted to the general fund to maintain the 1988 level.
25. Real Rate of Return [RORPF]	4 percent
26. State-Local Wage Rates [EXWR]	Wages held constant in nominal \$ for a 2-year period in early 1990s.

TABLE 1 (continued)

C. NATIONAL VARIABLE ASSUMPTIONS

- |  |  |
|--|--|
| 1. U.S. Inflation Rate<br>[GRUSCPI]          | Consumer prices rise at an annual rate of 5 percent (REV.S90).                                       |
| 2. Real Average Weekly Earnings<br>[GRRWEUS] | Growth in real average weekly earnings averages 0.5 percent annually.                                |
| 3. Real Per Capita Income<br>[GRDIRPU]       | Growth in real per capita income averages 1.0 percent annually in excess of average weekly earnings. |
| 4. Unemployment Rate [UUS]                   | Long-run rate of 6.5 percent.  |

D. REGIONAL ASSUMPTIONS

- |               |   |
|---------------|---|
| 1. Population | Regional population growth allocated on the basis of existing population and employment growth. |
| 2. Employment | No significant shifts in the location of support industries.                                    |

E. DEMOGRAPHICS

- |   |                           |
|---|---------------------------|
| 1. Alaska Labor Force Participation Rate<br>[LAFPRT1] | Stabilizes at 69 percent. |
|---|---------------------------|



## **Exogenous Industry Assumptions**

Exogenous industry assumptions for the base-case scenario are either assumptions about special projects or assumptions about industries. Although the level of future world oil prices is uncertain, we assume that development activities on North Slope fields continue aggressively through the 1990s, consistent with projections of petroleum revenues. The scenario assumes that the Arctic National Wildlife Refuge is opened for oil exploration, but that no commercial development takes place. Major expenditures are assumed to be required for corrosion repair on the Trans-Alaska Pipeline. Cook Inlet activities continue but gradually decline as the region is converted from an oil producing to a natural gas producing region. No OCS activities are assumed to take place after 1990.

The nonpetroleum industry assumptions summarized in Table 1 show a general pattern of modest growth. We project baseline employment serving markets outside the state to increase at a relatively slow rate in forest products, mining, fishing and processing, transportation, and agriculture, based upon supply and demand trends for these products. Tourism activity, as represented by the number of pleasure visitors to Alaska, increases more rapidly. We project that total federal employment will increase slightly from current levels. We anticipate that the long-term trend of slowly growing civilian federal employment will continue despite the federal budget deficit, and the deployment of the new light infantry division will increase military employment in the short run.

In addition to these baseline industry assumptions, we include a number of special projects. Our method is to include some major projects that might occur, while excluding others that might also occur. We seek to project the pattern of total exogenous employment in the industry, using actual proposed projects as examples of the type of economic activity that might take place. As such, we are not necessarily discounting the potential viability of certain specific projects as opposed to others. Rather, we develop a scenario of possible development consistent with our expectations for overall growth of that type of activity in Alaska.

The median scenario assumes completion of the state-funded Bradley Lake hydroelectric project, but no additional major state-funded power generation or transmission facilities. We categorize most construction and manufacturing employment as "low wage," associating the "high wage" categories only with specific activities likely to pay wages substantially above the projected average scale for the industry as a whole. Examples of high-wage construction and manufacturing activities would be pipeline construction and petroleum processing on the North Slope and the Outer Continental Shelf. High-wage construction is projected to occur on OCS-related petroleum development activities in the with-OCS scenario described in the next chapter, but no high-wage construction is projected to occur in the without-OCS case.

Except for construction required for petroleum development activities, exogenous construction employment remains at a low level in the 1990s. We project that the trend will continue toward an increasing role for local industry and household

demand in determining the level of construction in Alaska. The figures for low-wage exogenous construction include primarily employment resulting from state-sponsored energy projects. High-wage exogenous construction assumptions reflect an arbitrary division of North Slope onshore oil and gas operations between construction and petroleum employment in an attempt to provide consistency with historical Alaska Department of Labor employment figures.

We aggregate industry and special project assumptions into eleven categories of exogenous employment. These are employment in agriculture, petroleum, mining, commercial fishing, exogenous transportation, high-wage and low-wage exogenous construction and manufacturing, active-duty military, and federal civilian government. Table 2 presents the aggregated base-case projections for the ten categories of exogenous employment over the period 1990 to 2015, along with historical data from 1980 through 1989.

Fluctuations in year-to-year totals in some categories of employment reflect the timing of employment assumed for individual projects. While changes in the timing of particular projects could affect considerably the employment assumptions for certain years, such fluctuations have a relatively minor impact upon long-term projections of employment and population.

**TABLE 2**  
**MAP STATE MODEL SCENARIO ASSUMPTIONS**  
**WITHOUT OCS DEVELOPMENT**  
**BASIC EXOGENOUS INDUSTRY EMPLOYMENT**  
**(thousands)**

	Agricultural Employment	Petroleum Employment	High-Wage Exogenous Construction Employment	Low-Wage Exogenous Construction Employment	Exogenous Trans- portation Employment	Mining Employment
1980	0.2	6.2	0.5	0.0	1.1	0.5
1981	0.3	8.1	1.6	0.0	1.1	0.8
1982	0.4	8.1	2.2	0.0	1.1	0.8
1983	0.4	7.4	3.0	0.0	1.1	0.7
1984	0.5	8.0	1.9	0.0	1.0	0.7
1985	0.5	8.9	1.2	0.0	0.9	0.6
1986	0.5	8.5	1.0	0.0	0.9	0.6
1987	0.5	8.1	0.4	0.0	0.9	0.7
1988	0.5	8.4	0.3	1.3	0.9	1.0
1989	0.5	8.6	0.4	1.0	3.6	1.1
1990	0.5	8.8	0.7	0.5	1.5	1.5
1991	0.5	9.0	1.7	0.2	1.2	1.7
1992	0.5	9.2	1.3	0.0	1.0	1.9
1993	0.5	9.4	0.9	0.2	1.0	2.4
1994	0.5	9.6	0.7	0.2	1.1	2.9
1995	0.5	9.8	0.8	0.0	1.1	3.0
1996	0.5	9.9	0.9	0.0	1.1	3.1
1997	0.5	10.0	1.0	0.0	1.1	3.1
1998	0.5	10.1	1.0	0.0	1.1	3.1
1999	0.5	10.2	1.0	0.0	1.1	3.2
2000	0.5	10.3	1.0	0.0	1.1	3.2
2001	0.5	10.4	1.0	0.0	1.1	3.3
2002	0.5	10.5	1.0	0.0	1.1	3.3
2003	0.5	10.6	1.0	0.0	1.1	3.3
2004	0.5	10.7	1.0	0.0	1.1	3.4
2005	0.5	10.9	1.0	0.0	1.1	3.4
2006	0.5	11.0	1.0	0.0	1.1	3.5
2007	0.5	11.1	1.0	0.0	1.1	3.5
2008	0.5	11.3	1.0	0.0	1.1	3.6
2009	0.5	11.4	1.0	0.0	1.1	3.6
2010	0.5	11.5	1.0	0.0	1.1	3.7
2011	0.5	11.7	1.0	0.0	1.1	3.7
2012	0.5	11.8	1.0	0.0	1.1	3.8
2013	0.5	11.9	1.0	0.0	1.1	3.8
2014	0.5	12.1	1.0	0.0	1.1	3.9
2015	0.5	12.2	1.0	0.0	1.1	4.0

SOURCES: 1980-1988, Alaska Department of Labor, *Statistical Quarterly*,  
1989-2015, MAP Model Input Scenario MMSB – Created 7/90

TABLE 2 (continued)

	High-Wage Exogenous Manufacturing Employment	Low-Wage Exogenous Manufacturing Employment	Fish Harvesting Employment	Active Duty Military Employment	Civilian Federal Employment
1980	0.0	11.3	7.6	22.0	17.7
1981	0.0	11.3	7.9	22.5	17.5
1982	0.0	9.8	8.3	22.1	17.6
1983	0.0	8.9	7.9	22.3	17.7
1984	0.0	8.1	8.2	22.6	18.1
1985	0.0	8.7	8.4	23.1	17.6
1986	0.0	9.5	8.4	23.0	17.8
1987	0.0	9.9	8.4	24.4	17.9
1988	0.0	12.1	9.0	24.1	18.1
1989	0.0	12.2	9.0	24.1	18.2
1990	0.0	12.5	9.0	23.8	18.3
1991	0.0	12.5	9.1	23.9	18.4
1992	0.0	12.4	9.1	23.9	18.5
1993	0.0	12.2	9.1	23.9	18.6
1994	0.0	12.0	9.1	23.9	18.7
1995	0.0	11.9	9.1	23.9	18.8
1996	0.0	11.8	9.1	23.9	18.9
1997	0.0	11.8	9.1	23.9	19.0
1998	0.0	11.7	9.1	23.9	19.1
1999	0.0	11.7	9.1	23.9	19.2
2000	0.0	11.7	9.1	23.9	19.3
2001	0.0	11.7	9.1	23.9	19.4
2002	0.0	11.7	9.1	23.9	19.5
2003	0.0	11.7	9.1	23.9	19.6
2004	0.0	11.7	9.1	23.9	19.7
2005	0.0	11.7	9.1	23.9	19.8
2006	0.0	11.6	9.1	23.9	19.9
2007	0.0	11.6	9.1	23.9	20.0
2008	0.0	11.6	9.1	23.9	20.0
2009	0.0	11.6	9.1	23.9	20.1
2010	0.0	11.6	9.1	23.9	20.2
2011	0.0	11.6	9.1	23.9	20.3
2012	0.0	11.6	9.1	23.9	20.4
2013	0.0	11.6	9.1	23.9	20.5
2014	0.0	11.6	9.1	23.9	20.6
2015	0.0	11.6	9.1	23.9	20.8

Not included in the exogenous employment assumptions for the MAP model in Table 2 is employment resulting from tourism. The MAP model projects the economic effects of tourism in the form of a series of increments to employment in transportation and various service industries. The size of the increments depend on the projected number of out-of-state visitors. Table 3 shows the projected number of tourists visiting Alaska consistent with the assumption summarized in Table 1. This projection of visitors results in strong growth in employment in tourist-affected industries.

#### **Alaska State Revenue Assumptions**

Petroleum royalty and severance taxes assumed for the model are based upon an expected world oil price (Saudi Light, delivered to the U.S. Gulf Coast) of \$18 per barrel in 1990, rising to \$19 per barrel in 2000 and to \$20 per barrel (in real 1989 dollars) in 2010. Oil production assumptions and other petroleum revenues are based on Alaska Department of Revenue 50 percent probability projections released in March 1990. We assume Alaska also receives \$2 billion over the 1990s in miscellaneous revenues, evenly distributed between the General Fund and the Permanent Fund, from settlement of lease and tax disputes. Our scenario assumptions for the five types of petroleum revenues are shown in Table 4.

**TABLE 3**  
**MAP STATE MODEL SCENARIO ASSUMPTIONS**  
**WITHOUT OCS DEVELOPMENT**  
**TOURISM ASSUMPTIONS**  
**(thousands)**

	Tourists Visiting Alaska
1980	439.0
1981	447.0
1982	467.0
1983	485.0
1984	519.0
1985	555.0
1986	583.2
1987	588.5
1988	610.7
1989	629.0
1990	647.9
1991	667.3
1992	687.3
1993	708.0
1994	729.2
1995	751.1
1996	773.6
1997	796.8
1998	820.7
1999	845.3
2000	870.7
2001	896.8
2002	923.7
2003	951.4
2004	980.0
2005	1009.4
2006	1039.7
2007	1070.9
2008	1103.0
2009	1136.1
2010	1170.2
2011	1205.3
2012	1241.4
2013	1278.7
2014	1317.0
2015	1356.5

**SOURCE:** 1980-1988, MAP database from Alaska Visitors' Association;  
1989-2015, MAP Model Input Scenario MMSB – Created 7/90

TABLE 4  
MAP STATE MODEL SCENARIO ASSUMPTIONS  
WITHOUT OCS DEVELOPMENT  
PETROLEUM REVENUES  
(million dollars)

	State Production Tax Revenue	State Royalty Income	State Bonus Payment Revenue	State Property Tax Revenue	State Corporate Petroleum Tax Revenue	Settlement Revenue
1980	506.	917.	456.	169.	548.	0.
1981	1170.	1496.	10.	143.	860.	0.
1982	1581.	1548.	7.	143.	669.	0.
1983	1493.	1472.	49.	153.	236.	0.
1984	1392.	1404.	14.	131.	265.	0.
1985	1389.	1393.	16.	128.	169.	0.
1986	1107.	1108.	46.	114.	134.	419.
1987	647.	586.	1.	103.	120.	71.
1988	819.	954.	11.	96.	158.	329.
1989	699.	819.	23.	90.	166.	260.
1990	1002.	1023.	0.	85.	130.	111.
1991	1010.	1063.	0.	80.	139.	200.
1992	1011.	1097.	0.	75.	135.	210.
1993	991.	1109.	0.	70.	134.	221.
1994	941.	1087.	0.	64.	133.	232.
1995	881.	1050.	0.	57.	129.	243.
1996	830.	1031.	0.	51.	127.	255.
1997	777.	998.	0.	47.	112.	268.
1998	800.	1059.	0.	42.	103.	281.
1999	796.	1087.	0.	37.	94.	295.
2000	778.	1096.	0.	33.	85.	310.
2001	745.	1087.	0.	29.	79.	0.
2002	708.	1066.	0.	25.	73.	0.
2003	667.	1039.	0.	21.	69.	0.
2004	644.	1035.	0.	19.	64.	0.
2005	655.	1085.	0.	18.	66.	0.
2006	704.	1196.	0.	16.	60.	0.
2007	761.	1327.	0.	15.	56.	0.
2008	819.	1468.	0.	13.	45.	0.
2009	786.	1451.	0.	11.	42.	0.
2010	777.	1478.	0.	9.	38.	0.
2011	777.	1478.	0.	9.	38.	0.
2012	777.	1478.	0.	9.	38.	0.
2013	777.	1478.	0.	9.	38.	0.
2014	777.	1478.	0.	9.	38.	0.
2015	777.	1478.	0.	9.	38.	0.

SOURCE: 1980-1989, Alaska Department of Revenue, *Revenue Sources*;  
1990-2015, MAP Model Input Scenario MMSB – Created 7/90



## **State Fiscal Policy Assumptions**

Assumptions about state spending and taxation policy follow the rules noted in Table 1. We assume that the Permanent Fund principal remains intact, but that the earnings of the fund are diverted to fund state operations when all other sources of revenue are insufficient to retain the real 1988 expenditure level. As total unrestricted revenues decline net of inflation, we assume that permanent fund dividends are eliminated only after the personal income tax is reinstated in attempting to keep state appropriations at real 1988 levels. After these adjustments have been made, expenditures are reduced to match revenues.

## **National Variable Assumptions**

The national variable assumptions define the benchmarks used by the MAP model for the national economy. These are important for our projections because national economic trends in the long run mainly determine Alaskan prices, earnings, and labor market conditions. In the current study, we assume a constant long-run U.S. inflation rate of 5 percent, a long-run average U.S. unemployment rate of 6.5 percent, and real wage and real per-capita income levels growing at 0.5 and 1.5 percent per year, respectively.

Changing the rate of inflation has little effect on projections in constant dollars. A different long-run unemployment rate would affect the ratio of population to employment in Alaska without changing the projected employment levels significantly. If one were to assume a higher rate of growth of U.S. wage rates and per capita income, projected Alaska support-sector employment would increase

at a faster rate due to the increased spending power than the model would project for Alaska. A slower growth in U.S. earnings would result in projections with reduced growth in Alaska's support industries. Our assumptions for growth in real earnings and income are generally consistent with federal agency projections.\*

## **Statewide Projections**

### **Summary**

Table 5 summarizes the without-OCS projection of the Alaska economy and population to 2010, using the MAP model and the revenue, fiscal, industry, and national economic assumptions discussed above. The industry assumptions used for this projection include exploration and development activities likely to occur on OCS areas already leased and scheduled to be leased by January 1987.

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\*The U.S. Bureau of Labor Statistics (Saunders 1987) projected that real per-capita Personal Income would grow at an average annual rate of 1.6 percent through 2000.

**TABLE 5**  
**ECONOMIC AND DEMOGRAPHIC PROJECTION SUMMARY**  
**WITHOUT OCS DEVELOPMENT**

	Population (000)	Households (000)	Total Employment (000)	Wage and Salary Employment (000)	Personal Income (million 1989 \$)	Petroleum Revenues (million 1989 \$)
1980	419.8	131.5	211.4	170.0	7221.2	3360.8
1981	433.8	-	227.7	185.4	7722.6	4428.4
1982	463.4	-	243.5	199.8	8767.2	4509.6
1983	497.6	-	257.5	212.8	9852.7	3886.5
1984	522.0	-	268.5	222.5	9890.1	3497.6
1985	541.3	-	275.0	228.1	10309.7	3276.2
1986	547.6	-	265.0	218.7	10146.6	3053.8
1987	537.8	-	254.9	208.0	9985.6	1596.9
1988	531.2	182.0	259.6	213.0	9975.8	2452.7
1989	542.3	186.3	272.2	224.5	10497.5	2092.9
1990	556.5	191.7	271.8	224.4	10590.1	2279.7
1991	565.3	195.2	275.4	227.6	10682.7	2301.3
1992	570.5	197.4	275.3	227.5	10687.1	2234.1
1993	578.4	200.6	279.6	231.4	10874.0	2135.9
1994	588.9	204.6	284.7	236.1	11086.8	1990.1
1995	594.9	207.0	283.2	234.7	11121.7	1837.9
1996	599.5	209.0	284.3	235.8	11219.3	1711.8
1997	603.1	210.6	284.8	236.2	10900.8	1574.0
1998	607.0	212.3	286.0	237.3	10992.8	1554.7
1999	612.2	214.4	288.1	239.2	11148.5	1503.6
2000	618.1	216.8	290.4	241.3	11291.5	1434.8
2001	623.0	218.8	291.3	242.2	11369.4	1164.5
2002	626.7	220.4	291.3	242.2	11428.8	1077.3
2003	629.8	221.7	291.3	242.1	11476.0	991.1
2004	633.1	223.2	292.3	243.0	11554.4	931.6
2005	638.2	225.2	294.8	245.3	11716.7	921.7
2006	645.2	227.9	298.1	248.3	11896.7	953.7
2007	653.8	231.1	302.1	252.0	12113.8	994.2
2008	663.9	234.8	306.5	256.1	12361.6	1031.0
2009	674.6	238.8	310.8	260.0	12612.0	964.8
2010	685.0	242.6	314.3	263.2	12842.0	928.4
2011	694.1	246.0	316.8	265.5	13028.4	889.3
2012	701.0	248.6	317.8	266.4	13113.5	851.4
2013	707.0	250.9	319.2	267.6	13233.8	815.2
2014	712.7	253.2	321.0	269.3	13370.0	780.6
2015	718.7	255.5	323.0	271.2	13511.9	747.4

SOURCE: 1980-1987, MAP Database; 1988-2015, ISER MAP Model Simulation MMSB, Created 7/90.

Population (POP) is July 1, Census definition.

Households (HH) is July 1 (except in 1980), Census definition.

Total Employment (EM99) includes active duty military and proprietors – pre-1985 proprietor definition.

Wage and Salary Employment (EM97) is Alaska Department of Labor definition.

Personal Income (DF.PIB) is U.S. BEA definition.

Petroleum Revenues (DF.RP9S) includes Permanent Fund contribution.

The base-case projection shown in Table 5 shows growth in total population from 542,000 in 1989 to 719,000 in 2015, an increase of nearly one-third. Total employment grows by 19 percent from 272,000 in 1989 (including military and self-employed) to 323,000 in 2015, a much smaller increase. According to this projection, the Alaska economy is beginning a prolonged period of relative stability. We project total employment to grow by nearly 10,000 between 1992 and 1994, and then level off in the mid 1990s. Employment grows slightly around the end of the decade and then remains constant through 2004. During the last ten years of the projection period, we project the Alaska economy to resume steady employment growth of around 0.7 percent per year.

We project real Personal Income to remain virtually constant at its current level of around \$11 billion (in 1989 dollars) until well into the next century. Since population is growing steadily during this period, real per-capita income actually declines somewhat. After 2005, real Personal Income increases at just over one percent per year. This is about 0.3 to 0.4 percent faster than the rate of growth of employment and population, implying slowly increasing living standards.

The projected pattern of growth, particularly in the 1990s, is uneven. The stop-start growth path is due to the interaction of several positive and negative factors. In 1990 and 1991, growth stops primarily because there is not enough new exogenous industry activity to make up for the loss of the EXXON Valdez oil spill cleanup spending. The economy picks up again in 1993, only to stall in 1994 as the Alaska state and local governments finally have to confront the gap between

public revenues and historical expenditure levels. After the fiscal crisis is resolved by 1996 with the reimposition of an income tax and the elimination of the Permanent Fund Dividend, the economy begins to grow again on the strength of the private economy.

The figures for state petroleum revenues in Table 5 show revenues declining in real terms as a result of the projected decline in Alaska oil production. The fiscal crisis appears in the projection basically when state petroleum revenues decline to \$2 billion (in 1989 dollars). The world oil price is not assumed to fluctuate in this projection, growing slowly in real terms from 18 dollars to 20 dollars per barrel (in 1989 dollars). In reality, world oil prices are uncertain and are likely to take a cyclical path ranging from about 12 to 25 dollars per barrel, with temporary departures possibly outside this range. Thus it is possible, in fact quite likely, that the state fiscal crisis and the accompanying recession may occur sooner or later than shown in Table 5. We can not predict exactly when the recession will occur, although it will almost certainly occur in the decade of the 1990s. The figures in Table 5 show the magnitude of the effects on the Alaska economy of the eventual and inevitable decline in state petroleum revenues, whenever it does occur.

### **Composition of Employment**

Table 6 shows the composition of total employment in the without-OCS projection by sector. According to the projections shown in this table, the support sector provides most of the net new growth in Alaska employment to 2015. Basic sector employment remains nearly constant at around 90,000 through the 1990s, and

then grows by about 10 percent after 2000. Infrastructure employment also remains relatively constant at around 30,000 in the 1990s, before expanding by 17 percent to 35,000 in 2015. Government sector employment grows slightly in the next few years but then stabilizes and actually declines by 7 percent between 1997 and 2015. Employment in the support sector, however, grows by about 30 percent over the 25-year projection period to reach 135,000 in 2015.

The industry composition of private sector employment, shown in Table 7, further illustrates the importance of the support sector in sustaining the Alaska economy through projected economic slowdowns. Mining and petroleum employment swells by 30 percent to 13,000 by the mid 1990s, reflecting both the expansion of the state's hardrock mining industry and the effects of increasing petroleum development activities on the North Slope. After the initial jump in employment mining and petroleum activities expand slowly over the next 20 years, adding another 3,000 jobs to the economy. Employment in construction fluctuates a little but basically stays at its current level of just under 10,000. Agriculture, forestry and fisheries (mainly fisheries) remains at its current level. Manufacturing employment is projected to decline by about 2,000 workers, due to the end of the current logging boom in coastal areas as Alaska native corporations deplete their timber holdings.

**TABLE 6**  
**EMPLOYMENT BY SECTOR**  
**WITHOUT OCS DEVELOPMENT**  
**(thousands)**

	Total Employment	Basic Employment	Infrastructure Employment	Support Employment	Government Employment
1980	211.4	73.4	30.1	71.6	36.3
1981	227.7	77.8	33.3	78.0	38.6
1982	243.5	78.2	37.5	86.3	41.5
1983	257.5	78.1	41.1	94.1	44.1
1984	268.5	78.8	42.5	100.8	46.4
1985	275.0	79.6	41.7	104.5	49.2
1986	265.0	80.1	35.3	100.8	48.8
1987	254.9	81.0	31.9	95.4	46.5
1988	259.6	85.1	29.0	98.2	47.2
1989	272.2	90.3	28.4	103.2	50.3
1990	271.8	88.1	29.7	104.2	49.8
1991	275.4	88.9	30.3	105.5	50.8
1992	275.3	88.0	31.1	106.1	50.1
1993	279.6	88.8	31.8	107.5	51.4
1994	284.7	89.5	31.9	109.5	53.8
1995	283.2	90.0	30.5	108.7	54.0
1996	284.3	90.5	30.1	109.4	54.4
1997	284.8	91.1	29.7	109.1	54.9
1998	286.0	91.6	29.9	109.7	54.8
1999	288.1	92.1	30.4	110.8	54.8
2000	290.4	92.6	31.0	112.0	54.8
2001	291.3	93.2	31.3	112.9	54.0
2002	291.3	93.7	31.3	113.5	52.7
2003	291.3	94.3	31.0	114.1	51.9
2004	292.3	94.9	31.0	114.8	51.6
2005	294.8	95.5	31.3	116.2	51.8
2006	298.1	96.1	31.7	117.9	52.4
2007	302.1	96.7	32.3	120.0	53.1
2008	306.5	97.3	33.1	122.5	53.7
2009	310.8	98.0	34.0	125.0	53.8
2010	314.3	98.6	34.8	127.4	53.4
2011	316.8	99.3	35.1	129.4	53.0
2012	317.8	100.0	34.7	130.7	52.5
2013	319.2	100.7	34.5	131.9	52.1
2014	321.0	101.4	34.8	133.3	51.6
2015	323.0	102.1	35.0	134.7	51.1

**SOURCE:** 1980-1987, MAP Database; 1988-2015, ISER MAP Model Simulation MMSB, Created 7/90.

**Total Employment (EM99).**

**Basic Employment (EM9BASE)** includes exogenous components of Construction, Manufacturing, Transportation, Mining, Petroleum, Tourism, Federal Government, Agriculture, Forestry, and Fish Harvesting.

**Infrastructure Employment (EM9INFR)** includes Transportation, Communications, Public Utilities, Endogenous Construction, and Business Services net of Exogenous and Tourism-related Transportation.

**Support Employment (EM9SUPRT)** includes Trade, Finance, Services, Local Manufacturing, and Proprietors not engaged in Fish Harvesting net of Trade and Service Tourism Employment and Business Services.

**Government Employment (EMGA)** includes State and Local Government.

**TABLE 7**  
**PRIVATE EMPLOYMENT**  
**WITHOUT OCS DEVELOPMENT**  
(thousands)

	Total Private	Agriculture, Forestry, Fisheries	Mining and Petroleum	Construction	Manufacturing	Transport, Comm., Public Utilities	Trade, Finances, and Services
1980	135.4	8.3	6.7	10.6	14.0	17.1	78.7
1981	149.2	9.0	8.9	12.9	14.0	18.2	86.1
1982	162.2	10.0	8.8	16.8	12.6	18.4	95.6
1983	173.4	9.9	8.2	20.8	11.9	18.6	104.0
1984	181.4	10.4	8.7	20.3	11.3	18.9	111.7
1985	185.2	10.1	9.5	18.6	12.1	18.7	116.2
1986	175.4	10.1	9.1	13.4	12.6	18.0	112.3
1987	166.0	9.8	8.8	10.1	12.9	17.8	106.7
1988	170.2	9.8	9.3	10.7	14.9	17.9	107.6
1989	179.6	9.8	9.7	9.3	17.0	20.7	113.1
1990	179.9	9.8	10.3	9.6	16.5	19.4	114.3
1991	182.3	9.8	10.7	10.7	16.0	19.3	115.8
1992	182.7	9.8	11.0	10.9	15.2	19.2	116.6
1993	185.6	9.8	11.8	11.1	15.1	19.5	118.4
1994	188.3	9.8	12.5	10.7	15.0	19.8	120.6
1995	186.5	9.8	12.8	9.5	14.8	19.7	120.0
1996	187.1	9.8	12.9	9.0	14.7	19.9	120.9
1997	187.0	9.8	13.1	8.9	14.7	19.8	120.8
1998	188.2	9.8	13.2	8.9	14.6	20.0	121.6
1999	190.2	9.8	13.4	9.1	14.6	20.2	123.1
2000	192.4	9.8	13.5	9.4	14.6	20.5	124.6
2001	194.1	9.8	13.7	9.6	14.6	20.7	125.7
2002	195.2	9.8	13.8	9.5	14.6	20.8	126.7
2003	195.9	9.8	14.0	9.1	14.6	20.9	127.5
2004	197.1	9.8	14.1	8.9	14.6	21.1	128.5
2005	199.3	9.8	14.3	8.9	14.6	21.4	130.2
2006	201.9	9.8	14.5	9.0	14.6	21.7	132.3
2007	205.1	9.8	14.6	9.2	14.7	22.0	134.8
2008	208.9	9.8	14.8	9.5	14.7	22.4	137.7
2009	212.9	9.8	15.0	9.9	14.7	22.8	140.7
2010	216.7	9.8	15.2	10.4	14.7	23.1	143.5
2011	219.6	9.8	15.4	10.3	14.7	23.5	145.9
2012	221.0	9.8	15.6	9.7	14.7	23.7	147.6
2013	222.7	9.8	15.8	9.3	14.7	23.9	149.2
2014	224.9	9.8	16.0	9.3	14.7	24.1	150.9
2015	227.2	9.8	16.2	9.3	14.7	24.4	152.8

SOURCE: 1980-1987, MAP Database; 1988-2015, ISER MAP Model Simulation MMSB, Created 7/90.

Private (EMPVT) is all nongovernment. Agriculture, Forestry, Fisheries (EMAFF).  
Mining and Petroleum (EMP9). Construction (EMCN). Manufacturing (EMM9).  
Transportation, Communications, Public Utilities (EMTCU).  
Trade, Finance, and Services (EMSUP) includes Proprietors not involved in Fish Harvesting.



Employment in transportation, communications, and public utilities was temporarily elevated in 1989 as this was the industry in which most oil spill cleanup workers were classified. As cleanup operations wind down, this employment will subside. However, we project that employment in transportation, communications, and public utilities will grow steadily after 1992 to reach 24,000, about 20 percent higher than current levels. The trade, finance, and services industry is projected to grow even faster, however. We project that this sector will add almost 40,000 jobs to the economy over the next 25 years.

The historical and projected composition of government employment is shown in Table 8. Military employment has recently increased, reflecting deployment of the new light infantry division beginning in 1986. In the future, we project it to remain constant at current levels. Federal civilian employment rises at a slow but steady rate throughout the period. State and local government employment both rise into the mid-1990s to serve a growing population. Later on in the 1990s, however, we project that declining petroleum revenues will force the state to cut expenditures and transfers to local governments. This will cause reductions in state and local employment of about 2,000 workers each by 2015.

**TABLE 8  
GOVERNMENT EMPLOYMENT  
WITHOUT OCS DEVELOPMENT  
(thousands)**

	Total	Military	Federal Civilian	State	Local
1980	76.0	22.0	17.7	15.4	20.9
1981	78.5	22.5	17.5	16.6	22.0
1982	81.3	22.1	17.6	18.0	23.5
1983	84.1	22.3	17.7	18.9	25.2
1984	87.1	22.6	18.1	19.3	27.1
1985	89.8	23.1	17.6	20.5	28.7
1986	89.6	23.0	17.8	20.2	28.6
1987	88.9	24.4	17.9	18.7	27.8
1988	89.4	24.1	18.1	19.2	28.0
1989	92.6	24.1	18.2	20.7	29.6
1990	91.9	23.8	18.3	20.6	29.2
1991	93.1	23.9	18.4	21.5	29.3
1992	92.5	23.9	18.5	21.0	29.1
1993	94.0	23.9	18.6	21.2	30.2
1994	96.4	23.9	18.7	22.2	31.6
1995	96.7	23.9	18.8	22.5	31.5
1996	97.2	23.9	18.9	22.9	31.5
1997	97.8	23.9	19.0	23.3	31.5
1998	97.8	23.9	19.1	23.4	31.4
1999	97.9	23.9	19.2	23.5	31.3
2000	97.9	23.9	19.3	23.6	31.1
2001	97.2	23.9	19.4	23.1	30.9
2002	96.1	23.9	19.5	22.4	30.3
2003	95.4	23.9	19.6	22.1	29.9
2004	95.2	23.9	19.7	22.0	29.6
2005	95.5	23.9	19.8	22.1	29.7
2006	96.2	23.9	19.9	22.4	30.0
2007	96.9	23.9	20.0	22.9	30.1
2008	97.6	23.9	20.0	23.5	30.2
2009	97.9	23.9	20.1	23.7	30.1
2010	97.6	23.9	20.2	23.4	30.0
2011	97.2	23.9	20.3	22.9	30.1
2012	96.8	23.9	20.4	22.3	30.2
2013	96.5	23.9	20.5	22.0	30.1
2014	96.1	23.9	20.6	21.7	29.9
2015	95.8	23.9	20.8	21.5	29.7

SOURCE: 1980-1987, MAP Database; 1988-2015, ISER MAP Model Simulation MMSB, Created 7/90.

Total (EMG9).  
 Military (EMGM) is active duty.  
 Federal Civilian (EMGC).  
 State (EMGS) includes University of Alaska.  
 Local (EMGL).

## **Composition of Population**

Tables 9 and 10 show the composition of the population by components of change and by type, respectively. Table 9 illustrates the changing composition of employment projected in the base case. The total population grows about twice as fast after 2000 as during the 1990s. Natural increase remains nearly constant for the next 15 years at just under 10,000 people. This is far larger than the total population change in most years, so the balance must be made up by net out-migration of the population. In interpreting the figures in Table 9 one should keep in mind that the population leaving the state includes more children than the migrants who enter the state each year. This can clearly be seen from the figures for military migration. Table 9 shows that about one-fourth of the net out-migration in an average year comes from military families. Yet military employment remains the same; military families add to natural increase by having children while in Alaska, then leave the state with larger families.

Table 10 shows that while the military population remains stable and the civilian non-native population grows by one-quarter over the next 25 years, the native population grows by more than two-thirds. This projection reflects the assumption in the MAP demographic model that civilian migration affects only the non-native population. While this will not be strictly true in practice, the conclusion remains that the share of Alaska natives in the state population is likely to increase over the next 25 years due to a lower out-migration rate than for natives than for non-natives.

**TABLE 9**  
**POPULATION CHANGE WITHOUT OCS DEVELOPMENT**  
 (thousands)

<b>COMPONENTS OF CHANGE</b>					
	<b>Total Population</b>	<b>Total Annual Change</b>	<b>Natural Increase</b>	<b>Non- Military Migration</b>	<b>Military Migration</b>
1980	419.8	6.1	7.7	2.0	-3.7
1981	433.8	14.0	8.2	5.8	-0.0
1982	463.4	29.6	9.0	22.3	-1.7
1983	497.6	34.2	9.9	25.0	-0.6
1984	522.0	24.4	10.4	14.4	-0.3
1985	541.3	19.3	10.7	8.6	0.0
1986	547.6	6.3	10.4	-2.9	-1.2
1987	537.8	-9.8	9.8	-21.7	2.0
1988	531.2	-6.6	9.3	-15.6	-0.4
1989	542.3	11.1	9.0	3.3	-1.0
1990	556.5	14.2	9.2	7.0	-1.5
1991	565.3	8.8	9.4	0.4	-0.9
1992	570.5	5.2	9.5	-3.1	-1.0
1993	578.4	8.0	9.5	-0.5	-1.0
1994	588.9	10.4	9.6	2.0	-1.0
1995	594.9	6.0	9.7	-2.9	-1.0
1996	599.5	4.6	9.7	-3.9	-1.0
1997	603.1	3.6	9.7	-4.6	-1.0
1998	607.0	3.9	9.7	-4.3	-1.0
1999	612.2	5.2	9.6	-3.2	-1.0
2000	618.1	5.9	9.6	-2.5	-1.0
2001	623.0	4.9	9.7	-3.4	-1.0
2002	626.7	3.8	9.7	-4.7	-1.0
2003	629.8	3.0	9.7	-5.5	-1.0
2004	633.1	3.3	9.6	-5.0	-1.0
2005	638.2	5.1	9.6	-3.2	-1.0
2006	645.2	7.0	9.6	-1.5	-1.0
2007	653.8	8.6	9.7	0.0	-1.0
2008	663.9	10.1	9.8	1.4	-1.0
2009	674.6	10.7	10.0	1.8	-1.0
2010	685.0	10.3	10.2	1.3	-1.0
2011	694.1	9.1	10.3	-0.1	-1.0
2012	701.0	7.0	10.4	-2.4	-1.0
2013	707.0	5.9	10.5	-3.4	-1.0
2014	712.7	5.8	10.5	-3.4	-1.0
2015	718.7	6.0	10.6	-3.2	-1.0

**SOURCE:** 1980-1987, MAP Database; 1988-2015, ISER MAP Model Simulation MMSB, Created 7/90.

**NOTE:** Population is equal to population in prior year plus migration and natural increase. The sum of components does not equal the total due to rounding in the allocation of migrants to individual cohorts.

Population (POP) is July 1 Census definition.

Annual Change in population (DELPOP) is year-to-year July 1 change.

Natural Increase (POPNI9) includes civilian and military.

Non-Military Migration (POP MIG). Military Migration (POP MIGM) includes active duty military plus dependents.

**TABLE 10  
POPULATION COMPONENTS  
WITHOUT OCS DEVELOPMENT  
(thousands)**

	Total	Civilian Non-Native	Native	Military
1980	419.8	310.0	64.1	45.7
1981	433.8	319.4	67.8	46.6
1982	463.4	348.3	69.2	45.9
1983	497.6	380.2	71.1	46.3
1984	522.0	402.0	73.1	46.9
1985	541.3	418.3	75.1	47.9
1986	547.6	423.0	76.9	47.7
1987	537.8	408.4	78.6	50.8
1988	531.2	401.9	79.3	50.0
1989	542.3	411.2	81.1	50.0
1990	556.5	423.9	83.0	49.5
1991	565.3	430.7	84.9	49.7
1992	570.5	434.0	86.9	49.7
1993	578.4	440.0	88.8	49.7
1994	588.9	448.5	90.7	49.7
1995	594.9	452.5	92.7	49.7
1996	599.5	455.1	94.7	49.7
1997	603.1	456.7	96.7	49.7
1998	607.0	458.6	98.8	49.7
1999	612.2	461.7	100.8	49.7
2000	618.1	465.5	103.0	49.7
2001	623.0	468.2	105.1	49.7
2002	626.7	469.8	107.3	49.7
2003	629.8	470.6	109.5	49.7
2004	633.1	471.6	111.8	49.7
2005	638.2	474.4	114.1	49.7
2006	645.2	479.0	116.5	49.7
2007	653.8	485.3	118.9	49.7
2008	663.9	492.9	121.3	49.7
2009	674.6	501.2	123.8	49.7
2010	685.0	509.0	126.3	49.7
2011	694.1	515.5	128.9	49.7
2012	701.0	519.8	131.6	49.7
2013	707.0	523.1	134.2	49.7
2014	712.7	526.1	136.9	49.7
2015	718.7	529.3	139.7	49.7

**SOURCE: 1980-1987, MAP Database; 1988-2015, ISER MAP Model Simulation MMSB, Created 7/90.**

Population (POP) is July 1 Census definition.

Civilian Non-Native (CNNTOT).

Native (NATTOT) civilian is July 1 estimate, except 1980 is April 1.

Military (MILTOT) is active duty plus dependents.

## **State Revenues and Spending**

Table 11 shows the projection of sources of real Alaska state expenditures and revenues. Petroleum revenues, the source of over 80 percent of total General Fund revenues in Fiscal Year 1990, will decline to only about one-fourth their current magnitude by 2010. Note that revenues in Table 11 do not have to match expenditures (and historically have not matched them) as long as surplus funds remain in the General Fund and other state accounts (see fiscal assumption 13, page 17).

Fluctuations in world oil prices may affect the timing of revenues somewhat – for example, the figures for 1990-91 do not reflect the recent rise in world oil prices in the aftermath of Iraq's invasion of Kuwait – but not the overall trend. That is because of the overwhelming size of the Prudhoe Bay field compared to all other Alaska oil prospects put together. OCS oil development is not included in this without-OCS case, but as we shall see below, Alaska would receive only limited revenues from development of resources on the federal OCS.

Non-tax sources of revenues such as federal grants and earnings on state investments such as the permanent fund grow very slowly over the projection period. The other revenues category – chiefly taxes – gets a boost in 1995-96 due to the projected reimposition of the state personal income tax (or other new tax collecting a similar amount of revenue) around that time.

**TABLE 11**  
**STATE UNRESTRICTED GENERAL FUND WITHOUT OCS DEVELOPMENT**  
(million 1989 dollars)

<u>EXPENDITURES</u>		<u>REVENUES</u>			
		Total	Petroleum	Endogenous	Investment Earnings
1980	1512.6	3225.9	2916.1	324.6	154.6
1981	4226.6	4452.5	3967.3	212.4	272.8
1982	3851.9	4654.3	4055.9	230.5	367.8
1983	4328.0	4084.7	3412.9	249.1	422.8
1984	3493.3	3668.4	3101.4	261.1	305.9
1985	3524.0	3429.0	2889.2	294.2	245.6
1986	2859.2	3178.3	2748.5	228.1	201.7
1987	3744.7	1856.3	1440.3	248.9	167.0
1988	2604.4	2475.9	2030.7	246.3	198.9
1989	2309.2	2276.1	1873.2	248.1	154.8
1990	2403.4	2362.1	1963.5	246.9	151.7
1991	2686.5	2330.7	1939.7	246.9	144.2
1992	2193.8	2227.3	1865.7	247.1	114.4
1993	2130.0	2124.1	1766.3	246.8	111.1
1994	2132.2	2102.9	1627.9	247.1	227.9
1995	2171.2	2131.4	1484.8	400.9	245.7
1996	2203.8	2158.5	1364.7	531.0	262.8
1997	2205.2	2202.8	1237.2	523.6	442.0
1998	2218.0	2219.3	1208.7	514.4	496.1
1999	2222.0	2225.7	1154.5	518.2	553.0
2000	2228.4	2219.2	1087.1	521.9	610.1
2001	2109.9	2099.0	916.3	522.3	660.4
2002	2070.4	2069.3	837.6	521.8	710.0
2003	2038.8	2040.5	761.1	521.5	757.9
2004	2038.4	2031.2	706.5	521.1	803.6
2005	2059.8	2061.1	690.7	523.5	846.9
2006	2115.6	2122.9	705.3	528.7	888.9
2007	2179.3	2188.8	725.6	534.3	928.9
2008	2247.5	2248.1	741.4	540.6	966.0
2009	2227.3	2227.3	684.3	547.1	996.0
2010	2177.4	2176.8	649.0	552.9	974.9
2011	2128.0	2127.4	615.7	557.3	954.4
2012	2076.3	2076.8	583.9	558.6	934.4
2013	2024.7	2027.2	553.6	558.7	914.8
2014	1977.7	1980.5	524.9	559.7	895.8
2015	1937.8	1941.2	502.6	561.5	877.2

**SOURCE:** 1980-1987, MAP Database; 1988-2015, ISER MAP Model Simulation MMSB, Created 7/90.

**Note:** The sum of revenue components is greater than the total in 1980 because petroleum revenues includes ANCSA payment not reflected in the total. Expenditures (DF.EXGFB) is unrestricted General Fund expenditures. Total Revenues (DF.RSGFB).

Petroleum Revenues (DF.RP9SG) excludes Permanent Fund contribution.

Endogenous Revenues (DF.RSENG) is total net of petroleum and investment earnings.

Investment Earnings (DF.RSIN) is earnings from all sources deposited in the General Fund.

Table 11 also shows total state expenditures compared to total revenues. As long as funds accumulated from previous budget surpluses exist, expenditures in a given year can exceed revenues. When these funds are totally depleted in the mid-1990s, expenditures must fall to equal revenues.

Expenditures affect the state economy and population in different ways depending on how they are appropriated and spent. Table 12 shows projected real General Fund appropriations in three categories as well as projected permanent fund dividend payments, the balance on the state's General and Permanent Funds, and revenues projected to be collected from the personal income tax. Appropriations for the operating budget affect the economy within the year; spending of appropriations for capital projects may be spread over several years. Debt service payments have no direct effect on the state's economy, but encumber revenues which might otherwise be available to spend on items which do affect the economy. Revenues shown in Table 12 collected from the proposed personal income tax are a portion of the "endogenous" revenues shown in Table 11.

### **Personal Income**

Table 13 shows how the projected sources of real Personal Income, respectively, vary over time in the without-OCS case. While no dramatic trends are apparent in the tables, the figures show a few interesting changes. If we were to ignore the Permanent Fund dividend (which we assume disappears in 1997, transfer payments increase more rapidly than any other form of income. Transfer payments net of the approximate \$400 million per year contribution of the dividend



TABLE 12  
STATE GOVERNMENT MISCELLANEOUS VARIABLES  
WITHOUT OCS DEVELOPMENT  
(million 1989 dollars)

<u>GENERAL FUND APPROPRIATIONS</u>							
	Total	Operating	Capital	Debt Service	Permanent Fund Dividend	Permanent Fund Balance	Personal Income Tax
1980	1464.4	-	-	98.3	0.0	623.2	129.6
1981	5940.2	-	-	117.0	0.0	2188.2	0.0
1982	6415.9	-	-	115.9	541.7	3639.7	0.0
1983	3435.5	-	-	161.6	210.9	4921.6	0.0
1984	3418.0	-	-	180.0	173.2	5816.0	0.0
1985	4072.6	-	-	178.3	221.5	6841.3	0.0
1986	2926.3	-	-	168.7	306.1	7797.5	0.0
1987	2473.5	-	-	159.8	390.3	8658.5	0.0
1988	2570.7	1862.9	556.2	151.6	398.6	9446.4	0.0
1989	2247.3	1658.0	452.9	136.5	409.3	9746.3	0.0
1990	2421.7	1847.1	458.4	116.2	403.6	9971.6	0.0
1991	2677.3	1892.5	423.3	88.7	369.5	10404.9	0.0
1992	2153.9	1742.6	348.0	63.3	341.7	10791.6	0.0
1993	2109.8	1726.2	304.1	79.5	360.9	11173.8	0.0
1994	2115.9	1748.3	267.7	100.0	373.0	11424.9	0.0
1995	2156.7	1803.3	235.3	118.0	385.3	11635.6	156.7
1996	2188.7	1870.2	202.6	115.9	394.8	11757.2	289.2
1997	2217.2	1898.7	211.0	107.6	0.0	12133.1	283.1
1998	2226.1	1912.7	212.5	100.9	0.0	12417.5	277.6
1999	2229.0	1920.2	213.4	95.5	0.0	12711.9	280.9
2000	2235.9	1932.8	214.8	88.4	0.0	12954.4	284.2
2001	2106.9	1811.5	201.3	94.2	0.0	13043.6	285.2
2002	2073.2	1768.2	196.5	108.5	0.0	13072.9	285.4
2003	2042.3	1736.8	193.0	112.6	0.0	13041.7	285.7
2004	2044.8	1743.4	193.7	107.7	0.0	12956.0	285.6
2005	2067.6	1768.1	196.5	103.1	0.0	12828.8	287.2
2006	2126.0	1824.6	202.7	98.6	0.0	12673.4	290.9
2007	2190.3	1887.1	209.7	93.5	0.0	12494.6	294.9
2008	2259.4	1958.5	217.6	83.3	0.0	12295.1	299.1
2009	2232.7	1944.8	216.1	71.9	0.0	12047.0	303.6
2010	2179.4	1886.8	209.6	82.9	0.0	11808.7	307.7
2011	2128.7	1814.0	201.6	113.1	0.0	11575.0	310.7
2012	2077.4	1750.9	194.5	132.0	0.0	11345.5	311.3
2013	2027.5	1711.0	190.1	126.3	0.0	11120.0	310.8
2014	1980.6	1674.8	186.1	119.7	0.0	10898.6	310.8
2015	1941.3	1648.3	183.1	109.8	0.0	10676.1	311.3

SOURCE: 1980-1987, MAP Database; 1988-2015, ISER MAP Model Simulation MMSB, Created 7/90.

Total (DF.APGF). Operating (DF.APGFO). Capital (DF.APGFC).  
Debt Service (DF.EXDSS) includes only general obligation debt of state.  
Permanent Fund Dividend (DF.EXTRN). Permanent Fund Balance (DF.BALPF).  
Personal Income Tax (DF.RTIS).

**TABLE 13**  
**COMPONENTS OF REAL PERSONAL INCOME**  
**WITHOUT OCS DEVELOPMENT**  
(million 1989 dollars)

	Wage and Salary Payments	Net Earnings	Residence Adjustment	Dividends, Interest, Rent	Transfers	Personal Income	Disposable Personal Income
1980	5664.5	6496.7	428.5	525.4	628.0	7221.2	6040.4
1981	6286.0	6935.2	484.2	599.4	672.0	7722.6	6293.1
1982	6889.6	7612.5	555.1	681.3	1028.9	8767.2	7279.2
1983	7501.0	8508.0	608.2	827.8	1125.2	9852.7	8247.5
1984	7567.2	8599.0	595.3	915.3	971.1	9890.1	8427.0
1985	7500.2	8650.7	598.6	997.8	1259.8	10309.7	8949.8
1986	7041.3	8284.4	512.0	1037.7	1336.4	10146.6	8781.4
1987	6645.1	7912.0	467.2	1099.2	1441.6	9985.6	8531.3
1988	6860.1	7764.2	465.8	1015.2	1479.8	9975.8	8511.5
1989	7165.5	8312.0	492.9	1022.0	1470.8	10497.5	8935.8
1990	7210.1	8327.6	504.7	1071.6	1512.7	10590.1	9025.4
1991	7411.2	8414.1	559.7	1127.1	1518.8	10682.7	9085.9
1992	7458.2	8395.5	548.5	1156.3	1503.9	10687.1	9091.5
1993	7549.8	8483.4	541.6	1190.4	1564.0	10874.0	9243.6
1994	7657.1	8599.8	541.5	1233.3	1619.3	11086.8	9421.7
1995	7659.8	8578.8	546.6	1269.6	1647.3	11121.7	9242.2
1996	7724.2	8634.3	555.0	1295.3	1675.0	11219.3	9333.5
1997	7786.6	8686.2	563.5	1315.7	1295.4	10900.8	9055.5
1998	7856.9	8749.8	569.1	1334.9	1313.2	10992.8	9132.8
1999	7958.7	8857.4	576.9	1362.0	1344.3	11148.5	9254.3
2000	8064.6	8957.4	584.9	1390.0	1369.8	11291.5	9371.7
2001	8134.2	9006.7	590.4	1413.7	1383.1	11369.4	9440.8
2002	8171.1	9032.4	593.9	1436.8	1400.4	11428.8	9485.0
2003	8206.5	9055.1	597.0	1454.6	1413.5	11476.0	9521.9
2004	8274.5	9111.2	602.0	1470.9	1427.6	11554.4	9590.7
2005	8387.7	9226.8	610.3	1497.2	1459.2	11716.7	9721.3
2006	8522.7	9354.8	620.6	1529.5	1491.9	11896.7	9863.1
2007	8679.8	9504.8	632.1	1571.5	1531.4	12113.8	10041.9
2008	8852.1	9669.8	644.7	1622.7	1578.3	12361.6	10245.9
2009	9017.4	9826.4	656.8	1681.1	1629.0	12612.0	10451.8
2010	9162.2	9960.1	667.5	1741.8	1678.6	12842.0	10641.0
2011	9271.9	10056.5	675.8	1799.2	1723.1	13028.4	10794.0
2012	9334.4	10088.8	681.0	1840.5	1743.7	13113.5	10868.3
2013	9411.9	10149.4	686.6	1880.0	1773.5	13233.8	10971.2
2014	9513.0	10232.2	693.9	1915.7	1802.4	13370.0	11088.7
2015	9620.6	10320.6	701.9	1951.5	1832.0	13511.9	11206.5

SOURCE: 1980-1987, MAP Database; 1988-2015, ISER MAP Model Simulation MMSB, Created 7/90.

Wage and Salary Payments (DF.PWS) is nonagricultural wage and salary job categories plus military.  
Net Earnings (DF.PINE) is net labor and proprietors' income by place of work.  
Residence Adjustment (DF.PIRAD). Dividends, Interest, and Rent (DF.PIDIR).  
Transfers (DF.PITRAN). Personal Income (DF.PIB). Disposable Personal Income (DF.DPIB)

nearly double by 2015. This projected increase is linked in the MAP model to the anticipated rise in the population of older Alaskans, who receive the pension funds, social security, and life insurance payments that constitute most of transfer income.

The residence adjustment shown in Table 13 shows the difference between wages and salaries and proprietors' income which are earned in Alaska and earnings of Alaska residents. Nonresidents earned more from working in Alaska than Alaska residents earned from working outside the state, so Personal Income of Alaskans is smaller than the sum of wage and salary payments, proprietors' net earnings, investment earnings, and transfers. The residence adjustment depends mainly on the industry mix of employment.

Another shift noticeable in the figures is the declining share of Personal Income that remains as disposable Personal Income in the 1990s. This is due to the projected increase in personal taxes needed to help offset the fiscal effects of declining petroleum revenues. The combination of the end of Permanent Fund dividends (part of transfer payments) and the initiation of the personal income tax causes Alaska real disposable Personal Income to remain almost constant throughout the 1990s, despite an 11 percent projected population increase. The projected decline in real per capita Personal Income implied by the figures in Table 13 does not include the effects on the perceived standard of living caused by the reduction in public services that we also project to occur during the same period.

## **Price Changes**

Table 14 shows the projected increase in Anchorage consumer prices over the next 25 years. The Anchorage consumer price index (CPI) is used to deflate projected values in nominal dollars to real dollars. The growth in the Anchorage CPI is closely linked to the assumed 5 percent annual percentage growth in the U.S. CPI. Alaska prices are projected to grow slightly more slowly than the national average, however, as the size of the Alaska economy continues to increase, increasing efficiency of distribution of goods and services. By 2015, Alaska prices are projected to be only one percent higher on the average than U.S. prices, according to the projection shown in Table 14.

**TABLE 14**  
**PRICE INDEXES WITHOUT OCS DEVELOPMENT**

	Anchorage CPI-W	Alaska/US Price Level
1980	86.3	1.290
1981	92.9	1.261
1982	98.2	1.257
1983	98.9	1.229
1984	102.9	1.235
1985	105.8	1.227
1986	107.7	1.230
1987	107.9	1.189
1988	108.3	1.148
1989	111.3	1.126
1990	116.6	1.121
1991	122.4	1.121
1992	128.0	1.116
1993	133.8	1.111
1994	139.8	1.106
1995	146.2	1.101
1996	153.5	1.101
1997	160.4	1.096
1998	168.4	1.096
1999	176.0	1.091
2000	184.0	1.086
2001	192.3	1.081
2002	201.0	1.076
2003	210.0	1.071
2004	219.5	1.066
2005	229.4	1.061
2006	239.7	1.056
2007	250.5	1.051
2008	261.8	1.046
2009	273.5	1.041
2010	285.8	1.036
2011	298.7	1.031
2012	312.1	1.025
2013	326.0	1.020
2014	340.7	1.015
2015	355.9	1.010

**SOURCE:** 1980-1987, MAP Database; 1988-2015, ISER MAP Model Simulation MMSB, Created 7/90.

Anchorage CPI (PDANCP1) Consumer Price Index for Urban Wage Earners (1982-1984 = 100).  
Alaska/US Price Level (PDRATIO) is the ratio of Anchorage and US Consumer Price Index levels.

#### **IV. STATEWIDE ECONOMIC AND DEMOGRAPHIC EFFECTS OF OCS DEVELOPMENT**

This chapter discusses the projected effects on the Alaska economy and population of exploration and development activities that might take place on areas of the federal Outer Continental Shelf leased for petroleum development by 1990. First, we discuss the direct contribution of projected OCS activities to the exogenous industry employment and state revenue assumptions used for the base-case projection discussed in Chapter III. Then using the MAP statewide model we present an impact-case projection of the Alaska economy and population including the contribution of OCS activity. We use the difference between the with-OCS, or impact-case projection, and the without-OCS, or base-case projection, to analyze the economic and demographic impacts of the OCS development in Alaska.

##### **Direct Employment and Revenue Effects**

Table 15 summarizes the employment and revenue assumptions for OCS exploration and development which may take place over the next 25 years. Since no projected OCS activities are included in the without-OCS projection discussed in the preceding chapter, the figures in this table represent incremental direct employment and revenues for the Alaska economy.

**TABLE 15**  
**OCS EXPLORATION AND DEVELOPMENT ASSUMPTIONS**  
(thousands of employees; millions of current \$)

	Total High Wage Construction Employment	Total Petroleum Mining Employment	Total Transportation Employment	State Property Tax Revenue	State Royalty Income	State Production Tax Revenue
1980	0.000	0.000	0.000	0.000	0.000	0.000
1981	0.000	0.000	0.000	0.000	0.000	0.000
1982	0.000	0.000	0.000	0.000	0.000	0.000
1983	0.000	0.000	0.000	0.000	0.000	0.000
1984	0.000	0.000	0.000	0.000	0.000	0.000
1985	0.000	0.000	0.000	0.000	0.000	0.000
1986	0.000	0.000	0.000	0.000	0.000	0.000
1987	0.000	0.000	0.000	0.000	0.000	0.000
1988	0.000	0.000	0.000	0.000	0.000	0.000
1989	0.000	0.000	0.000	0.000	0.000	0.000
1990	0.000	0.189	0.060	0.000	0.000	0.000
1991	0.000	0.199	0.055	0.000	0.000	0.000
1992	0.010	0.765	0.308	0.000	0.000	0.000
1993	0.000	0.785	0.308	0.023	0.000	0.000
1994	0.035	0.701	0.258	0.142	0.000	0.000
1995	0.069	0.555	0.184	0.398	0.000	0.000
1996	0.069	0.446	0.134	0.678	0.000	0.000
1997	0.746	1.040	0.200	3.889	0.000	0.000
1998	0.763	1.648	0.307	7.507	0.000	0.000
1999	0.996	3.038	0.478	8.006	0.000	0.000
2000	0.000	3.095	0.521	12.149	0.000	0.000
2001	0.000	2.611	0.440	11.951	57.000	32.400
2002	0.000	2.508	0.480	11.424	58.200	31.300
2003	0.000	2.312	0.480	10.815	59.500	30.200
2004	0.000	1.658	0.480	10.116	60.600	28.900
2005	0.000	1.663	0.480	9.320	60.400	27.000
2006	0.000	1.663	0.480	8.419	56.900	23.800
2007	0.000	1.698	0.480	7.574	52.600	20.500
2008	0.000	1.698	0.480	6.807	48.000	17.400
2009	0.000	1.698	0.480	6.074	47.300	15.900
2010	0.000	1.698	0.480	5.370	45.000	13.900
2011	0.000	1.678	0.480	4.702	43.700	12.300
2012	0.000	1.678	0.480	4.063	41.400	10.600
2013	0.000	1.678	0.480	3.441	39.900	9.200
2014	0.000	1.678	0.480	2.839	39.300	8.100
2015	0.000	1.678	0.480	2.248	37.500	6.900

SOURCE: MAP MODEL CASE OCS.M90  
VARIABLES: EMT9X RPPS RPRY RPTS

We used employment assumptions provided to us by the Minerals Management Service Alaska OCS office. They assume that Alaska is considered the place of work of all OCS workers, consistent with other employment data used in the MAP model. The MAP model does not assume that all these additional OCS-related workers actually live in Alaska. Rather, the model projects population migration depending upon a number of labor market indicators, and it adjusts Personal Income for residence depending on the industry mix of total employment.

Direct employment effects of the exploration and development activities occur in the construction, petroleum extraction, and transportation industries. The projected increment to petroleum employment rises to over 3,000 in 1999 and 2000 as operators drill development wells to bring major discoveries into commercial production. Petroleum employment then falls to 1,700 during the operations phase of activities. Exogenous transportation employment to support offshore exploration increases to over 300 in 1992 and 1993. After falling by about one-half in the mid 1990s, OCS-related transportation employment rises to over 500 in 2000 and then stabilizes at 480 in 2002. After 2000, the bulk of additional transportation workers are employed in support of pipeline operations. Projected OCS-related construction employment rises to nearly 1,000 as pipeline and production facilities are constructed near the turn of the century.

Production of oil and gas from the federal Outer Continental Shelf does not provide the state of Alaska directly with any shared royalties or severance tax revenue. The state and local governments can, however, tax petroleum exploration,



production, and pipeline property located on shore or within the three-mile offshore zone (Alaska Statutes 43.56). Production facilities for OCS development would be located beyond the three-mile limit, but shore bases onshore pipelines would be subject to taxation. The tax rate by statute is 20 mills on the full value of the property, with the proceeds shared between the state and local jurisdiction according to the applicable local mill rate. We assumed the state would collect a share equal to the current average state share of petroleum property taxes on the depreciated inflation-adjusted construction cost of shore bases and onshore pipelines. If the portion of the incremental property tax revenues actually collected by organized local governments differs from the current average, there might be some difference in the regional allocation of public spending, but the total public expenditures and statewide economic effects would be relatively unaffected.

We project that onshore facilities constructed for OCS exploration and development activities associated with the Five-Year Program will yield the State of Alaska \$12 million in property tax revenue (in nominal dollars) in 2000. Local governments are projected to receive approximately four times this amount. The incremental state revenues would decline to \$2 million by 2015 as the facilities depreciate. We assume a schedule of depreciation that follows the depletion schedule assumed for oil reserves associated with each facility. We used assumptions for production schedules, timing and construction cost of facilities and pipelines provided to us by the Minerals Management Service.

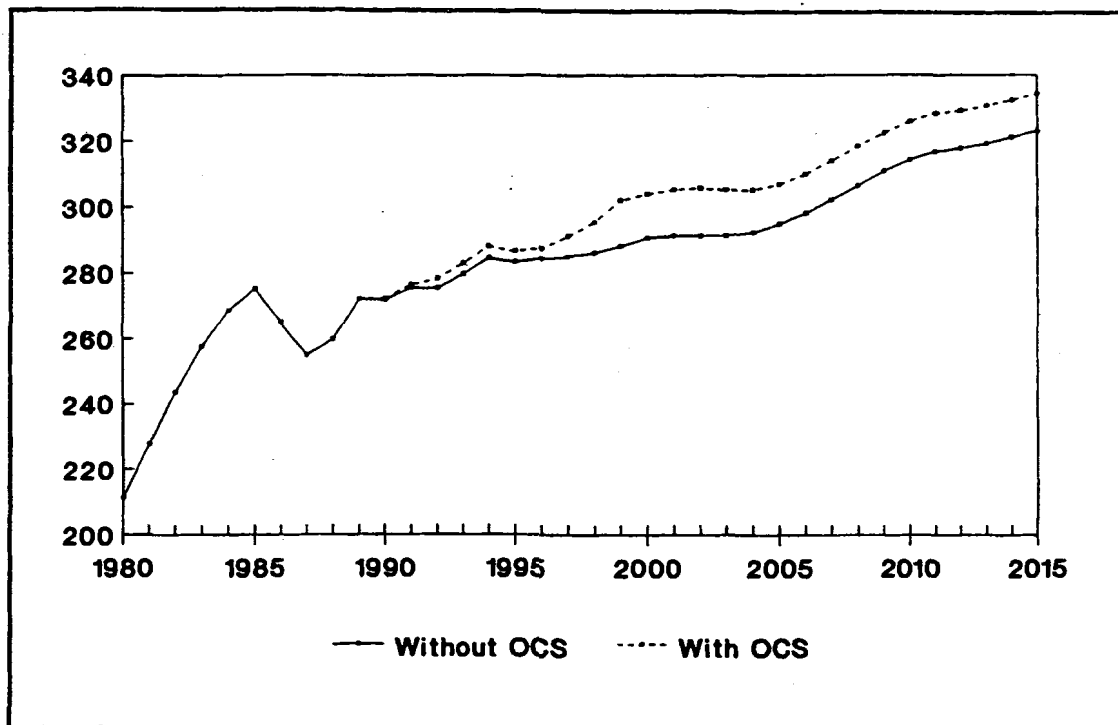
In addition to these property tax revenues, production from OCS fields may have an indirect effect on Alaska state revenues by reducing the cost of pipeline transportation for all North Slope oil. This effect comes from the effect of increasing throughput on the Trans-Alaska Pipeline System (TAPS) tariff under the current ratemaking agreement. Under the OCS development scenario assumed for this study, approximately 2.5 billion barrels of OCS oil would move through most of the TAPS pipeline after it passed through a new pipeline connecting to offshore fields. Using the Alaska Department of Revenue production scenario consistent with the petroleum revenues assumed in the without-OCS case, reduced tariffs as a result of incremental TAPS throughput would allow another 54 million barrels of oil to be extracted from North Slope fields (Platt 1989, 1990). The added North Slope oil production would increase state royalty income after 2000 by about \$60 million annually and severance taxes by roughly one-half that amount. Appendix E provides full documentation of the assumptions used for the projected revenue effects of OCS production.

### **Projected Impact of the Five-Year Leasing Program**

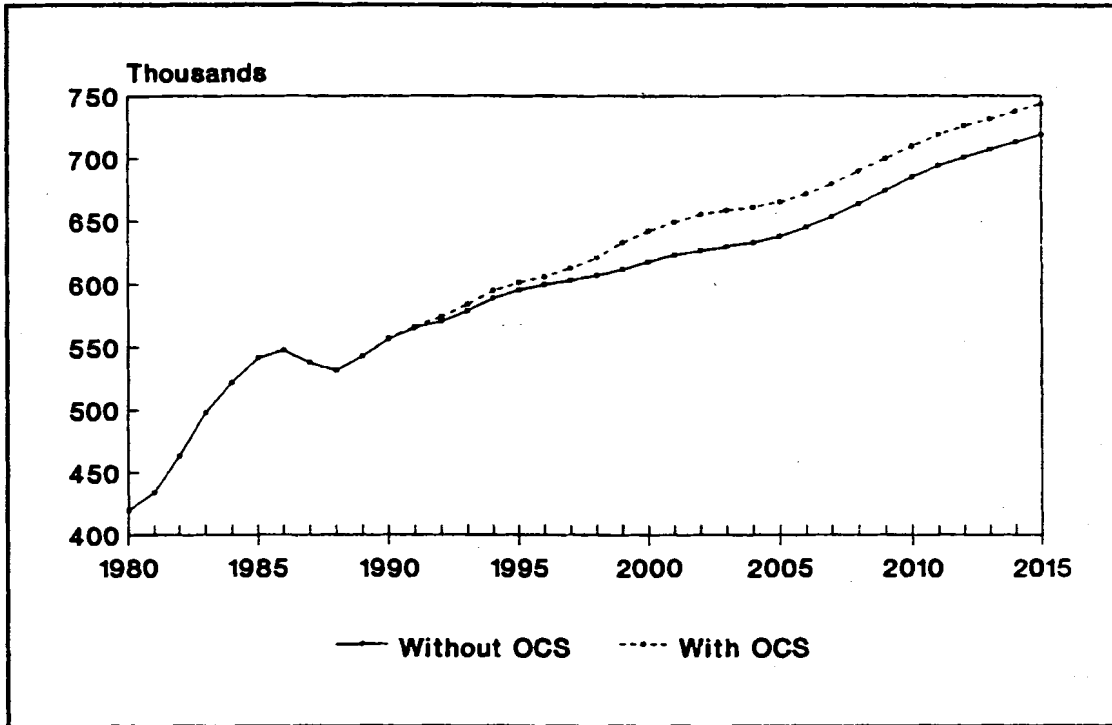
We projected the MAP state economic and demographic model using the same scenario as described in the previous chapter, but with the addition of the OCS employment and revenue assumptions shown in Table 15. Appendix A contains the complete set of scenario assumptions for employment, petroleum revenues, and tourists visiting Alaska for the with-OCS projections. Figures 2, 3, and 4 summarize the MAP model results by comparing the projected pattern of total employment, population, and per-capita disposable Personal Income, respectively,

for the with-OCS and without-OCS scenarios. We projected that OCS development will add 4.6 percent to Alaska employment in 2000 and 3.5 percent in 2015. Effects on population are similar but slightly smaller – 3.9 percent and 3.4 percent, respectively. Figure 4 shows clearly the effects of the assumed reimposition of the personal income tax and elimination of the Permanent Fund dividend program on disposable Personal Income in the mid-1990s. We project that the overall effect of OCS activities will raise real disposable Personal Income by about 1.5 percent, principally because OCS-related jobs pay higher wages on the average than other Alaska jobs.

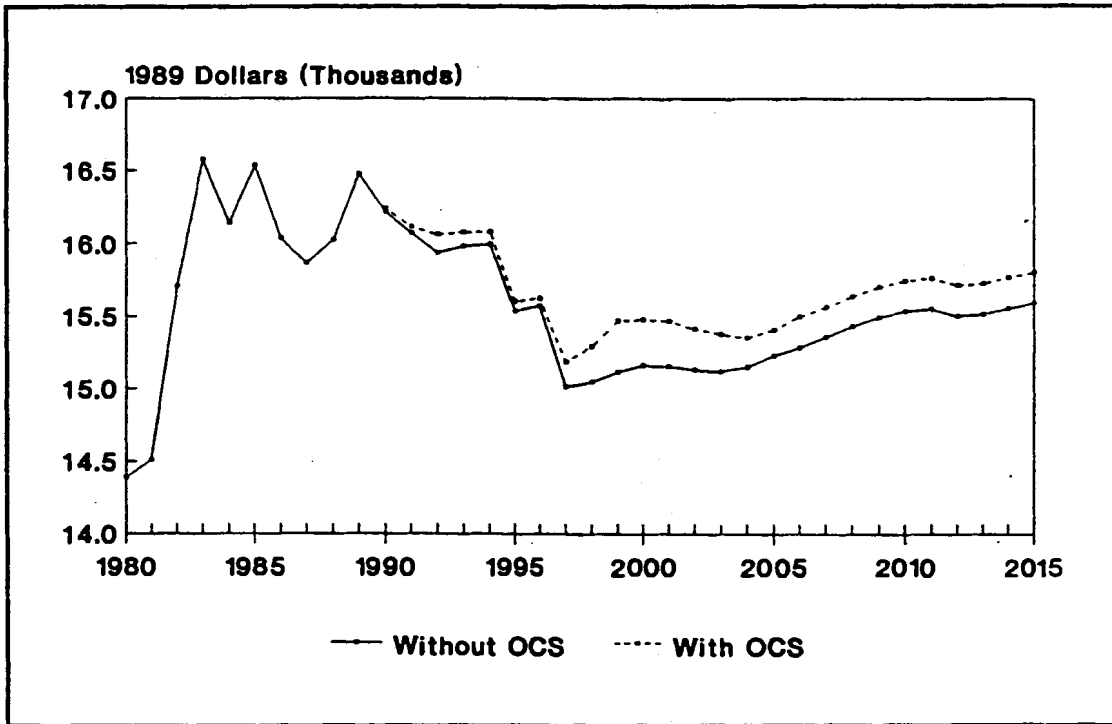
**Figure 2. Economic and Demographic Projections  
Total Alaska Employment**



**Figure 3. Economic and Demographic Projections  
Alaska Population**



**Figure 4. Economic and Demographic Projections  
Per Capita Disposable Personal Income**



Appendix B contains a set of ten tables showing the details of the projection of the state economy and population for the with-OCS scenario. The ten Appendix B tables are analogous to and show the same information as Tables 5 through 14 for the without-OCS projection. The with-OCS projection presents a broadly similar view of the future of Alaska's economy and population as discussed in Chapter III for the without-OCS case. Rather than describe the results contained in these tables in detail, which would be repetitious, we choose to focus on the differences between the with-OCS, or impact-case projection and the without-OCS, or base-case projection. These differences can be interpreted as the potential cumulative effects of OCS exploration and development.

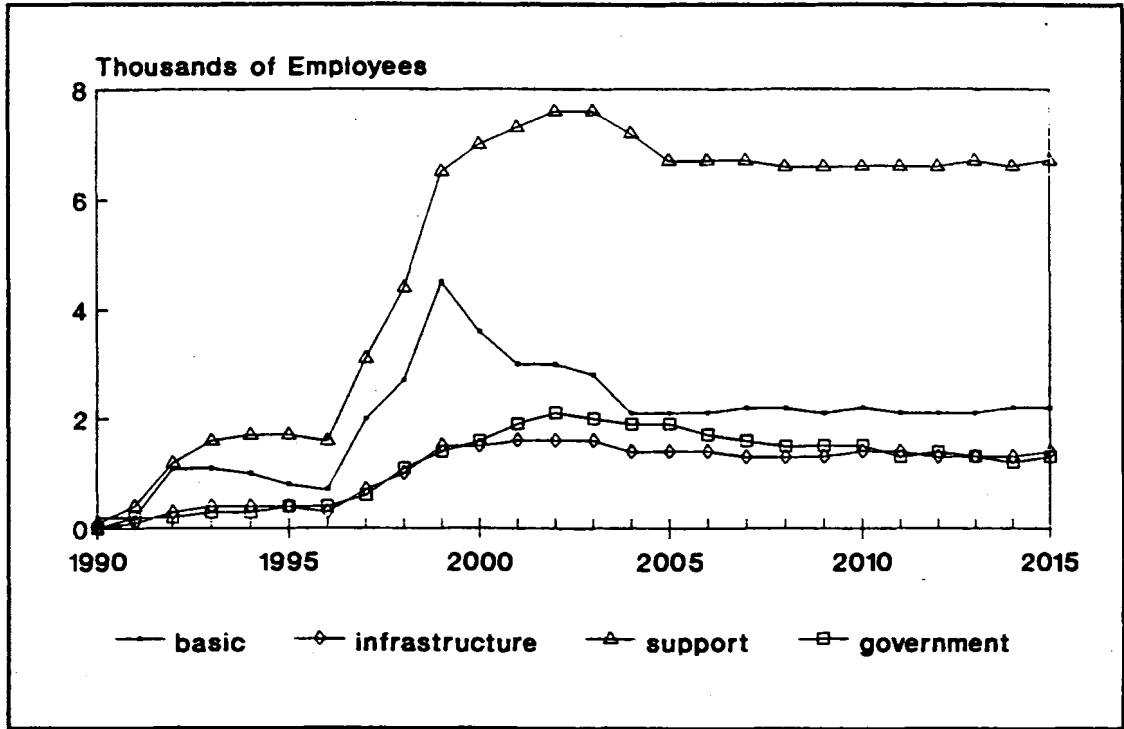
Figure 5 shows the **difference** between employment by sector in the with-OCS and the without-OCS cases. The projected additional employment attributed to OCS activities rises to about 14,000 in the first few years of the next century. The employment effect declines somewhat, then levels off at between 11 and 12,000 workers from 2005 through the rest of the period. Support employment accounts for slightly more than one-half the total effect. The share of basic employment declines from about one-third to about one-fifth as OCS activities move into the operations phase. Infrastructure and government employment rises by a smaller and equal amount over the base case projection.

Figure 6 shows the industry composition of private sector (basic and support) employment. The distribution of the basic sector employment effects show mainly the distribution of direct OCS exploration and development employment. The

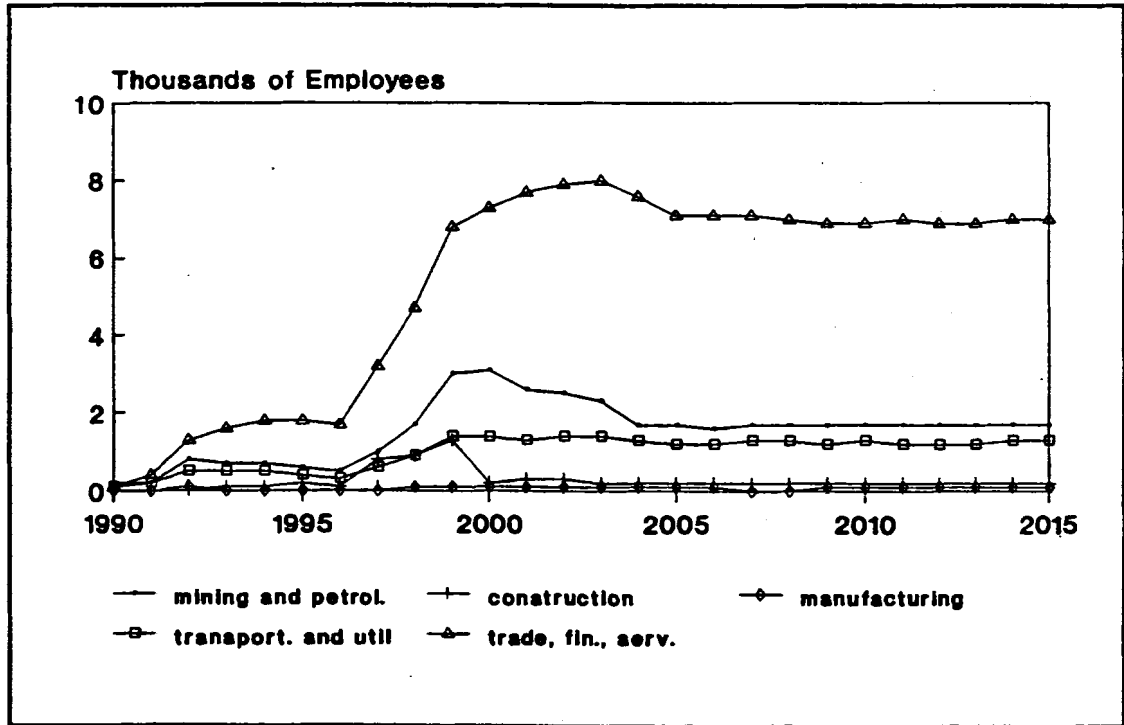
trade, finance, and services industries reflect the indirect effects. Most of the additional government employment generated as a by-product of additional OCS leasing – about two-thirds – is at the local level, as Figure 7 shows. These jobs would mainly be in local public services such as education, public safety, and municipal utilities that would be needed to serve a larger population.

Figure 8 shows the difference between the with-OCS and the without-OCS projection for the components of population change. The impact on net migration is largest in 1999, when construction peaks for facilities needed to develop additional OCS petroleum resources and build a pipeline to connect with TAPS. Around 6,000 more people move to the state in 1999 as a result of OCS development. After the economy has adjusted to this shock, OCS jobs would continue to attract a positive flow of job-seekers until 2004. From 2004 onward, net migration flows are negative – more people leave the state than enter. Since the population has been enlarged from the earlier period of migration, however, natural increase remains larger than before, as children are born to residents who moved to Alaska from 1997 through 2002.

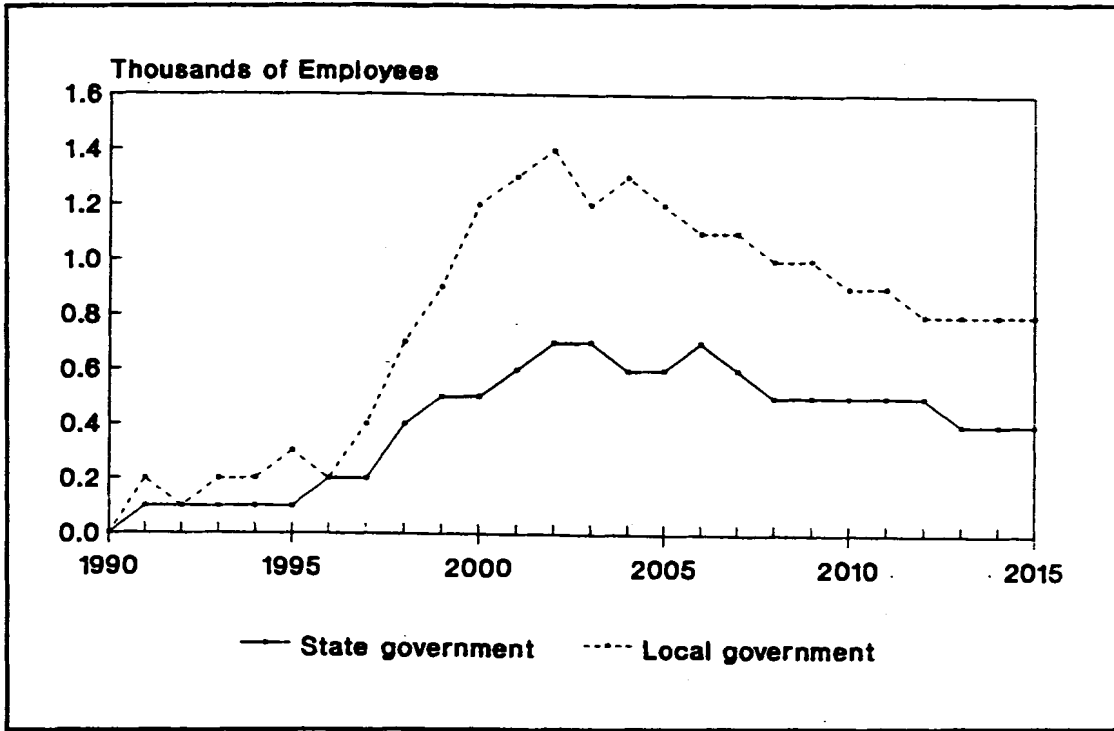
**Figure 5. Impact of OCS Development  
Employment by Sector**



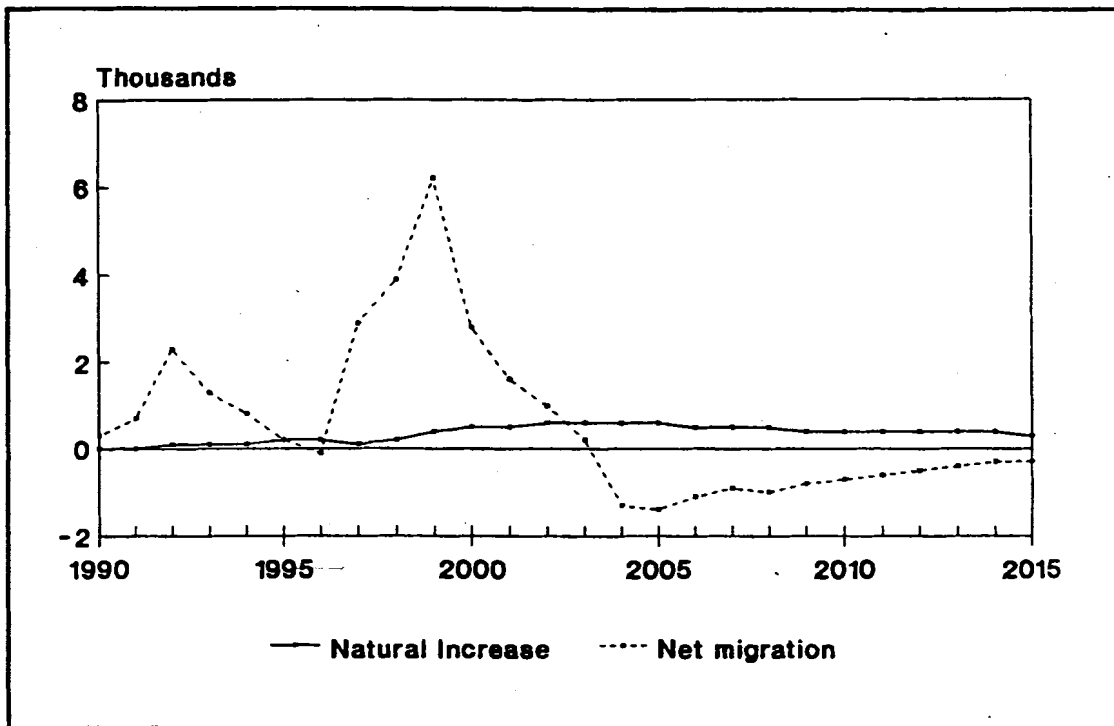
**Figure 6. Impact of OCS Development  
Private Sector Employment by Industry**



**Figure 7. Impact of OCS Development  
Public Sector Employment**



**Figure 8. Impact of OCS Development  
Components of Population Change**





We project OCS development to bring a modest but significant increase in real state revenues, as shown in Figure 9. State petroleum revenues are nearly \$10 million (in 1989 dollars) higher in 1991 through 1997 because more petroleum property taxes are collected from onshore support facilities for OCS exploration. Petroleum revenues rise rapidly in 2000 due to property taxes realized from completion of a major pipeline and additional royalties and severance taxes collected from North Slope fields. The petroleum revenue effects decline rapidly after 2001 due to depreciation of the tax base and declining oil production. Other state revenues rise in the late 1990s primarily because the extra workers hired as a result of OCS development are now paying state income taxes. Investment earnings also rise slowly, reflecting the assumption that a portion of the incremental oil royalties – part of the petroleum revenues shown in Figure 9 – are deposited into the Permanent Fund.

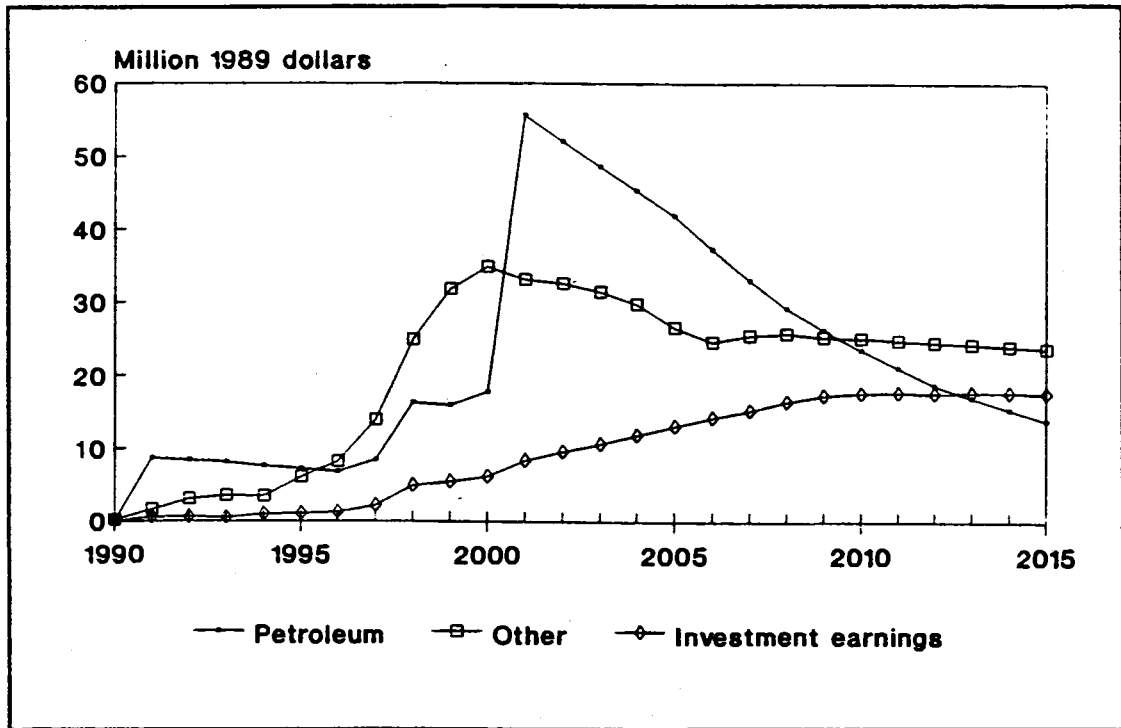
Figure 10 shows the projected distribution of spending of the additional state revenues. Most of the increase goes into the operating budget (and much of this is likely to be transferred to local governments to help pay for the added demand for public services from the larger population). There is almost no change in the capital budget or debt service. Although OCS development provides additional state and local revenues, the incremental revenues are not sufficient to revive capital spending significantly above the level of the without-OCS case. The Permanent Fund balance rises by about \$50 million (in 1989 dollars) in 1991 and again in 1998. There is no change in the nominal Permanent Fund balance in these years. However, a larger employment base due to OCS development

reduces the Alaska-U.S. price differential by about one-half of one percent in each of these two years. A reduced level of inflation causes the Permanent Fund balance to be relatively larger when expressed in real terms. After 2000, the Permanent Fund grows slightly faster in the with-OCS case because of the share of incremental oil royalties deposited into the Permanent Fund.

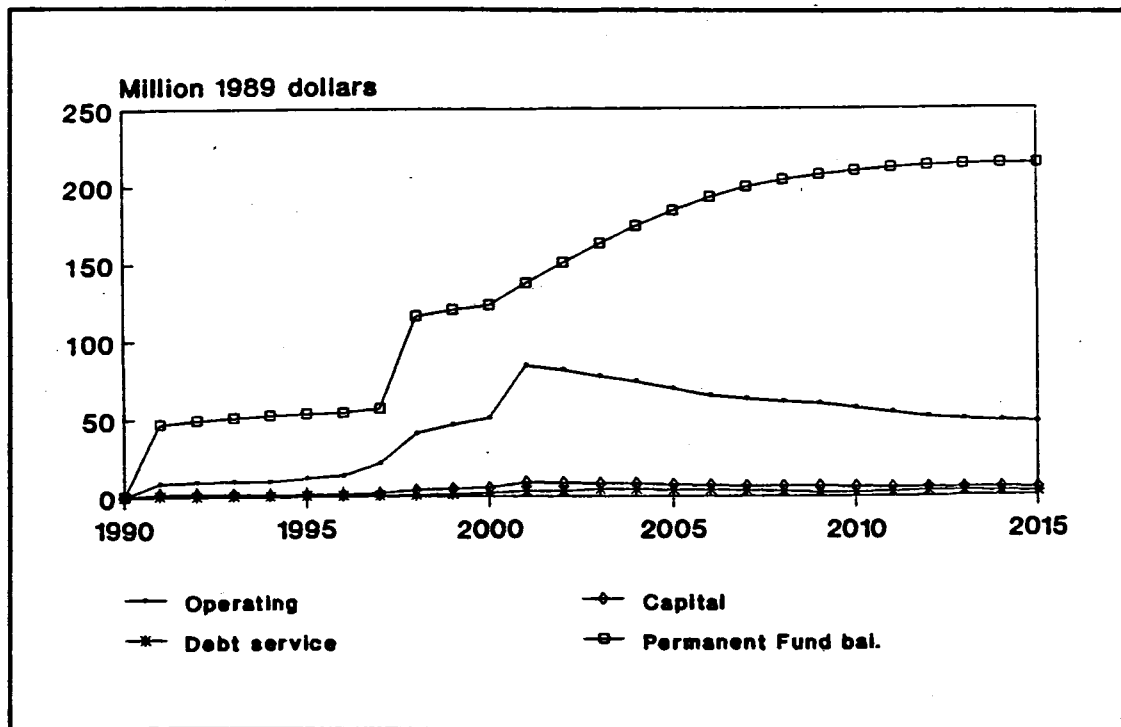
Figure 11 shows how total Personal Income and its sources are projected to change as a result of the Five-Year Leasing Program. Total Personal Income of Alaska residents rises by roughly \$750 million (in 1989 dollars) in 1999. Wages and salaries (reported by place of work) represent the majority of this increase. At the height of the boom associated with construction of facilities in the late 1990s, nonresident earnings reduce the amount of Alaska income earned by residents by roughly ten percent.

The higher Personal Income resulting from additional OCS development leads to an increase in average per capita Personal Income of \$400 (1989 dollars) in 1999. Figure 12 shows that the impact quickly diminishes to around \$250 per capita (in 1989 dollars) through 2015. The widening gap between the line showing Personal Income and the line showing disposable Personal Income in Figure 12 illustrates the increasing tax burden placed on income earners as state revenues decline and state and local governments are forced to tap new sources of revenue.

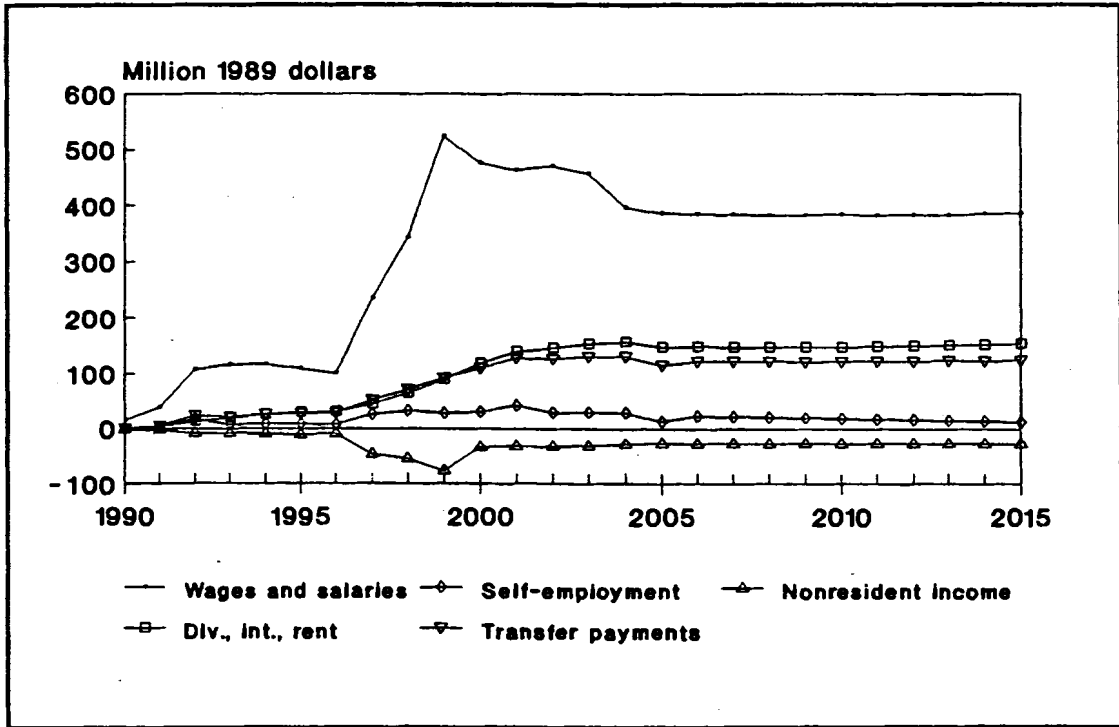
**Figure 9. Impact of OCS Development  
Unrestricted State General Fund Revenue**



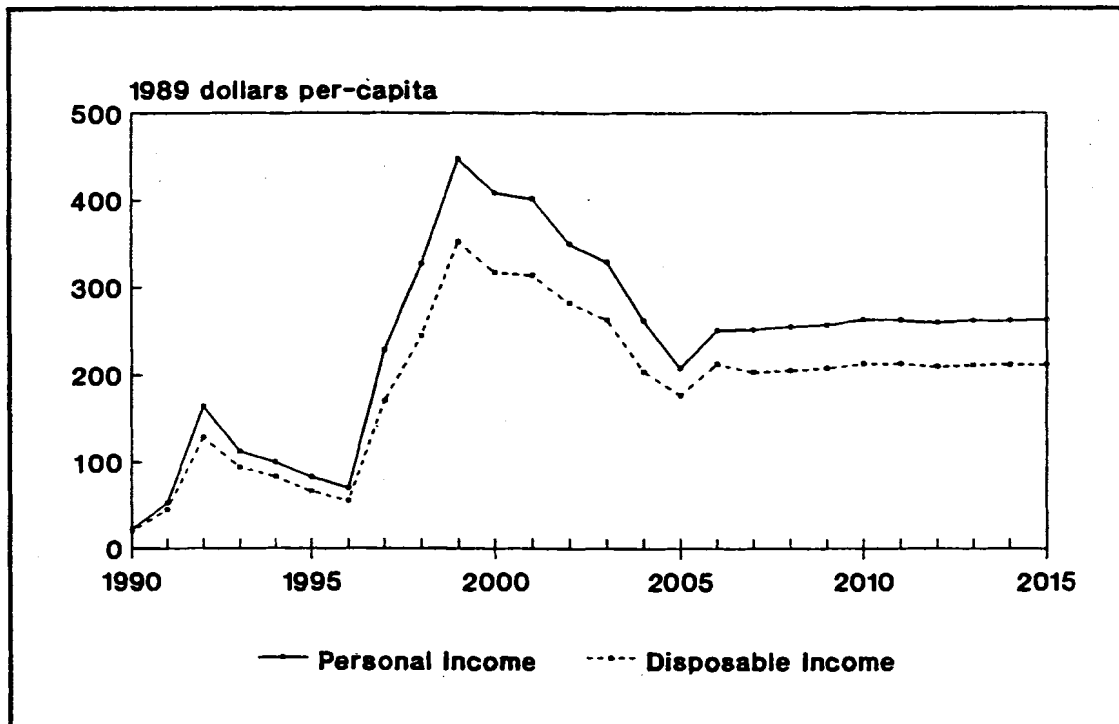
**Figure 10. Impact of OCS Development  
Real State Appropriations and Fund Balance**



**Figure 11. Impact of OCS Development  
Real Personal Income by Source**



**Figure 12. Impact of OCS Development  
Real Per Capita Personal Income**





## **V. IMPACT OF THE FIVE-YEAR PLAN ON SOUTHCENTRAL ALASKA**

In this chapter, we discuss economic and demographic projections for the Anchorage-Mat-Su Region of the state of Alaska using the MAP regional model outlined in Chapter II. We project the economy and population of the Anchorage-Mat-Su region depending upon whether or not OCS exploration and development takes place on areas proposed for lease in the Five-Year Program.

The MAP regional model requires a set of assumptions about exogenous basic industry and federal government employment for each of twenty regions of the state. First, we discuss the without-OCS, or base-case projections for the Anchorage-Mat-Su Region. This regional projection corresponds to the statewide projection discussed in Chapter III. Then we discuss the exogenous employment assumptions used for the regional model and present the regional with-OCS, or impact-case projections.

### **Regional Base Case Projections**

Our regional exogenous employment assumptions follow the assumptions summarized in Table 1. In general, we assume the regional distribution of baseline exogenous employment in each industry remains the same as observed in recent years. Special projects – opening of new mines and OCS development activities, for example – change the regional distribution of statewide exogenous employment, as do differing rates of growth projected for different industries, given

the uneven distribution of employment by industry among Alaska regions. The complete set of regional base case exogenous employment assumptions (except for OCS activities, which are discussed below) appears in Appendix D.

Table 16 shows projections of total population, the number of households, total employment, and three categories of employment for Anchorage-Mat-Su region, using the MAP regional model. We project that total employment in 2015 will be 32 percent greater than in 1990. The number of households will rise by 36 percent, reflecting the national trend toward smaller households. Basic sector and support employment each increase by about one-third over the period. The strong growth in basic sector employment in Anchorage results from the projected trend of an increasing share of Alaska jobs in the petroleum and related industries located in Anchorage. Government employment, affected by falling state revenues, stays virtually constant.

Our projections show Anchorage-Mat-Su employment growing from the current level of around 131,000 to a level of around 137,000 in 1994. After remaining virtually constant for five years, employment begins to grow again, but very slowly until 2005. From that point onward, regional employment grows by 1.25 percent per year through 2015.

TABLE 16  
MAP REGIONAL MODEL PROJECTIONS  
WITHOUT OCS DEVELOPMENT  
ANCHORAGE MAT-SU REGION  
(thousands)

	Population	Households	EMPLOYMENT			
			Total	Basic	Support	Government
1988	261.113	93.527	125.058	25.436	61.173	38.449
1989	268.529	96.363	131.441	26.684	65.144	39.614
1990	275.630	99.160	131.141	26.189	65.807	39.145
1991	279.089	100.612	132.046	26.688	66.054	39.303
1992	281.699	101.782	132.611	27.216	66.278	39.117
1993	285.769	103.445	134.643	27.876	67.124	39.643
1994	290.890	105.460	136.971	28.246	68.190	40.535
1995	293.218	106.523	136.106	27.872	67.559	40.676
1996	295.131	107.431	136.732	27.819	68.043	40.871
1997	296.269	108.054	136.804	27.948	67.749	41.106
1998	298.032	108.886	137.559	28.268	68.158	41.133
1999	301.003	110.136	139.001	28.743	69.078	41.180
2000	304.332	111.501	140.468	29.253	69.994	41.221
2001	307.156	112.689	141.357	29.689	70.678	40.990
2002	309.411	113.677	141.820	29.893	71.329	40.597
2003	311.148	114.477	142.146	29.951	71.827	40.368
2004	313.050	115.321	142.908	30.176	72.425	40.307
2005	316.104	116.558	144.473	30.602	73.428	40.443
2006	320.229	118.161	146.427	31.107	74.615	40.705
2007	325.331	120.106	148.808	31.722	76.082	41.004
2008	331.310	122.357	151.517	32.446	77.795	41.275
2009	337.742	124.774	154.234	33.210	79.638	41.386
2010	344.004	127.138	156.685	33.943	81.436	41.305
2011	349.449	129.223	158.568	34.388	82.989	41.191
2012	353.354	130.774	159.521	34.466	83.970	41.086
2013	356.718	132.136	160.623	34.669	84.970	40.984
2014	360.137	133.510	162.033	35.120	86.048	40.865
2015	363.753	134.946	163.542	35.606	87.161	40.775

SOURCE: MAP Model Simulation MMSBR, Created 7/90.  
VARIABLES: PCEN.AM, HHCEN.AM, M.AM, B.AM, S.AM, G.AM



## **Regional Effects of OCS Development**

Other studies have analyzed potential impacts of offshore oil and gas development on the communities and regions that would receive the main direct impacts of OCS development (see Knapp, 1987, 1986, 1984). This study considers instead the potential cumulative regional impacts – mainly indirect – of potential OCS-related exploration and development activities. Anchorage, as the state's major city and business center, is affected by economic activity occurring anywhere in the state. For the purposes of this analysis we assume that all direct OCS employment occurs in the coastal areas adjacent to the Bering and Beaufort Seas. While exploration could occur from bases in Anchorage-Mat-Su Alaska, we assume that such ventures have a negligible impact on the region. We do assume, however, some additional oil industry headquarters employment in Anchorage associated with OCS activity.

Table 17 shows the regional distribution of employment in OCS petroleum exploration and development assumed for the regional simulation. The table shows Anchorage headquarters employment as well as on-site employment assumed to be located in the Aleutian Islands (Cold Bay) and the North Slope regions. These assumptions are provided by the Minerals Management Service. The regional numbers correspond to the statewide employment assumptions shown in Table 15 and discussed in Chapter IV.

**TABLE 17**  
**OCS EXPLORATION AND DEVELOPMENT ASSUMPTIONS**  
(thousands of employees)

	Aleutian Islands	Anchorage	Barrow/ North Slope
1980	0.000	0.000	0.000
1981	0.000	0.000	0.000
1982	0.000	0.000	0.000
1983	0.000	0.000	0.000
1984	0.000	0.000	0.000
1985	0.000	0.000	0.000
1986	0.000	0.000	0.000
1987	0.000	0.000	0.000
1988	0.000	0.000	0.000
1989	0.000	0.000	0.000
1990	0.000	0.000	0.249
1991	0.000	0.010	0.244
1992	0.180	0.015	0.888
1993	0.247	0.020	0.826
1994	0.247	0.040	0.707
1995	0.247	0.050	0.511
1996	0.093	0.060	0.496
1997	0.742	0.070	1.174
1998	0.362	0.080	2.276
1999	0.421	0.200	3.891
2000	0.426	0.200	2.990
2001	0.426	0.200	2.425
2002	0.343	0.200	2.445
2003	0.287	0.200	2.305
2004	0.287	0.200	1.651
2005	0.292	0.200	1.651
2006	0.292	0.200	1.651
2007	0.292	0.200	1.686
2008	0.292	0.200	1.686
2009	0.292	0.200	1.686
2010	0.292	0.200	1.686
2011	0.292	0.180	1.686
2012	0.292	0.180	1.686
2013	0.292	0.180	1.686
2014	0.292	0.180	1.686
2015	0.292	0.180	1.686

**SOURCE:** MAP Model Case OCS.M90  
**VARIABLES:** B01, B02, B04, EMCNX1, EMPP

Although the direct effect of OCS employment is small in the Anchorage-Mat-Su Region, the MAP regional model calculates much larger indirect effects that derive from two sources: (1) the model assigns the Anchorage-Mat-Su region to be the place of residence of some workers in remote areas, and (2) the model allocates a large share of increased support-sector employment from the indirect effects of OCS development to the Anchorage-Mat-Su Region.

Appendix C contains the complete figures for the projection of population, employment by sector, and personal income for the Anchorage-Mat-Su region in the with-OCS and without-OCS cases. Figures 13 through 15 illustrate the differences between two cases, which may be interpreted as the impact of OCS development on the region. The regional impact projections include both the effects of changes in the regional distribution of exogenous employment and the effects of changes in statewide employment and population.

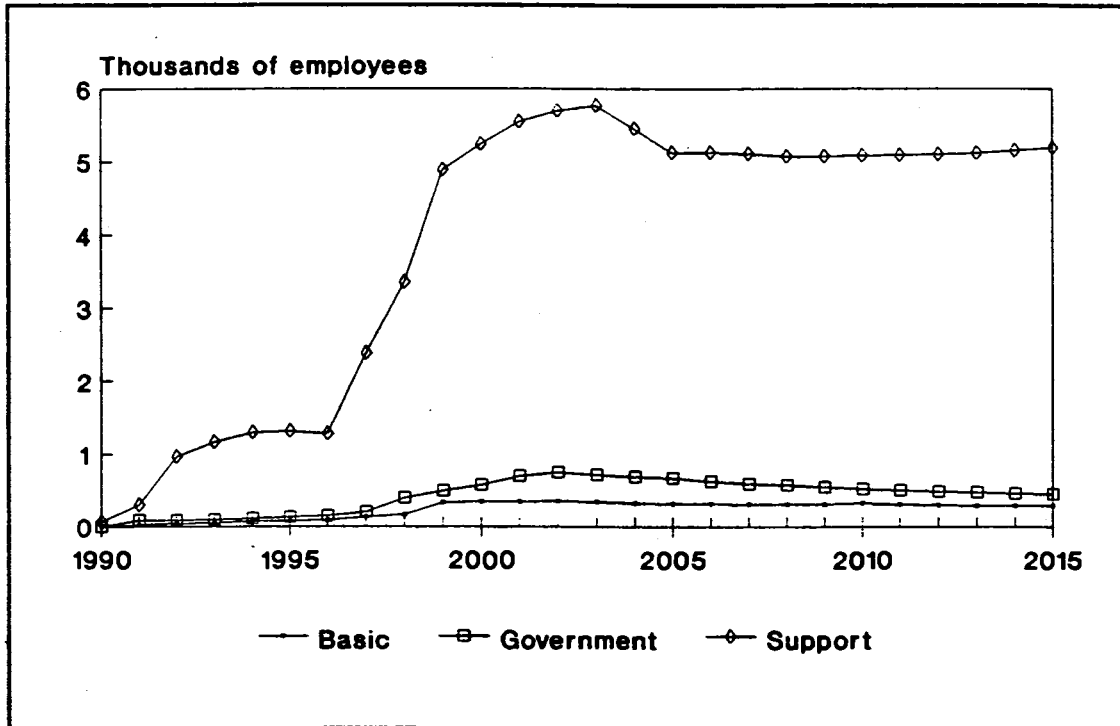
Figure 13 shows the difference between the two sets of projections for the components of total employment in the Anchorage-Mat-Su region. The employment effect of OCS development rises quickly to around 6,000 jobs in 1999, at the same time as the peak for statewide activity (as discussed in Chapter IV). The projected contribution of OCS development to regional employment levels off in 2005 after only a slight decline. By 2015, total employment in the impact case is roughly four percent higher than in the base case. While there is almost no effect on basic employment, support employment increases by five percent more

in the with-OCS case than in the without case. Government employment also increases, but only slightly.

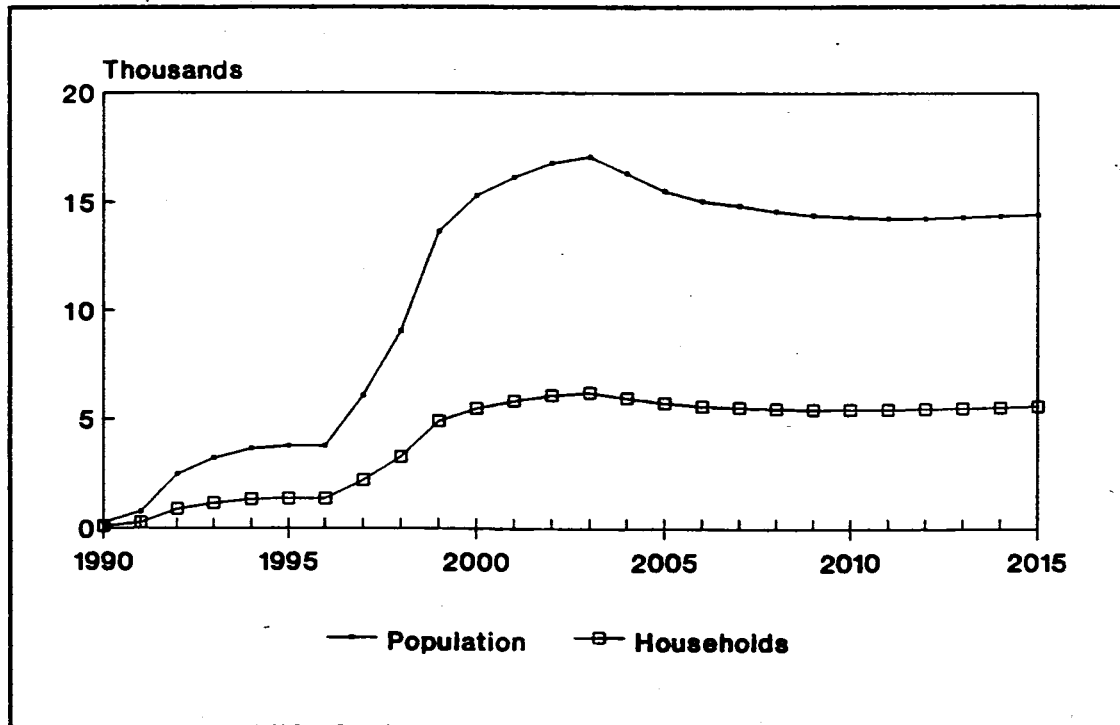
Figure 14 shows that the contribution of OCS activities to the Anchorage-Mat-Su region population rises rapidly between 1997 and 2003. Population in the with-OCS case is around 15,000, or five percent higher than it is in the base case in year 2000. This population gain amounts to 6,000 new households living in the region. After the turn of the century, the impact on population remains virtually constant, although growth from other sources pushes the percentage change down from 5 to 4 percent.

Basically all of the indirect employment effects of OCS activities are projected to occur in the Anchorage-Mat-Su Region. Approximately one-half of all new jobs generated by OCS development during the period will be located in the Anchorage-Mat-Su Region. Of the total state population gain of 24,000 by 2015, we project that nearly 15,000, or almost 63 percent of the additional residents, will live in the Anchorage-Mat-Su Region. These proportions derive from our assumptions used in the MAP regional model that the location of employment and population effects of OCS development in the Beaufort Sea and Bering Sea would be similar to those of the average basic industry job in the North Slope and Aleutian Islands census areas, respectively, in 1980.

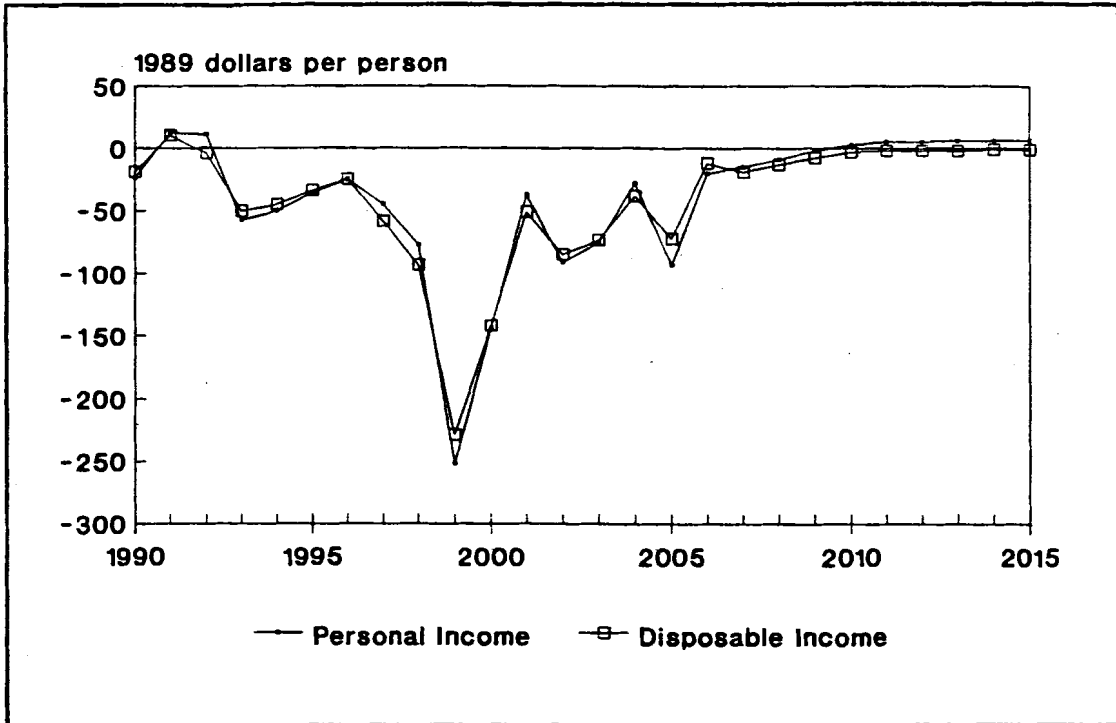
**Figure 13. Impact of OCS Development  
Anchorage Mat-Su Employment**



**Figure 14. Impact of OCS Development  
Anchorage Mat-Su Population**



**Figure 15. Impact of OCS Development  
Anchorage Mat-Su Per Capita Income**





## **VI. CONCLUSIONS**

If no further exploration and development activities take place on the federal OCS, we project that the Alaska economy will go through periods of growth interspersed by periods of stagnation over the next 15 years. Steady growth will resume around 2005 as the state finally adjusts to a lower level of petroleum revenues and a lower level of state spending. OCS development activities, were they to occur, have the potential to provide jobs to substitute for declines in state spending during the transition period. But because major development expenditures such as large pipelines involve mobilizing large numbers of workers at a time, OCS development may create a temporary, unsustainable expansion of the Alaska economy in the late 1990s. Steady growth is projected to resume after the turn of the century whether or not OCS oil fields are developed. This is because upward trends in national wages and per capita incomes cause Alaska wage rates to rise, stimulating support-sector growth.

We project that OCS petroleum exploration and development activities will have a significant but not large effect on the Alaska economy. The long-term projected effect of cumulative OCS development on Alaska statewide population and employment rises to around a 4 percent difference by 2000 and declines slowly through 2015. For the Anchorage-Mat-Su Region of the state, the long-term effect – largely indirect – of OCS development remains as large in 2015 as in 2000. OCS activities cause about as large a percentage difference in employment and population in the Anchorage-Mat-Su region as in the state as a whole. The effect



on Anchorage-Mat-Su Region population and employment remains strong for longer than for the state as a whole due to the lags in the multiplier process producing these largely indirect effects.

We project that onshore facilities constructed for offshore petroleum development and reduced tariffs for transporting oil through the TAPS pipeline will contribute a significant amount of new revenues to state and local governments. Indirectly, additional economic activities resulting from expanded economic activities generate some additional tax revenues. These increases in revenues, however, barely cover the increased demand for public services created by the projected influx of new residents, an influx which is likely to occur at a time of severe state fiscal pressure.

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**APPENDIX A**

**MAP STATE MODEL SCENARIO ASSUMPTIONS  
WITH OCS DEVELOPMENT**

TABLE A.1  
MAP STATE MODEL SCENARIO ASSUMPTIONS  
WITH OCS DEVELOPMENT  
EXOGENOUS INDUSTRY EMPLOYMENT (THOUSANDS)

	AGRICULTURAL EMPLOYMENT	PETROLEUM EMPLOYMENT	HIGH-WAGE EXOGENOUS CONSTRUCTION EMPLOYMENT	LOW-WAGE EXOGENOUS CONSTRUCTION EMPLOYMENT	EXOGENOUS TRANSPORTATION EMPLOYMENT	MINING EMPLOYMENT
	-----	-----	-----	-----	-----	-----
1980	0.2	6.2	0.5	0.0	1.1	0.5
1981	0.3	8.1	1.6	0.0	1.1	0.8
1982	0.4	8.1	2.2	0.0	1.1	0.8
1983	0.4	7.4	3.0	0.0	1.1	0.7
1984	0.5	8.0	1.9	0.0	1.0	0.7
1985	0.5	8.9	1.2	0.0	0.9	0.6
1986	0.5	8.5	1.0	0.0	0.9	0.6
1987	0.5	8.1	0.4	0.0	0.9	0.7
1988	0.5	8.4	0.3	1.3	0.9	1.0
1989	0.5	8.6	0.4	1.0	3.6	1.1
1990	0.5	9.0	0.7	0.5	1.5	1.5
1991	0.5	9.2	1.7	0.2	1.2	1.7
1992	0.5	9.9	1.3	0.0	1.3	1.9
1993	0.5	10.2	0.9	0.2	1.3	2.4
1994	0.5	10.3	0.8	0.2	1.3	2.9
1995	0.5	10.3	0.9	0.0	1.3	3.0
1996	0.5	10.3	1.0	0.0	1.2	3.1
1997	0.5	11.0	1.8	0.0	1.3	3.1
1998	0.5	11.7	1.8	0.0	1.4	3.1
1999	0.5	13.2	2.0	0.0	1.6	3.2
2000	0.5	13.4	1.0	0.0	1.6	3.2
2001	0.5	13.0	1.0	0.0	1.5	3.3
2002	0.5	13.0	1.0	0.0	1.6	3.3
2003	0.5	12.9	1.0	0.0	1.6	3.3
2004	0.5	12.4	1.0	0.0	1.6	3.4
2005	0.5	12.5	1.0	0.0	1.6	3.4
2006	0.5	12.7	1.0	0.0	1.6	3.5
2007	0.5	12.8	1.0	0.0	1.6	3.5
2008	0.5	13.0	1.0	0.0	1.6	3.6
2009	0.5	13.1	1.0	0.0	1.6	3.6
2010	0.5	13.2	1.0	0.0	1.6	3.7
2011	0.5	13.3	1.0	0.0	1.6	3.7
2012	0.5	13.5	1.0	0.0	1.6	3.8
2013	0.5	13.6	1.0	0.0	1.6	3.8
2014	0.5	13.8	1.0	0.0	1.6	3.9
2015	0.5	13.9	1.0	0.0	1.6	4.0

SOURCES: 1980-1988, ALASKA DEPT. OF LABOR, STATISTICAL QUARTERLY;  
1989-2015, MAP MODEL INPUT SCENARIO MMSI--CREATED 7/90

TABLE A.1 (CONTINUED)

	HIGH-WAGE EXOGENOUS MANUFACTURING EMPLOYMENT	LOW-WAGE EXOGENOUS MANUFACTURING EMPLOYMENT	FISH HARVESTING EMPLOYMENT	ACTIVE DUTY MILITARY EMPLOYMENT	CIVILIAN FEDERAL EMPLOYMENT
1980	0.0	11.3	7.6	22.0	17.7
1981	0.0	11.3	7.9	22.5	17.5
1982	0.0	9.8	8.3	22.1	17.6
1983	0.0	8.9	7.9	22.3	17.7
1984	0.0	8.1	8.2	22.6	18.1
1985	0.0	8.7	8.4	23.1	17.6
1986	0.0	9.5	8.4	23.0	17.8
1987	0.0	9.9	8.4	24.4	17.9
1988	0.0	12.1	9.0	24.1	18.1
1989	0.0	12.2	9.0	24.1	18.2
1990	0.0	12.5	9.0	23.8	18.3
1991	0.0	12.5	9.1	23.9	18.4
1992	0.0	12.4	9.1	23.9	18.5
1993	0.0	12.2	9.1	23.9	18.6
1994	0.0	12.0	9.1	23.9	18.7
1995	0.0	11.9	9.1	23.9	18.8
1996	0.0	11.8	9.1	23.9	18.9
1997	0.0	11.8	9.1	23.9	19.0
1998	0.0	11.7	9.1	23.9	19.1
1999	0.0	11.7	9.1	23.9	19.2
2000	0.0	11.7	9.1	23.9	19.3
2001	0.0	11.7	9.1	23.9	19.4
2002	0.0	11.7	9.1	23.9	19.5
2003	0.0	11.7	9.1	23.9	19.6
2004	0.0	11.7	9.1	23.9	19.7
2005	0.0	11.7	9.1	23.9	19.8
2006	0.0	11.6	9.1	23.9	19.9
2007	0.0	11.6	9.1	23.9	20.0
2008	0.0	11.6	9.1	23.9	20.0
2009	0.0	11.6	9.1	23.9	20.1
2010	0.0	11.6	9.1	23.9	20.2
2011	0.0	11.6	9.1	23.9	20.3
2012	0.0	11.6	9.1	23.9	20.4
2013	0.0	11.6	9.1	23.9	20.5
2014	0.0	11.6	9.1	23.9	20.6
2015	0.0	11.6	9.1	23.9	20.8

SOURCES: 1980-1988, ALASKA DEPT. OF LABOR, STATISTICAL QUARTERLY;  
1989-2015, MAP MODEL INPUT SCENARIO MMSI--CREATED 7/90

TABLE A.2  
 MAP STATE MODEL SCENARIO ASSUMPTIONS  
 WITH OCS DEVELOPMENT  
 TOURISM ASSUMPTIONS  
 (THOUSANDS)

	TOURISTS VISITING ALASKA
	-----
1980	439.0
1981	447.0
1982	467.0
1983	485.0
1984	519.0
1985	555.0
1986	583.2
1987	588.5
1988	610.7
1989	629.0
1990	647.9
1991	667.3
1992	687.3
1993	708.0
1994	729.2
1995	751.1
1996	773.6
1997	796.8
1998	820.7
1999	845.3
2000	870.7
2001	896.8
2002	923.7
2003	951.4
2004	980.0
2005	1009.4
2006	1039.7
2007	1070.9
2008	1103.0
2009	1136.1
2010	1170.2
2011	1205.3
2012	1241.4
2013	1278.7
2014	1317.0
2015	1356.5

SOURCES: 1980-1988, MAP DATABASE FROM ALASKA VISITORS' ASSN.  
 1989-2015, MAP MODEL INPUT SCENARIO MMSI--CREATED 7/90

**TABLE A.3**  
**MAP STATE MODEL SCENARIO ASSUMPTIONS**  
**WITH OCS DEVELOPMENT**  
**PETROLEUM REVENUES (MILLION DOLLARS)**

	STATE PRODUCTION TAX REVENUE	STATE ROYALTY INCOME	STATE BONUS PAYMENT REVENUE	STATE PROPERTY TAX REVENUE	STATE CORPORATE PETROLEUM TAX REVENUE	SETTLEMENT REVENUE
1980	506.	917.	456.	169.	548.	0.
1981	1170.	1496.	10.	143.	860.	0.
1982	1581.	1548.	7.	143.	669.	0.
1983	1493.	1472.	49.	153.	236.	0.
1984	1392.	1404.	14.	131.	265.	0.
1985	1389.	1393.	16.	128.	169.	0.
1986	1107.	1108.	46.	114.	134.	419.
1987	647.	586.	1.	103.	120.	71.
1988	819.	954.	11.	96.	158.	329.
1989	699.	819.	23.	90.	166.	260.
1990	1002.	1023.	0.	85.	130.	111.
1991	1010.	1063.	0.	80.	139.	200.
1992	1011.	1097.	0.	75.	135.	210.
1993	991.	1109.	0.	70.	134.	221.
1994	941.	1087.	0.	64.	133.	232.
1995	881.	1050.	0.	57.	129.	243.
1996	830.	1031.	0.	52.	127.	255.
1997	777.	998.	0.	50.	112.	268.
1998	800.	1059.	0.	49.	103.	281.
1999	796.	1087.	0.	45.	94.	295.
2000	778.	1096.	0.	45.	85.	310.
2001	777.	1144.	0.	41.	79.	0.
2002	739.	1124.	0.	37.	73.	0.
2003	697.	1099.	0.	32.	69.	0.
2004	673.	1096.	0.	30.	64.	0.
2005	682.	1145.	0.	27.	66.	0.
2006	728.	1253.	0.	25.	60.	0.
2007	782.	1380.	0.	22.	56.	0.
2008	836.	1516.	0.	20.	45.	0.
2009	802.	1498.	0.	17.	42.	0.
2010	791.	1523.	0.	15.	38.	0.
2011	789.	1522.	0.	14.	38.	0.
2012	788.	1519.	0.	13.	38.	0.
2013	786.	1518.	0.	13.	38.	0.
2014	785.	1517.	0.	12.	38.	0.
2015	784.	1516.	0.	11.	38.	0.

SOURCES: 1980-1989, ALASKA DEPT. OF REVENUE, REVENUE SOURCES;  
1990-2015, MAP MODEL INPUT SCENARIO MMSI--CREATED 7/90



**APPENDIX B**

**MAP STATE MODEL PROJECTIONS WITH OCS DEVELOPMENT**

TABLE B.1. PROJECTION SUMMARY WITH OCS DEVELOPMENT

	POPULATION (000)	HOUSEHOLDS (000)	TOTAL EMPLOYMENT (000)	WAGE AND SALARY EMPLOYMENT (000)	PERSONAL INCOME (MILLION 1989 \$)	PETROLEUM REVENUES (MILLION 1989 \$)
1980	419.8	131.5	211.4	170.0	7221.2	3360.8
1981	433.8	-	227.7	185.4	7722.6	4428.4
1982	463.4	-	243.5	199.8	8767.2	4509.6
1983	497.6	-	257.5	212.8	9852.7	3886.5
1984	522.0	-	268.5	222.5	9890.1	3497.6
1985	541.3	-	275.0	228.1	10309.7	3276.2
1986	547.6	-	265.0	218.7	10146.6	3053.8
1987	537.8	-	254.9	208.0	9985.6	1596.9
1988	531.2	182.0	259.6	213.0	9975.8	2452.7
1989	542.3	186.3	272.2	224.5	10497.5	2092.9
1990	556.8	191.8	272.2	224.7	10607.9	2279.8
1991	566.4	195.6	276.4	228.5	10733.1	2311.6
1992	574.0	198.7	278.2	230.1	10846.7	2244.3
1993	583.4	202.3	282.8	234.4	11033.6	2145.7
1994	594.8	206.6	288.1	239.2	11257.3	1999.3
1995	601.2	209.2	286.5	237.7	11289.4	1846.7
1996	605.9	211.2	287.4	238.6	11381.5	1720.2
1997	612.9	214.0	291.1	242.0	11217.4	1584.1
1998	621.3	217.3	295.3	245.8	11454.6	1574.3
1999	633.1	221.6	302.0	251.9	11811.8	1522.9
2000	642.5	225.2	304.0	253.8	11999.3	1455.8
2001	649.7	228.1	305.2	254.9	12117.2	1234.8
2002	655.0	230.2	305.6	255.2	12173.8	1144.0
2003	658.8	231.9	305.3	255.0	12221.5	1054.4
2004	661.5	233.2	305.0	254.7	12245.7	991.6
2005	665.6	234.9	306.9	256.4	12357.7	978.0
2006	671.8	237.4	310.0	259.3	12555.3	1004.8
2007	680.0	240.5	313.9	262.8	12770.2	1040.1
2008	689.5	244.1	318.3	266.8	13013.6	1072.2
2009	699.8	247.9	322.4	270.6	13262.6	1002.8
2010	709.8	251.7	325.9	273.8	13493.1	962.9
2011	718.7	255.0	328.3	276.0	13678.7	921.0
2012	725.6	257.7	329.3	276.8	13762.1	880.2
2013	731.5	260.0	330.6	278.0	13883.7	841.6
2014	737.2	262.3	332.4	279.7	14022.6	805.1
2015	743.2	264.7	334.4	281.6	14167.4	769.8

SOURCES: 1980-1987, MAP DATABASE;  
1988-2015, ISER MAP MODEL SIMULATION MMSI, CREATED 7/90

POPULATION (POP) IS JULY 1, CENSUS DEFINITION.

HOUSEHOLDS (HH) IS JULY 1 (EXCEPT IN 1980), CENSUS DEFINITION.

TOTAL EMPLOYMENT (EM99) INCLUDES ACTIVE DUTY MILITARY AND PROPRIETORS--PRE-1985 PROPRIETOR DEFINITION.

WAGE AND SALARY EMPLOYMENT (EM97) IS ALASKA DEPARTMENT OF LABOR DEFINITION.

PERSONAL INCOME (DF.PIB) IS US BEA DEFINITION.

PETROLEUM REVENUES (DF.RP9S) INCLUDES PERMANENT FUND CONTRIBUTION.

TABLE B.2. EMPLOYMENT BY SECTOR WITH OCS DEVELOPMENT  
(THOUSANDS)

	TOTAL EMPLOYMENT	BASIC EMPLOYMENT	INFRA- STRUCTURE EMPLOYMENT	SUPPORT EMPLOYMENT	GOVERNMENT EMPLOYMENT
1980	211.4	73.4	30.1	71.6	36.3
1981	227.7	77.8	33.3	78.0	38.6
1982	243.5	78.2	37.5	86.3	41.5
1983	257.5	78.1	41.1	94.1	44.1
1984	268.5	78.8	42.5	100.8	46.4
1985	275.0	79.6	41.7	104.5	49.2
1986	265.0	80.1	35.3	100.8	48.8
1987	254.9	81.0	31.9	95.4	46.5
1988	259.6	85.1	29.0	98.2	47.2
1989	272.2	90.3	28.4	103.2	50.3
1990	272.2	88.3	29.7	104.3	49.8
1991	276.4	89.1	30.4	105.9	51.0
1992	278.2	89.1	31.4	107.3	50.3
1993	282.8	89.9	32.2	109.1	51.7
1994	288.1	90.5	32.3	111.2	54.1
1995	286.5	90.8	30.9	110.4	54.4
1996	287.4	91.2	30.4	111.0	54.8
1997	291.1	93.1	30.4	112.2	55.5
1998	295.3	94.3	30.9	114.1	55.9
1999	302.0	96.6	31.9	117.3	56.2
2000	304.0	96.2	32.5	119.0	56.4
2001	305.2	96.2	32.9	120.2	55.9
2002	305.6	96.7	32.9	121.1	54.8
2003	305.3	97.1	32.6	121.7	53.9
2004	305.0	97.0	32.4	122.0	53.5
2005	306.9	97.6	32.7	122.9	53.7
2006	310.0	98.2	33.1	124.6	54.1
2007	313.9	98.9	33.6	126.7	54.7
2008	318.3	99.5	34.4	129.1	55.2
2009	322.4	100.1	35.3	131.6	55.3
2010	325.9	100.8	36.2	134.0	54.9
2011	328.3	101.4	36.5	136.0	54.3
2012	329.3	102.1	36.0	137.3	53.9
2013	330.6	102.8	35.8	138.6	53.4
2014	332.4	103.6	36.1	139.9	52.8
2015	334.4	104.3	36.4	141.4	52.4

SOURCES: 1980-1987, MAP DATABASE;

1988-2015, ISER MAP MODEL SIMULATION MMSI, CREATED 7/90

TOTAL EMPLOYMENT (EM99).

BASIC EMPLOYMENT (EM9BASE) INCLUDES EXOGENOUS COMPONENTS OF CONSTRUCTION, MANUFACTURING, TRANSPORTATION, MINING, PETROLEUM, TOURISM, FEDERAL GOVERNMENT, AGRICULTURE, FORESTRY, AND FISH HARVESTING.

INFRASTRUCTURE EMPLOYMENT (EM9INFR) INCLUDES TRANSPORTATION, COMMUNICATIONS, PUBLIC UTILITIES, ENDOGENOUS CONSTRUCTION, AND BUSINESS SERVICES NET OF EXOGENOUS AND TOURISM-RELATED TRANSPORTATION.

SUPPORT EMPLOYMENT (EM9SUPRT) INCLUDES TRADE, FINANCE, SERVICES, LOCAL MANUFACTURING, AND PROPRIETORS NOT ENGAGED IN FISH HARVESTING, NET OF TRADE AND SERVICE TOURISM EMPLOYMENT AND BUSINESS SERVICES.

GOVERNMENT EMPLOYMENT (EMGA) INCLUDES STATE AND LOCAL GOVERNMENT

TABLE B.3. PRIVATE EMPLOYMENT WITH OCS DEVELOPMENT  
(THOUSANDS)

	TOTAL PRIVATE	AGRIC., FORESTRY, FISHERIES	MINING AND PETROLEUM	CONSTRUCTION	MANUFACTURING	TRANSPORT., COMMUNICATION, PUBLIC UTILITIES	TRADE, FINANCE, SERVICES
1980	135.4	8.3	6.7	10.6	14.0	17.1	78.7
1981	149.2	9.0	8.9	12.9	14.0	18.2	86.1
1982	162.2	10.0	8.8	16.8	12.6	18.4	95.6
1983	173.4	9.9	8.2	20.8	11.9	18.6	104.0
1984	181.4	10.4	8.7	20.3	11.3	18.9	111.7
1985	185.2	10.1	9.5	18.6	12.1	18.7	116.2
1986	175.4	10.1	9.1	13.4	12.6	18.0	112.3
1987	166.0	9.8	8.8	10.1	12.9	17.8	106.7
1988	170.2	9.8	9.3	10.7	14.9	17.9	107.6
1989	179.6	9.8	9.7	9.3	17.0	20.7	113.1
1990	180.3	9.8	10.5	9.6	16.5	19.5	114.4
1991	183.1	9.8	10.9	10.7	16.0	19.5	116.2
1992	185.4	9.8	11.8	10.9	15.3	19.7	117.9
1993	188.6	9.8	12.5	11.2	15.1	20.0	120.0
1994	191.4	9.8	13.2	10.8	15.0	20.3	122.4
1995	189.4	9.8	13.4	9.7	14.8	20.1	121.8
1996	189.8	9.8	13.4	9.1	14.7	20.2	122.6
1997	192.8	9.8	14.1	9.7	14.7	20.4	124.0
1998	196.4	9.8	14.9	9.8	14.7	20.9	126.3
1999	202.7	9.8	16.4	10.4	14.7	21.6	129.9
2000	204.5	9.8	16.6	9.6	14.7	21.9	131.9
2001	206.0	9.8	16.3	9.9	14.7	22.0	133.4
2002	207.4	9.8	16.3	9.8	14.7	22.2	134.6
2003	207.9	9.8	16.3	9.3	14.7	22.3	135.5
2004	207.9	9.8	15.8	9.1	14.7	22.4	136.1
2005	209.5	9.8	16.0	9.1	14.7	22.6	137.3
2006	212.1	9.8	16.1	9.2	14.7	22.9	139.4
2007	215.4	9.8	16.3	9.4	14.7	23.3	141.9
2008	219.1	9.8	16.5	9.7	14.7	23.7	144.7
2009	223.0	9.8	16.7	10.1	14.8	24.0	147.6
2010	226.8	9.8	16.9	10.6	14.8	24.4	150.4
2011	229.7	9.8	17.1	10.5	14.8	24.7	152.9
2012	231.1	9.8	17.3	9.9	14.8	24.9	154.5
2013	232.8	9.8	17.5	9.5	14.8	25.1	156.1
2014	235.0	9.8	17.7	9.5	14.8	25.4	157.9
2015	237.4	9.8	17.9	9.5	14.8	25.7	159.8

SOURCES: 1980-1987, MAP DATABASE;  
1988-2015, ISER MAP MODEL SIMULATION MMSI, CREATED 7/90

PRIVATE (EMPVT) IS ALL NON-GOVERNMENT. AGRICULTURE, FORESTRY, FISHERIES (EMAFF).  
MINING AND PETROLEUM (EMP9). CONSTRUCTION (EMCN). MANUFACTURING (EMM9).  
TRANSPORTATION, COMMUNICATIONS, PUBLIC UTILITIES (EMTCU).  
TRADE, FINANCE, AND SERVICES (EMSUP) INCLUDES PROPRIETORS NOT INVOLVED  
IN FISH HARVESTING.

TABLE B.4. GOVERNMENT EMPLOYMENT WITH OCS DEVELOPMENT  
(THOUSANDS)

	TOTAL	MILITARY	FEDERAL CIVILIAN	STATE	LOCAL
1980	76.0	22.0	17.7	15.4	20.9
1981	78.5	22.5	17.5	16.6	22.0
1982	81.3	22.1	17.6	18.0	23.5
1983	84.1	22.3	17.7	18.9	25.2
1984	87.1	22.6	18.1	19.3	27.1
1985	89.8	23.1	17.6	20.5	28.7
1986	89.6	23.0	17.8	20.2	28.6
1987	88.9	24.4	17.9	18.7	27.8
1988	89.4	24.1	18.1	19.2	28.0
1989	92.6	24.1	18.2	20.7	29.6
1990	91.9	23.8	18.3	20.6	29.2
1991	93.3	23.9	18.4	21.6	29.5
1992	92.8	23.9	18.5	21.1	29.2
1993	94.2	23.9	18.6	21.3	30.4
1994	96.7	23.9	18.7	22.3	31.8
1995	97.1	23.9	18.8	22.6	31.8
1996	97.6	23.9	18.9	23.1	31.7
1997	98.4	23.9	19.0	23.5	31.9
1998	98.9	23.9	19.1	23.8	32.1
1999	99.2	23.9	19.2	24.0	32.2
2000	99.5	23.9	19.3	24.1	32.3
2001	99.2	23.9	19.4	23.7	32.2
2002	98.2	23.9	19.5	23.1	31.7
2003	97.4	23.9	19.6	22.8	31.1
2004	97.1	23.9	19.7	22.6	30.9
2005	97.3	23.9	19.8	22.7	30.9
2006	97.9	23.9	19.9	23.1	31.1
2007	98.6	23.9	20.0	23.5	31.2
2008	99.2	23.9	20.0	24.0	31.2
2009	99.4	23.9	20.1	24.2	31.1
2010	99.0	23.9	20.2	23.9	30.9
2011	98.6	23.9	20.3	23.4	31.0
2012	98.2	23.9	20.4	22.8	31.0
2013	97.8	23.9	20.5	22.4	30.9
2014	97.4	23.9	20.6	22.1	30.7
2015	97.0	23.9	20.8	21.9	30.5

SOURCES: 1980-1987, MAP DATABASE;  
1988-2015, ISER MAP MODEL SIMULATION MMSI, CREATED 7/90

TOTAL (EMG9).

MILITARY (EMGM) IS ACTIVE DUTY.

FEDERAL CIVILIAN (EMGC).

STATE (EMGS) INCLUDES UNIVERSITY OF ALASKA.

LOCAL (EMGL).

TABLE B.5. POPULATION CHANGE WITH OCS DEVELOPMENT  
(THOUSANDS)

	COMPONENTS OF CHANGE				
	TOTAL POPULATION	TOTAL ANNUAL CHANGE	NATURAL INCREASE	NON- MILITARY MIGRATION	MILITARY MIGRATION
1980	419.8	6.1	7.7	2.0	-3.7
1981	433.8	14.0	8.2	5.8	-0.0
1982	463.4	29.6	9.0	22.3	-1.7
1983	497.6	34.2	9.9	25.0	-0.6
1984	522.0	24.4	10.4	14.4	-0.3
1985	541.3	19.3	10.7	8.6	0.0
1986	547.6	6.3	10.4	-2.9	-1.2
1987	537.8	-9.8	9.8	-21.7	2.0
1988	531.2	-6.6	9.3	-15.6	-0.4
1989	542.3	11.1	9.0	3.3	-1.0
1990	556.8	14.5	9.2	7.3	-1.5
1991	566.4	9.6	9.4	1.1	-0.9
1992	574.0	7.6	9.6	-0.8	-1.0
1993	583.4	9.3	9.6	0.8	-1.0
1994	594.8	11.4	9.7	2.8	-1.0
1995	601.2	6.4	9.9	-2.7	-1.0
1996	605.9	4.7	9.9	-4.0	-1.0
1997	612.9	7.0	9.8	-1.7	-1.0
1998	621.3	8.4	9.9	-0.4	-1.0
1999	633.1	11.8	10.0	3.0	-1.0
2000	642.5	9.4	10.1	0.3	-1.0
2001	649.7	7.2	10.2	-1.8	-1.0
2002	655.0	5.3	10.3	-3.7	-1.0
2003	658.8	3.8	10.3	-5.3	-1.0
2004	661.5	2.7	10.2	-6.3	-1.0
2005	665.6	4.1	10.2	-4.6	-1.0
2006	671.8	6.2	10.1	-2.6	-1.0
2007	680.0	8.2	10.2	-0.9	-1.0
2008	689.5	9.6	10.3	0.4	-1.0
2009	699.8	10.3	10.4	1.0	-1.0
2010	709.8	10.0	10.6	0.6	-1.0
2011	718.7	8.9	10.7	-0.7	-1.0
2012	725.6	6.9	10.8	-2.9	-1.0
2013	731.5	5.9	10.9	-3.8	-1.0
2014	737.2	5.8	10.9	-3.7	-1.0
2015	743.2	6.0	10.9	-3.5	-1.0

SOURCES: 1980-1987, MAP DATABASE; 1988-2015, ISEER MAP MODEL SIMULATION MMSI, CREATED 7/90

NOTE: POPULATION IS EQUAL TO POPULATION IN PRIOR YEAR PLUS MIGRATION AND NATURAL INCREASE. THE SUM OF COMPONENTS DOES NOT EQUAL THE TOTAL DUE TO ROUNDING IN THE ALLOCATION OF MIGRANTS TO INDIVIDUAL COHORTS.

POPULATION (POP) IS JULY 1, CENSUS DEFINITION.

ANNUAL CHANGE IN POPULATION (DELPOP) IS YEAR TO YEAR JULY 1 CHANGE.

NATURAL INCREASE (POPNI9) INCLUDES CIVILIAN AND MILITARY. NON-MILITARY MIGRATION (POPMIG)

MILITARY MIGRATION (POPMIGM) INCLUDES ACTIVE DUTY MILITARY PLUS DEPENDENTS.

**TABLE B.6. POPULATION COMPONENTS WITH OCS DEVELOPMENT  
(THOUSANDS)**

	<b>TOTAL</b>	<b>CIVILIAN NON-NATIVE</b>	<b>NATIVE</b>	<b>MILITARY</b>
1980	419.8	310.0	64.1	45.7
1981	433.8	319.4	67.8	46.6
1982	463.4	348.3	69.2	45.9
1983	497.6	380.2	71.1	46.3
1984	522.0	402.0	73.1	46.9
1985	541.3	418.3	75.1	47.9
1986	547.6	423.0	76.9	47.7
1987	537.8	408.4	78.6	50.8
1988	531.2	401.9	79.3	50.0
1989	542.3	411.2	81.1	50.0
1990	556.8	424.3	83.0	49.5
1991	566.4	431.8	84.9	49.7
1992	574.0	437.5	86.9	49.7
1993	583.4	444.9	88.8	49.7
1994	594.8	454.4	90.7	49.7
1995	601.2	458.9	92.7	49.7
1996	605.9	461.5	94.7	49.7
1997	612.9	466.5	96.7	49.7
1998	621.3	472.9	98.8	49.7
1999	633.1	482.6	100.8	49.7
2000	642.5	489.9	103.0	49.7
2001	649.7	494.9	105.1	49.7
2002	655.0	498.0	107.3	49.7
2003	658.8	499.6	109.5	49.7
2004	661.5	500.1	111.8	49.7
2005	665.6	501.8	114.1	49.7
2006	671.8	505.7	116.5	49.7
2007	680.0	511.4	118.9	49.7
2008	689.5	518.6	121.3	49.7
2009	699.8	526.3	123.8	49.7
2010	709.8	533.8	126.3	49.7
2011	718.7	540.1	128.9	49.7
2012	725.6	544.4	131.6	49.7
2013	731.5	547.6	134.2	49.7
2014	737.2	550.6	136.9	49.7
2015	743.2	553.9	139.7	49.7

**SOURCES: 1980-1987, MAP DATABASE;  
1988-2015, ISER MAP MODEL SIMULATION MMSI, CREATED 7/90**

**POPULATION (POP) IS JULY 1, CENSUS DEFINITION.  
CIVILIAN NON-NATIVE (CNNTOT).  
NATIVE (NATTOT) CIVILIAN IS JULY 1 ESTIMATE EXCEPT 1980 IS APRIL 1.  
MILITARY (MILTOT) IS ACTIVE DUTY PLUS DEPENDENTS.**

TABLE B.7. STATE UNRESTRICTED GENERAL FUND WITH OCS DEVELOPMENT  
(MILLION 1989 DOLLARS)

	REVENUES				
	EXPENDITURES	TOTAL	PETROLEUM	ENDOGENOUS	INVESTMENT EARNINGS
1980	1512.6	3225.9	2916.1	324.6	154.6
1981	4226.6	4452.5	3967.3	212.4	272.8
1982	3851.9	4654.3	4055.9	230.5	367.8
1983	4328.0	4084.7	3412.9	249.1	422.8
1984	3493.3	3668.4	3101.4	261.1	305.9
1985	3524.0	3429.0	2889.2	294.2	245.6
1986	2859.2	3178.3	2748.5	228.1	201.7
1987	3744.7	1856.3	1440.3	248.9	167.0
1988	2604.4	2475.9	2030.7	246.3	198.9
1989	2309.2	2276.1	1873.2	248.1	154.8
1990	2403.6	2362.3	1963.5	247.1	151.7
1991	2699.1	2341.8	1948.4	248.6	144.8
1992	2205.6	2239.4	1874.2	250.2	115.0
1993	2142.1	2136.2	1774.4	250.3	111.6
1994	2144.5	2115.0	1635.5	250.5	228.9
1995	2185.7	2145.8	1492.0	407.0	246.8
1996	2220.1	2174.7	1371.5	539.2	264.0
1997	2229.3	2227.4	1245.7	537.5	444.2
1998	2263.4	2265.4	1225.0	539.4	501.0
1999	2274.8	2279.0	1170.5	550.0	558.5
2000	2286.9	2278.0	1104.9	556.8	616.3
2001	2204.4	2196.2	971.9	555.5	668.8
2002	2164.8	2163.7	889.7	554.4	719.6
2003	2129.8	2131.4	809.8	553.0	768.6
2004	2125.7	2118.4	751.9	550.9	815.5
2005	2141.7	2142.7	732.7	550.1	860.0
2006	2192.3	2199.3	742.7	553.4	903.2
2007	2253.3	2262.9	758.7	559.9	944.2
2008	2319.0	2319.5	770.7	566.4	982.5
2009	2296.6	2296.7	710.7	572.5	1013.4
2010	2243.7	2243.1	672.6	578.1	992.5
2011	2191.8	2191.2	636.9	582.2	972.1
2012	2137.5	2138.0	602.7	583.2	952.0
2013	2083.6	2086.1	570.6	583.0	932.5
2014	2034.8	2037.6	540.3	583.8	913.5
2015	1993.1	1996.6	516.5	585.3	894.8

SOURCES: 1980-1987, MAP DATABASE;  
1988-2015, ISER MAP MODEL SIMULATION MMSI, CREATED 7/90

EXPENDITURES (DF.EXGFB) IS UNRESTRICTED GENERAL FUND EXPENDITURES.

TOTAL REVENUES (DF.RSGFB).

PETROLEUM REVENUES (DF.RP9SG) EXCLUDES PERMANENT FUND CONTRIBUTION.

ENDOGENOUS REVENUES (DF.RSENG) IS TOTAL NET OF PETROLEUM AND INVESTMENT EARNINGS.

INVESTMENT EARNINGS (DF.RSIN) IS EARNINGS FROM ALL SOURCES DEPOSITED IN THE GENERAL FUND.



TABLE B.8. STATE GOVERNMENT MISCELLANEOUS VARIABLES WITH OCS DEVELOPMENT  
(MILLION 1989 DOLLARS)

GENERAL FUND APPROPRIATIONS							
TOTAL	OPERATING	CAPITAL	DEBT SERVICE	PERMANENT FUND DIVIDEND	PERMANENT FUND BALANCE	PERSONAL INCOME TAX	
1980	1464.4	-	-	98.3	0.0	623.2	129.6
1981	5940.2	-	-	117.0	0.0	2188.2	0.0
1982	6415.9	-	-	115.9	541.7	3639.7	0.0
1983	3435.5	-	-	161.6	210.9	4921.6	0.0
1984	3418.0	-	-	180.0	173.2	5816.0	0.0
1985	4072.6	-	-	178.3	221.5	6841.3	0.0
1986	2926.3	-	-	168.7	306.1	7797.5	0.0
1987	2473.5	-	-	159.8	390.3	8658.5	0.0
1988	2570.7	1862.9	556.2	151.6	398.6	9446.4	0.0
1989	2247.3	1658.0	452.9	136.5	409.3	9746.3	0.0
1990	2421.9	1847.3	458.4	116.2	403.6	9971.6	0.0
1991	2689.9	1901.5	425.3	89.1	371.2	10451.8	0.0
1992	2165.7	1752.1	349.9	63.6	343.3	10840.8	0.0
1993	2121.9	1736.1	305.8	79.9	362.6	11225.0	0.0
1994	2128.1	1758.3	269.2	100.6	374.7	11477.5	0.0
1995	2171.2	1815.6	236.9	118.7	387.1	11689.4	159.3
1996	2205.0	1884.2	204.1	116.7	396.7	11811.6	293.9
1997	2241.9	1920.3	213.4	108.3	0.0	12189.9	291.6
1998	2272.4	1953.3	217.0	102.1	0.0	12533.5	292.4
1999	2282.4	1966.8	218.5	97.0	0.0	12831.8	300.2
2000	2294.9	1983.6	220.4	90.8	0.0	13077.3	305.9
2001	2204.2	1896.0	210.7	97.5	0.0	13180.6	307.1
2002	2167.5	1849.9	205.5	112.1	0.0	13223.1	306.6
2003	2133.2	1814.2	201.6	117.4	0.0	13204.2	306.3
2004	2132.0	1817.7	202.0	112.3	0.0	13129.9	305.2
2005	2149.3	1837.6	204.2	107.5	0.0	13012.7	304.2
2006	2202.5	1889.6	210.0	102.9	0.0	12865.8	306.6
2007	2264.4	1950.1	216.7	97.6	0.0	12693.5	311.4
2008	2331.0	2019.8	224.4	86.7	0.0	12498.7	316.0
2009	2302.2	2004.9	222.8	74.5	0.0	12253.9	320.3
2010	2245.7	1944.2	216.0	85.5	0.0	12018.2	324.2
2011	2192.4	1868.5	207.6	116.3	0.0	11786.5	327.2
2012	2138.6	1802.5	200.3	135.8	0.0	11558.2	327.6
2013	2086.4	1760.8	195.6	129.9	0.0	11333.6	326.9
2014	2037.8	1723.4	191.5	122.9	0.0	11112.6	326.8
2015	1996.7	1695.9	188.4	112.3	0.0	10889.8	327.2

SOURCES: 1980-1987, MAP DATABASE;  
1988-2015, ISER MAP MODEL SIMULATION MMSI, CREATED 7/90

TOTAL (DF.APGF). OPERATING (DF.APGFO). CAPITAL (DF.APGFC).  
DEBT SERVICE (DF.EXDSS) INCLUDES ONLY GENERAL OBLIGATION DEBT OF STATE.  
PERMANENT FUND DIVIDEND (DF.EXTRN). PERMANENT FUND BALANCE (DF.BALPF).  
PERSONAL INCOME TAX (DF.RTIS).

TABLE B.9. COMPONENTS OF REAL PERSONAL INCOME WITH OCS DEVELOPMENT  
(MILLION 1989 DOLLARS)

	WAGE AND SALARY PAYMENTS	NET EARNINGS	RESIDENCE ADJUSTMENT	DIVIDENDS, INTEREST, RENT	TRANSFERS	PERSONAL INCOME	DISPOSABLE PERSONAL INCOME
	-----	-----	-----	-----	-----	-----	-----
1980	5664.5	6496.7	428.5	525.4	628.0	7221.2	6040.4
1981	6286.0	6935.2	484.2	599.4	672.0	7722.6	6293.1
1982	6889.6	7612.5	555.1	681.3	1028.9	8767.2	7279.2
1983	7501.0	8508.0	608.2	827.8	1125.2	9852.7	8247.5
1984	7567.2	8599.0	595.3	915.3	971.1	9890.1	8427.0
1985	7500.2	8650.7	598.6	997.8	1259.8	10309.7	8949.8
1986	7041.3	8284.4	512.0	1037.7	1336.4	10146.6	8781.4
1987	6645.1	7912.0	467.2	1099.2	1441.6	9985.6	8531.3
1988	6860.1	7764.2	465.8	1015.2	1479.8	9975.8	8511.5
1989	7165.5	8312.0	492.9	1022.0	1470.8	10497.5	8935.8
1990	7226.9	8344.9	505.8	1072.0	1513.7	10607.9	9041.2
1991	7450.7	8456.9	562.2	1130.2	1524.9	10733.1	9128.8
1992	7565.8	8521.8	556.0	1170.7	1528.4	10846.7	9220.5
1993	7665.0	8607.3	549.3	1210.0	1585.9	11033.6	9378.2
1994	7773.7	8725.7	550.7	1259.0	1645.6	11257.3	9565.6
1995	7768.9	8696.7	556.7	1299.3	1675.7	11289.4	9379.9
1996	7825.3	8743.9	564.5	1326.8	1704.1	11381.5	9466.5
1997	8021.9	8948.7	609.7	1360.5	1347.7	11217.4	9306.9
1998	8199.1	9125.3	623.6	1399.6	1384.8	11454.6	9499.7
1999	8482.6	9410.5	653.5	1450.6	1436.5	11811.8	9793.1
2000	8540.1	9464.6	617.9	1508.0	1480.1	11999.3	9945.4
2001	8597.1	9512.7	622.1	1553.3	1512.2	12117.2	10049.4
2002	8641.1	9532.6	626.1	1582.8	1526.7	12173.8	10097.7
2003	8663.3	9542.0	628.4	1608.8	1544.9	12221.5	10133.8
2004	8671.6	9537.9	629.4	1627.9	1558.7	12245.7	10155.6
2005	8774.0	9626.5	636.6	1645.2	1575.1	12357.7	10256.0
2006	8907.7	9764.0	646.6	1679.0	1614.5	12555.3	10412.4
2007	9064.6	9913.0	658.5	1719.8	1654.4	12770.2	10582.1
2008	9234.9	10074.9	671.0	1770.8	1700.6	13013.6	10782.4
2009	9400.4	10230.6	683.1	1829.2	1751.0	13262.6	10987.3
2010	9546.1	10364.1	693.9	1890.5	1800.9	13493.1	11176.8
2011	9654.8	10458.4	702.1	1948.9	1845.9	13678.7	11329.2
2012	9717.0	10488.6	707.3	1990.9	1866.3	13762.1	11401.8
2013	9795.2	10548.7	713.0	2031.6	1896.9	13883.7	11505.9
2014	9898.0	10632.1	720.3	2068.8	1926.8	14022.6	11625.8
2015	10007.3	10721.1	728.5	2106.2	1957.5	14167.4	11746.1

SOURCES: 1980-1987, MAP DATABASE;  
1988-2015, ISER MAP MODEL SIMULATION MMSI, CREATED 7/90

WAGE AND SALARY PAYMENTS (DF.PIWS) IN NONAGRICULTURAL WAGE AND SALARY  
JOB CATEGORIES PLUS MILITARY.  
NET EARNINGS (DF.PINE) IS NET LABOR AND PROPRIETORS' INCOME BY PLACE OF WORK.  
RESIDENCE ADJUSTMENT (DF.PIRAD). DIVIDENDS, INTEREST, AND RENT (DF.PIDIR).  
TRANSFERS (DF.PITRAN). PERSONAL INCOME (DF.PIB).  
DISPOSABLE PERSONAL INCOME (DF.DPIB)

TABLE B.10. PRICE INDEXES WITH OCS DEVELOPMENT

	ANCHORAGE CPI-W -----	ALASKA/US PRICE LEVEL -----
1980	86.3	1.290
1981	92.9	1.261
1982	98.2	1.257
1983	98.9	1.229
1984	102.9	1.235
1985	105.8	1.227
1986	107.7	1.230
1987	107.9	1.189
1988	108.3	1.148
1989	111.3	1.126
1990	116.6	1.121
1991	121.9	1.116
1992	127.4	1.111
1993	133.2	1.106
1994	139.2	1.101
1995	145.5	1.096
1996	152.8	1.096
1997	159.7	1.091
1998	166.9	1.086
1999	174.4	1.081
2000	182.3	1.076
2001	190.5	1.071
2002	199.1	1.066
2003	208.0	1.061
2004	217.4	1.056
2005	227.2	1.051
2006	237.4	1.046
2007	248.1	1.041
2008	259.2	1.035
2009	270.9	1.030
2010	283.0	1.025
2011	295.7	1.020
2012	309.0	1.015
2013	322.8	1.010
2014	337.3	1.005
2015	352.3	1.000

SOURCES: 1980-1987, MAP DATABASE;  
1988-2015, ISER MAP MODEL SIMULATION MMSI, CREATED 7/90

ANCHORAGE CPI (PDANCPI) CONSUMER PRICE INDEX FOR URBAN WAGE EARNERS  
(1982-1984 = 100).

ALASKA/US PRICE LEVEL (PDRATIO) IS THE RATIO OF ANCHORAGE AND  
US CONSUMER PRICE INDEX LEVELS.

**APPENDIX C**

**MAP MODEL REGIONAL PROJECTIONS  
WITHOUT AND WITH OCS DEVELOPMENT**

TABLE C.1.  
MAP REGIONAL MODEL PROJECTIONS  
WITHOUT OCS DEVELOPMENT  
ANCHORAGE MAT-SU REGION  
EMPLOYMENT  
(THOUSANDS)

	BASIC	SUPPORT	GOVERNMENT	TOTAL	WAGE AND SALARY
1988	25.436	61.173	38.449	125.058	105.033
1989	26.684	65.144	39.614	131.441	110.780
1990	26.189	65.807	39.145	131.141	110.854
1991	26.688	66.054	39.303	132.046	111.849
1992	27.216	66.278	39.117	132.611	112.427
1993	27.876	67.124	39.643	134.643	114.238
1994	28.246	68.190	40.535	136.971	116.298
1995	27.872	67.559	40.676	136.106	115.486
1996	27.819	68.043	40.871	136.732	116.077
1997	27.948	67.749	41.106	136.804	116.137
1998	28.268	68.158	41.133	137.559	116.834
1999	28.743	69.078	41.180	139.001	118.166
2000	29.253	69.994	41.221	140.468	119.514
2001	29.689	70.678	40.990	141.357	120.341
2002	29.893	71.329	40.597	141.820	120.801
2003	29.951	71.827	40.368	142.146	121.127
2004	30.176	72.425	40.307	142.908	121.849
2005	30.602	73.428	40.443	144.473	123.290
2006	31.107	74.615	40.705	146.427	125.055
2007	31.722	76.082	41.004	148.808	127.218
2008	32.446	77.795	41.275	151.517	129.683
2009	33.210	79.638	41.386	154.234	132.166
2010	33.943	81.436	41.305	156.685	134.420
2011	34.388	82.989	41.191	158.568	136.161
2012	34.466	83.970	41.086	159.521	137.041
2013	34.669	84.970	40.984	160.623	138.077
2014	35.120	86.048	40.865	162.033	139.390
2015	35.606	87.161	40.775	163.542	140.779

SOURCE: DSET MMSBR, DATE OF CREATION: 7/90  
VARIABLES: B.AM, S.AM, G.AM, M.AM, M97.AM

TABLE C.2.  
MAP REGIONAL MODEL PROJECTIONS  
WITHOUT OCS DEVELOPMENT  
ANCHORAGE MAT-SU REGION  
POPULATION  
(THOUSANDS)

	POPULATION			HOUSEHOLDS	
	STATE	U.S.BEA	BOROUGH	NUMBER	SIZE
1988	261.113	259.513	263.990	93.527	2.737
1989	268.529	266.886	271.520	96.363	2.733
1990	275.630	273.948	278.754	99.160	2.727
1991	279.089	277.397	282.376	100.612	2.723
1992	281.699	279.997	285.092	101.782	2.717
1993	285.769	284.045	289.236	103.445	2.713
1994	290.890	289.138	294.451	105.460	2.709
1995	293.218	291.457	296.869	106.523	2.704
1996	295.131	293.362	298.850	107.431	2.699
1997	296.269	294.495	300.032	108.054	2.694
1998	298.032	296.250	301.836	108.886	2.690
1999	301.003	299.202	304.840	110.136	2.686
2000	304.332	302.512	308.220	111.501	2.683
2001	307.156	305.320	311.085	112.689	2.680
2002	309.411	307.562	313.388	113.677	2.676
2003	311.148	309.290	315.160	114.477	2.673
2004	313.050	311.183	317.103	115.321	2.670
2005	316.104	314.218	320.193	116.558	2.668
2006	320.229	318.319	324.381	118.161	2.666
2007	325.331	323.391	329.551	120.106	2.666
2008	331.310	329.336	335.624	122.357	2.665
2009	337.742	335.730	342.148	124.774	2.665
2010	344.004	341.957	348.518	127.138	2.665
2011	349.449	347.372	354.059	129.223	2.664
2012	353.354	351.258	358.066	130.774	2.662
2013	356.718	354.604	361.503	132.136	2.660
2014	360.137	358.004	364.978	133.510	2.659
2015	363.753	361.598	368.644	134.946	2.657

SOURCE: DSET MMSBR, DATE OF CREATION: 7/90  
VARIABLES: PCEN.AM, PBEA.AM, PBOR.AM, HHCEN.AM, HSIZE.AM

TABLE C.3.  
MAP REGIONAL MODEL PROJECTIONS  
WITHOUT OCS DEVELOPMENT  
ANCHORAGE MAT-SU REGION  
PERSONAL INCOME

	NOMINAL \$		1989 \$			
	PERSONAL INCOME (MILLION \$)	DISPOSABLE PERSONAL INCOME (MILLION \$)	PERSONAL INCOME (MILLION \$)	DISPOSABLE PERSONAL INCOME (MILLION \$)	PER CAPITA INCOME (\$)	PER CAPITA DISPOSABLE INCOME (\$)
1988	\$ 5263	\$ 4490	\$ 5408	\$ 4614	\$20840	\$17781
1989	\$ 5807	\$ 4943	\$ 5807	\$ 4943	\$21760	\$18522
1990	\$ 6086	\$ 5187	\$ 5809	\$ 4950	\$21203	\$18070
1991	\$ 6319	\$ 5374	\$ 5744	\$ 4885	\$20706	\$17611
1992	\$ 6607	\$ 5620	\$ 5745	\$ 4887	\$20518	\$17455
1993	\$ 7013	\$ 5962	\$ 5835	\$ 4960	\$20541	\$17461
1994	\$ 7471	\$ 6349	\$ 5947	\$ 5053	\$20566	\$17478
1995	\$ 7824	\$ 6502	\$ 5958	\$ 4951	\$20442	\$16988
1996	\$ 8286	\$ 6893	\$ 6009	\$ 4999	\$20482	\$17040
1997	\$ 8402	\$ 6980	\$ 5830	\$ 4843	\$19796	\$16445
1998	\$ 8901	\$ 7395	\$ 5882	\$ 4886	\$19853	\$16494
1999	\$ 9455	\$ 7849	\$ 5978	\$ 4962	\$19979	\$16585
2000	\$10020	\$ 8317	\$ 6061	\$ 5031	\$20036	\$16629
2001	\$10548	\$ 8758	\$ 6105	\$ 5069	\$19994	\$16602
2002	\$11101	\$ 9213	\$ 6148	\$ 5102	\$19988	\$16589
2003	\$11665	\$ 9679	\$ 6181	\$ 5129	\$19985	\$16582
2004	\$12287	\$10198	\$ 6230	\$ 5171	\$20019	\$16617
2005	\$13044	\$10823	\$ 6328	\$ 5251	\$20140	\$16710
2006	\$13859	\$11490	\$ 6434	\$ 5334	\$20213	\$16758
2007	\$14764	\$12239	\$ 6559	\$ 5437	\$20283	\$16814
2008	\$15768	\$13069	\$ 6704	\$ 5557	\$20356	\$16872
2009	\$16839	\$13955	\$ 6852	\$ 5678	\$20408	\$16913
2010	\$17955	\$14878	\$ 6992	\$ 5793	\$20446	\$16942
2011	\$19073	\$15802	\$ 7108	\$ 5889	\$20462	\$16953
2012	\$20081	\$16643	\$ 7162	\$ 5936	\$20391	\$16900
2013	\$21208	\$17582	\$ 7239	\$ 6002	\$20415	\$16925
2014	\$22415	\$18590	\$ 7323	\$ 6074	\$20455	\$16965
2015	\$23698	\$19655	\$ 7411	\$ 6146	\$20494	\$16997

SOURCE: DSET MMSBR, DATE OF CREATION: 7/90  
VARIABLES: PI.AM, DPI.AM, DP.PI.AM, DF.DI.AM, DP.PI.AM, DP.DI.AM

TABLE C.4.  
MAP REGIONAL MODEL PROJECTIONS  
WITH OCS DEVELOPMENT  
ANCHORAGE MAT-SU REGION  
EMPLOYMENT  
(THOUSANDS)

	BASIC	SUPPORT	GOVERNMENT	TOTAL	WAGE AND SALARY
1988	25.436	61.173	38.449	125.058	105.033
1989	26.684	65.144	39.614	131.441	110.780
1990	26.190	65.879	39.145	131.214	110.927
1991	26.712	66.356	39.387	132.454	112.258
1992	27.263	67.238	39.203	133.704	113.520
1993	27.932	68.290	39.738	135.959	115.555
1994	28.323	69.488	40.649	138.460	117.788
1995	27.955	68.872	40.809	137.636	117.015
1996	27.908	69.319	41.020	138.248	117.593
1997	28.077	70.131	41.312	139.520	118.854
1998	28.437	71.511	41.534	141.482	120.757
1999	29.081	73.963	41.670	144.713	123.878
2000	29.595	75.232	41.795	146.623	125.668
2001	30.032	76.227	41.691	147.950	126.934
2002	30.244	77.025	41.349	148.618	127.600
2003	30.298	77.592	41.083	148.972	127.953
2004	30.500	77.878	40.997	149.375	128.316
2005	30.918	78.555	41.110	150.582	129.399
2006	31.424	79.742	41.333	152.499	131.126
2007	32.034	81.186	41.596	154.816	133.227
2008	32.754	82.863	41.844	157.461	135.627
2009	33.523	84.706	41.934	160.163	138.095
2010	34.266	86.519	41.830	162.615	140.350
2011	34.694	88.079	41.694	164.468	142.062
2012	34.763	89.068	41.573	165.404	142.924
2013	34.960	90.088	41.458	166.507	143.961
2014	35.411	91.199	41.326	167.936	145.293
2015	35.897	92.348	41.223	169.468	146.704

SOURCE: DSET MMSIR, DATE OF CREATION: 7/90  
VARIABLES: B.AM, S.AM, G.AM, M.AM, M97.AM



TABLE C.5.  
MAP REGIONAL MODEL PROJECTIONS  
WITH OCS DEVELOPMENT  
ANCHORAGE MAT-SU REGION  
POPULATION  
(THOUSANDS)

	POPULATION			HOUSEHOLDS	
	STATE	U.S.BEA	BOROUGH	NUMBER	SIZE
1988	261.113	259.513	263.990	93.527	2.737
1989	268.529	266.886	271.520	96.363	2.733
1990	275.898	274.215	279.023	99.256	2.728
1991	279.842	278.145	283.134	100.879	2.723
1992	284.164	282.446	287.572	102.660	2.718
1993	288.963	287.219	292.458	104.588	2.713
1994	294.543	292.768	298.144	106.774	2.710
1995	296.987	295.203	300.685	107.885	2.705
1996	298.895	297.104	302.665	108.797	2.700
1997	302.361	300.550	306.182	110.260	2.695
1998	307.083	305.243	310.972	112.144	2.692
1999	314.639	312.752	318.601	115.038	2.690
2000	319.608	317.695	323.669	117.009	2.687
2001	323.308	321.375	327.444	118.537	2.684
2002	326.204	324.257	330.410	119.784	2.680
2003	328.215	326.257	332.468	120.715	2.676
2004	329.368	327.406	333.668	121.327	2.672
2005	331.615	329.640	335.947	122.311	2.669
2006	335.282	333.285	339.667	123.781	2.667
2007	340.161	338.135	344.607	125.673	2.666
2008	345.890	343.831	350.424	127.860	2.665
2009	352.150	350.055	356.772	130.240	2.664
2010	358.332	356.202	363.059	132.599	2.663
2011	363.720	361.560	368.541	134.686	2.662
2012	367.624	365.445	372.548	136.260	2.660
2013	371.030	368.833	376.028	137.659	2.658
2014	374.510	372.293	379.564	139.076	2.656
2015	378.189	375.951	383.294	140.556	2.654

SOURCE: DSET MMSIR, DATE OF CREATION: 7/90  
VARIABLES: PCEN.AM, PBEA.AM, PBOR.AM, HHCEN.AM, HSIZE.AM

TABLE C.6.  
MAP REGIONAL MODEL PROJECTIONS  
WITH OCS DEVELOPMENT  
ANCHORAGE MAT-SU REGION  
PERSONAL INCOME

	NOMINAL \$		1989 \$			
	PERSONAL INCOME (MILLION \$)	DISPOSABLE PERSONAL INCOME (MILLION \$)	PERSONAL INCOME (MILLION \$)	DISPOSABLE PERSONAL INCOME (MILLION \$)	PER CAPITA INCOME (\$)	PER CAPITA DISPOSABLE INCOME (\$)
1988	\$ 5263	\$ 4490	\$ 5408	\$ 4614	\$20840	\$17781
1989	\$ 5807	\$ 4943	\$ 5807	\$ 4943	\$21760	\$18522
1990	\$ 6085	\$ 5186	\$ 5808	\$ 4950	\$21179	\$18051
1991	\$ 6311	\$ 5368	\$ 5762	\$ 4901	\$20718	\$17621
1992	\$ 6638	\$ 5643	\$ 5798	\$ 4929	\$20529	\$17451
1993	\$ 7040	\$ 5984	\$ 5883	\$ 5001	\$20484	\$17411
1994	\$ 7512	\$ 6383	\$ 6006	\$ 5104	\$20516	\$17433
1995	\$ 7874	\$ 6543	\$ 6024	\$ 5005	\$20406	\$16954
1996	\$ 8342	\$ 6939	\$ 6078	\$ 5055	\$20457	\$17015
1997	\$ 8516	\$ 7066	\$ 5936	\$ 4925	\$19751	\$16387
1998	\$ 9051	\$ 7506	\$ 6036	\$ 5006	\$19776	\$16401
1999	\$ 9668	\$ 8015	\$ 6170	\$ 5115	\$19727	\$16356
2000	\$10349	\$ 8578	\$ 6320	\$ 5238	\$19892	\$16487
2001	\$10977	\$ 9104	\$ 6414	\$ 5319	\$19957	\$16551
2002	\$11540	\$ 9572	\$ 6452	\$ 5352	\$19897	\$16504
2003	\$12142	\$10068	\$ 6496	\$ 5386	\$19910	\$16509
2004	\$12785	\$10603	\$ 6545	\$ 5428	\$19991	\$16579
2005	\$13490	\$11196	\$ 6608	\$ 5484	\$20047	\$16638
2006	\$14356	\$11906	\$ 6730	\$ 5581	\$20193	\$16746
2007	\$15276	\$12658	\$ 6853	\$ 5679	\$20268	\$16795
2008	\$16294	\$13500	\$ 6996	\$ 5796	\$20347	\$16859
2009	\$17384	\$14401	\$ 7143	\$ 5918	\$20406	\$16905
2010	\$18521	\$15342	\$ 7284	\$ 6034	\$20449	\$16939
2011	\$19660	\$16283	\$ 7400	\$ 6129	\$20467	\$16951
2012	\$20691	\$17142	\$ 7454	\$ 6175	\$20396	\$16898
2013	\$21844	\$18103	\$ 7532	\$ 6242	\$20421	\$16923
2014	\$23082	\$19136	\$ 7617	\$ 6315	\$20461	\$16964
2015	\$24398	\$20228	\$ 7707	\$ 6390	\$20500	\$16996

SOURCE: DSET MMSIR, DATE OF CREATION: 7/90

VARIABLES: PI.AM, DPI.AM, DF.PI.AM, DF.DI.AM, DP.PI.AM, DP.DI.AM

**APPENDIX D**

**STATEWIDE AND REGIONAL EXOGENOUS INDUSTRY  
EMPLOYMENT ASSUMPTIONS**

**TABLE D.1. AGRICULTURE  
(THOUSANDS OF EMPLOYEES)**

	<b>ALEUTIAN ISLANDS</b>	<b>ANCHORAGE</b>	<b>FAIRBANKS</b>	<b>JUNEAU</b>	<b>KENAI/ COOK INLET</b>
1988	0.002	0.352	0.064	0.016	0.013
1989	0.002	0.352	0.064	0.016	0.013
1990	0.002	0.352	0.064	0.016	0.013
1991	0.002	0.352	0.064	0.016	0.013
1992	0.002	0.352	0.064	0.016	0.013
1993	0.002	0.352	0.064	0.016	0.013
1994	0.002	0.352	0.064	0.016	0.013
1995	0.002	0.352	0.064	0.016	0.013
1996	0.002	0.352	0.064	0.016	0.013
1997	0.002	0.352	0.064	0.016	0.013
1998	0.002	0.352	0.064	0.016	0.013
1999	0.002	0.352	0.064	0.016	0.013
2000	0.002	0.352	0.064	0.016	0.013
2001	0.002	0.352	0.064	0.016	0.013
2002	0.002	0.352	0.064	0.016	0.013
2003	0.002	0.352	0.064	0.016	0.013
2004	0.002	0.352	0.064	0.016	0.013
2005	0.002	0.352	0.064	0.016	0.013
2006	0.002	0.352	0.064	0.016	0.013
2007	0.002	0.352	0.064	0.016	0.013
2008	0.002	0.352	0.064	0.016	0.013
2009	0.002	0.352	0.064	0.016	0.013
2010	0.002	0.352	0.064	0.016	0.013
2011	0.002	0.352	0.064	0.016	0.013
2012	0.002	0.352	0.064	0.016	0.013
2013	0.002	0.352	0.064	0.016	0.013
2014	0.002	0.352	0.064	0.016	0.013
2015	0.002	0.352	0.064	0.016	0.013

**SOURCE: MAP MODEL CASE AGR.S90  
VARIABLES: B01 B02 B09 B11 B12**

TABLE D.1. (CONTINUED)

	KODIAK	MATANUSKA/ SUSITNA	FAIRBANKS	TOTAL AGRICULTURE EMPLOYMENT
1988	0.004	0.054	0.020	0.525
1989	0.004	0.054	0.020	0.525
1990	0.004	0.054	0.020	0.525
1991	0.004	0.054	0.020	0.525
1992	0.004	0.054	0.020	0.525
1993	0.004	0.054	0.020	0.525
1994	0.004	0.054	0.020	0.525
1995	0.004	0.054	0.020	0.525
1996	0.004	0.054	0.020	0.525
1997	0.004	0.054	0.020	0.525
1998	0.004	0.054	0.020	0.525
1999	0.004	0.054	0.020	0.525
2000	0.004	0.054	0.020	0.525
2001	0.004	0.054	0.020	0.525
2002	0.004	0.054	0.020	0.525
2003	0.004	0.054	0.020	0.525
2004	0.004	0.054	0.020	0.525
2005	0.004	0.054	0.020	0.525
2006	0.004	0.054	0.020	0.525
2007	0.004	0.054	0.020	0.525
2008	0.004	0.054	0.020	0.525
2009	0.004	0.054	0.020	0.525
2010	0.004	0.054	0.020	0.525
2011	0.004	0.054	0.020	0.525
2012	0.004	0.054	0.020	0.525
2013	0.004	0.054	0.020	0.525
2014	0.004	0.054	0.020	0.525
2015	0.004	0.054	0.020	0.525

SOURCE: MAP MODEL CASE AGR.S90  
 VARIABLES: B15 B17 B24 EMAGRI

TABLE D.2. ALASKA-JUNEAU MINE  
(THOUSANDS OF EMPLOYEES)

	JUNEAU	TOTAL HIGH-WAGE CONSTRUCTION EMPLOYMENT	TOTAL MINING EMPLOYMENT
	-----	-----	-----
1988	0.010	0.010	0.000
1989	0.010	0.010	0.000
1990	0.010	0.010	0.000
1991	0.300	0.300	0.000
1992	0.400	0.400	0.000
1993	0.400	0.150	0.250
1994	0.450	0.000	0.450
1995	0.450	0.000	0.450
1996	0.450	0.000	0.450
1997	0.450	0.000	0.450
1998	0.450	0.000	0.450
1999	0.450	0.000	0.450
2000	0.450	0.000	0.450
2001	0.450	0.000	0.450
2002	0.450	0.000	0.450
2003	0.450	0.000	0.450
2004	0.450	0.000	0.450
2005	0.450	0.000	0.450
2006	0.450	0.000	0.450
2007	0.450	0.000	0.450
2008	0.450	0.000	0.450
2009	0.450	0.000	0.450
2010	0.450	0.000	0.450
2011	0.450	0.000	0.450
2012	0.450	0.000	0.450
2013	0.450	0.000	0.450
2014	0.450	0.000	0.450
2015	0.450	0.000	0.450

SOURCE: MAP MODEL CASE AJM.S90  
VARIABLES: B11 EMCNX1 EMPMINE

TABLE D.3. ARCTIC NATIONAL WILDLIFE REFUGE  
(THOUSANDS OF EMPLOYEES)

	BARROW/ NORTH SLOPE	TOTAL HIGH-WAGE CONSTRUCTION EMPLOYMENT	TOTAL PETROLEUM MINING EMPLOYMENT
	-----	-----	-----
1988	0.000	0.000	0.000
1989	0.000	0.000	0.000
1990	0.100	0.050	0.050
1991	0.100	0.050	0.050
1992	0.100	0.050	0.050
1993	0.100	0.050	0.050
1994	0.100	0.050	0.050
1995	0.100	0.050	0.050
1996	0.100	0.050	0.050
1997	0.100	0.050	0.050
1998	0.100	0.050	0.050
1999	0.100	0.050	0.050
2000	0.100	0.050	0.050
2001	0.100	0.050	0.050
2002	0.100	0.050	0.050
2003	0.100	0.050	0.050
2004	0.100	0.050	0.050
2005	0.100	0.050	0.050
2006	0.100	0.050	0.050
2007	0.100	0.050	0.050
2008	0.100	0.050	0.050
2009	0.100	0.050	0.050
2010	0.100	0.050	0.050
2011	0.100	0.050	0.050
2012	0.100	0.050	0.050
2013	0.100	0.050	0.050
2014	0.100	0.050	0.050
2015	0.100	0.050	0.050

SOURCE: MAP MODEL CASE AWR.S90L  
VARIABLES: B04 EMCNX1 EMPP

TABLE D.4. BELUGA COAL MINING  
(THOUSANDS OF EMPLOYEES)

	KENAI/ COOK INLET	TOTAL LOW-WAGE CONSTRUCTION EMPLOYMENT	TOTAL MINING EMPLOYMENT	TOTAL TRANS- PORTATION EMPLOYMENT
1988	0.000	0.000	0.000	0.000
1989	0.000	0.000	0.000	0.000
1990	0.000	0.000	0.000	0.000
1991	0.000	0.000	0.000	0.000
1992	0.000	0.000	0.000	0.000
1993	0.325	0.200	0.100	0.025
1994	0.450	0.200	0.200	0.050
1995	0.375	0.000	0.300	0.075
1996	0.375	0.000	0.300	0.075
1997	0.375	0.000	0.300	0.075
1998	0.375	0.000	0.300	0.075
1999	0.375	0.000	0.300	0.075
2000	0.375	0.000	0.300	0.075
2001	0.375	0.000	0.300	0.075
2002	0.375	0.000	0.300	0.075
2003	0.375	0.000	0.300	0.075
2004	0.375	0.000	0.300	0.075
2005	0.375	0.000	0.300	0.075
2006	0.375	0.000	0.300	0.075
2007	0.375	0.000	0.300	0.075
2008	0.375	0.000	0.300	0.075
2009	0.375	0.000	0.300	0.075
2010	0.375	0.000	0.300	0.075
2011	0.375	0.000	0.300	0.075
2012	0.375	0.000	0.300	0.075
2013	0.375	0.000	0.300	0.075
2014	0.375	0.000	0.300	0.075
2015	0.375	0.000	0.300	0.075

SOURCE: MAP MODEL CASE BCL.S90  
VARIABLES: B12 EMCNX2 EMPMINE EMT9X



TABLE D.5. FEDERAL CIVILIAN GOVERNMENT  
(THOUSANDS OF EMPLOYEES)

	ALEUTIAN ISLANDS	ANCHORAGE	BARROW/ NORTH SLOPE	BETHEL	BRISTOL BAY
1988	0.825	10.263	0.137	0.256	0.174
1989	0.829	10.314	0.138	0.257	0.175
1990	0.833	10.366	0.138	0.259	0.176
1991	0.837	10.418	0.139	0.260	0.177
1992	0.842	10.470	0.140	0.261	0.178
1993	0.846	10.522	0.140	0.262	0.178
1994	0.850	10.575	0.141	0.264	0.179
1995	0.854	10.628	0.142	0.265	0.180
1996	0.859	10.681	0.143	0.266	0.181
1997	0.863	10.734	0.143	0.268	0.182
1998	0.867	10.788	0.144	0.269	0.183
1999	0.872	10.842	0.145	0.270	0.184
2000	0.876	10.896	0.145	0.272	0.185
2001	0.880	10.950	0.146	0.273	0.186
2002	0.885	11.005	0.147	0.275	0.187
2003	0.889	11.060	0.148	0.276	0.188
2004	0.894	11.116	0.148	0.277	0.188
2005	0.898	11.171	0.149	0.279	0.189
2006	0.902	11.227	0.150	0.280	0.190
2007	0.907	11.283	0.151	0.281	0.191
2008	0.912	11.340	0.151	0.283	0.192
2009	0.916	11.396	0.152	0.284	0.193
2010	0.921	11.453	0.153	0.286	0.194
2011	0.925	11.511	0.154	0.287	0.195
2012	0.930	11.568	0.154	0.289	0.196
2013	0.935	11.626	0.155	0.290	0.197
2014	0.939	11.684	0.156	0.291	0.198
2015	0.944	11.742	0.157	0.293	0.199

SOURCE: MAP MODEL CASE CIV.S90  
VARIABLES: G01 G02 G04 G05 G06

TABLE D.5. (CONTINUED)

	CORDOVA/ MCCARTHY	FAIRBANKS	HAINES	JUNEAU	KENAI/ COOK INLET
1988	0.037	2.772	0.009	1.044	0.203
1989	0.037	2.786	0.009	1.049	0.204
1990	0.037	2.800	0.009	1.054	0.205
1991	0.038	2.814	0.009	1.060	0.206
1992	0.038	2.828	0.009	1.065	0.207
1993	0.038	2.842	0.009	1.070	0.208
1994	0.038	2.856	0.009	1.076	0.209
1995	0.038	2.870	0.009	1.081	0.210
1996	0.039	2.885	0.009	1.086	0.211
1997	0.039	2.899	0.009	1.092	0.212
1998	0.039	2.914	0.009	1.097	0.213
1999	0.039	2.928	0.010	1.103	0.214
2000	0.039	2.943	0.010	1.108	0.216
2001	0.039	2.958	0.010	1.114	0.217
2002	0.040	2.972	0.010	1.119	0.218
2003	0.040	2.987	0.010	1.125	0.219
2004	0.040	3.002	0.010	1.131	0.220
2005	0.040	3.017	0.010	1.136	0.221
2006	0.040	3.032	0.010	1.142	0.222
2007	0.041	3.048	0.010	1.148	0.223
2008	0.041	3.063	0.010	1.154	0.224
2009	0.041	3.078	0.010	1.159	0.225
2010	0.041	3.093	0.010	1.165	0.227
2011	0.041	3.109	0.010	1.171	0.228
2012	0.042	3.124	0.010	1.177	0.229
2013	0.042	3.140	0.010	1.183	0.230
2014	0.042	3.156	0.010	1.189	0.231
2015	0.042	3.172	0.010	1.194	0.232

SOURCE: MAP MODEL CASE CIV.S90  
 VARIABLES: G08 G09 G10 G11 G12

TABLE D.5. (CONTINUED)

	KETCHIKAN	NORTHWEST ARCTIC	KODIAK	KUSKOKWIM	MATANUSKA/ SUSITNA
1988	0.251	0.101	0.193	0.078	0.099
1989	0.252	0.102	0.194	0.078	0.099
1990	0.254	0.102	0.195	0.079	0.100
1991	0.255	0.103	0.196	0.079	0.100
1992	0.256	0.103	0.197	0.080	0.101
1993	0.257	0.104	0.198	0.080	0.101
1994	0.259	0.104	0.199	0.080	0.102
1995	0.260	0.105	0.200	0.081	0.103
1996	0.261	0.105	0.201	0.081	0.103
1997	0.263	0.106	0.202	0.082	0.104
1998	0.264	0.106	0.203	0.082	0.104
1999	0.265	0.107	0.204	0.082	0.105
2000	0.266	0.107	0.205	0.083	0.105
2001	0.268	0.108	0.206	0.083	0.106
2002	0.269	0.108	0.207	0.084	0.106
2003	0.270	0.109	0.208	0.084	0.107
2004	0.272	0.109	0.209	0.084	0.107
2005	0.273	0.110	0.210	0.085	0.108
2006	0.275	0.110	0.211	0.085	0.108
2007	0.276	0.111	0.212	0.086	0.109
2008	0.277	0.112	0.213	0.086	0.109
2009	0.279	0.112	0.214	0.087	0.110
2010	0.280	0.113	0.215	0.087	0.110
2011	0.282	0.113	0.216	0.087	0.111
2012	0.283	0.114	0.218	0.088	0.112
2013	0.284	0.114	0.219	0.088	0.112
2014	0.286	0.115	0.220	0.089	0.113
2015	0.287	0.116	0.221	0.089	0.113

SOURCE: MAP MODEL CASE CIV.S90  
 VARIABLES: G13 G14 G15 G16 G17

TABLE D.5. (CONTINUED)

	NOME	PRINCE OF WALES/ OUTER KETCHIKAN	SEWARD	SITKA	SKAGWAY/ YAKUTAT/ ANGOON
1988	0.094	0.110	0.045	0.255	0.121
1989	0.094	0.111	0.045	0.256	0.122
1990	0.095	0.111	0.045	0.258	0.122
1991	0.095	0.112	0.046	0.259	0.123
1992	0.096	0.112	0.046	0.260	0.123
1993	0.096	0.113	0.046	0.261	0.124
1994	0.097	0.113	0.046	0.263	0.125
1995	0.097	0.114	0.047	0.264	0.125
1996	0.098	0.114	0.047	0.265	0.126
1997	0.098	0.115	0.047	0.267	0.127
1998	0.099	0.116	0.047	0.268	0.127
1999	0.099	0.116	0.048	0.269	0.128
2000	0.100	0.117	0.048	0.271	0.128
2001	0.100	0.117	0.048	0.272	0.129
2002	0.101	0.118	0.048	0.273	0.130
2003	0.101	0.119	0.048	0.275	0.130
2004	0.102	0.119	0.049	0.276	0.131
2005	0.102	0.120	0.049	0.278	0.132
2006	0.103	0.120	0.049	0.279	0.132
2007	0.103	0.121	0.049	0.280	0.133
2008	0.104	0.122	0.050	0.282	0.134
2009	0.104	0.122	0.050	0.283	0.134
2010	0.105	0.123	0.050	0.285	0.135
2011	0.105	0.123	0.050	0.286	0.136
2012	0.106	0.124	0.051	0.287	0.136
2013	0.106	0.125	0.051	0.289	0.137
2014	0.107	0.125	0.051	0.290	0.138
2015	0.108	0.126	0.051	0.292	0.138

SOURCE: MAP MODEL CASE CIV.S90  
 VARIABLES: G18 G19 G21 G22 G23

TABLE D.5. (CONTINUED)

	SOUTHEAST FAIRBANKS	UPPER YUKON	VALDEZ/ CHITINA/ WHITTIER	WADE HAMPTON	WRANGELL/ PETERSBURG
1988	0.328	0.061	0.058	0.026	0.164
1989	0.330	0.061	0.058	0.026	0.165
1990	0.331	0.062	0.059	0.026	0.166
1991	0.333	0.062	0.059	0.026	0.166
1992	0.335	0.062	0.059	0.027	0.167
1993	0.336	0.063	0.059	0.027	0.168
1994	0.338	0.063	0.060	0.027	0.169
1995	0.340	0.063	0.060	0.027	0.170
1996	0.341	0.063	0.060	0.027	0.171
1997	0.343	0.064	0.061	0.027	0.172
1998	0.345	0.064	0.061	0.027	0.172
1999	0.346	0.064	0.061	0.027	0.173
2000	0.348	0.065	0.062	0.028	0.174
2001	0.350	0.065	0.062	0.028	0.175
2002	0.352	0.065	0.062	0.028	0.176
2003	0.353	0.066	0.063	0.028	0.177
2004	0.355	0.066	0.063	0.028	0.178
2005	0.357	0.066	0.063	0.028	0.179
2006	0.359	0.067	0.063	0.028	0.179
2007	0.361	0.067	0.064	0.029	0.180
2008	0.362	0.067	0.064	0.029	0.181
2009	0.364	0.068	0.064	0.029	0.182
2010	0.366	0.068	0.065	0.029	0.183
2011	0.368	0.068	0.065	0.029	0.184
2012	0.370	0.069	0.065	0.029	0.185
2013	0.372	0.069	0.066	0.029	0.186
2014	0.373	0.069	0.066	0.030	0.187
2015	0.375	0.070	0.066	0.030	0.188

SOURCE: MAP MODEL CASE CIV.S90  
 VARIABLES: G24 G25 G26 G27 G28

TABLE D.5. (CONTINUED)

	YUKON KOYUKUK -----	TOTAL CIVILIAN FEDERAL EMPLOYMENT -----
1988	0.170	17.874
1989	0.171	17.963
1990	0.172	18.053
1991	0.173	18.143
1992	0.173	18.234
1993	0.174	18.325
1994	0.175	18.417
1995	0.176	18.509
1996	0.177	18.602
1997	0.178	18.695
1998	0.179	18.788
1999	0.180	18.882
2000	0.180	18.976
2001	0.181	19.071
2002	0.182	19.167
2003	0.183	19.262
2004	0.184	19.359
2005	0.185	19.456
2006	0.186	19.553
2007	0.187	19.651
2008	0.188	19.749
2009	0.189	19.848
2010	0.190	19.947
2011	0.191	20.046
2012	0.192	20.147
2013	0.193	20.247
2014	0.194	20.349
2015	0.195	20.450

SOURCE: MAP MODEL CASE CIV.S90  
 VARIABLES: G29 EMGC

TABLE D.6. TRANS-ALASKA PIPELINE CORROSION REPAIR  
(THOUSANDS OF EMPLOYEES)

	BARROW/ NORTH SLOPE	FAIRBANKS	JUNEAU	VALDEZ/ CHITINA/ WHITTIER	YUKON KOYUKUK	TOTAL HIGH-WAGE CONSTRUCTION EMPLOYMENT
1988	0.000	0.000	0.000	0.000	0.000	0.000
1989	0.020	0.020	0.020	0.020	0.020	0.100
1990	0.056	0.058	0.000	0.000	0.112	0.226
1991	0.630	0.058	0.000	0.000	0.112	0.800
1992	0.010	0.010	0.010	0.010	0.010	0.050
1993	0.010	0.010	0.010	0.010	0.010	0.050
1994	0.000	0.000	0.000	0.000	0.000	0.000
1995	0.000	0.000	0.000	0.000	0.000	0.000
1996	0.000	0.000	0.000	0.000	0.000	0.000
1997	0.000	0.000	0.000	0.000	0.000	0.000
1998	0.000	0.000	0.000	0.000	0.000	0.000
1999	0.000	0.000	0.000	0.000	0.000	0.000
2000	0.000	0.000	0.000	0.000	0.000	0.000
2001	0.000	0.000	0.000	0.000	0.000	0.000
2002	0.000	0.000	0.000	0.000	0.000	0.000
2003	0.000	0.000	0.000	0.000	0.000	0.000
2004	0.000	0.000	0.000	0.000	0.000	0.000
2005	0.000	0.000	0.000	0.000	0.000	0.000
2006	0.000	0.000	0.000	0.000	0.000	0.000
2007	0.000	0.000	0.000	0.000	0.000	0.000
2008	0.000	0.000	0.000	0.000	0.000	0.000
2009	0.000	0.000	0.000	0.000	0.000	0.000
2010	0.000	0.000	0.000	0.000	0.000	0.000
2011	0.000	0.000	0.000	0.000	0.000	0.000
2012	0.000	0.000	0.000	0.000	0.000	0.000
2013	0.000	0.000	0.000	0.000	0.000	0.000
2014	0.000	0.000	0.000	0.000	0.000	0.000
2015	0.000	0.000	0.000	0.000	0.000	0.000

SOURCE: MAP MODEL CASE COR.S90N  
VARIABLES: B04 B09 B11 B26 B29 EMCNX1

TABLE D.7. LOGGING AND LUMBER  
(THOUSANDS OF EMPLOYEES)

	ANCHORAGE	BARROW/ NORTH SLOPE	BETHEL	CORDOVA/ MCCARTHY	FAIRBANKS
1988	0.039	0.004	0.004	0.000	0.018
1989	0.039	0.004	0.004	0.000	0.018
1990	0.039	0.004	0.004	0.000	0.018
1991	0.039	0.004	0.004	0.000	0.018
1992	0.039	0.004	0.004	0.000	0.018
1993	0.039	0.004	0.004	0.000	0.018
1994	0.039	0.004	0.004	0.000	0.018
1995	0.039	0.004	0.004	0.000	0.018
1996	0.039	0.004	0.004	0.000	0.018
1997	0.039	0.004	0.004	0.000	0.018
1998	0.039	0.004	0.004	0.000	0.018
1999	0.039	0.004	0.004	0.000	0.018
2000	0.039	0.004	0.004	0.000	0.018
2001	0.039	0.004	0.004	0.000	0.018
2002	0.039	0.004	0.004	0.000	0.018
2003	0.039	0.004	0.004	0.000	0.018
2004	0.039	0.004	0.004	0.000	0.018
2005	0.039	0.004	0.004	0.000	0.018
2006	0.039	0.004	0.004	0.000	0.018
2007	0.039	0.004	0.004	0.000	0.018
2008	0.039	0.004	0.004	0.000	0.018
2009	0.039	0.004	0.004	0.000	0.018
2010	0.039	0.004	0.004	0.000	0.018
2011	0.039	0.004	0.004	0.000	0.018
2012	0.039	0.004	0.004	0.000	0.018
2013	0.039	0.004	0.004	0.000	0.018
2014	0.039	0.004	0.004	0.000	0.018
2015	0.039	0.004	0.004	0.000	0.018

SOURCE: MAP MODEL CASE FML.S90  
VARIABLES: B02 B04 B05 B08 B09



TABLE D.7. (CONTINUED)

	HAINES	JUNEAU	KENAI/ COOK INLET	KETCHIKAN	KODIAK
1988	0.170	0.300	0.009	0.445	0.048
1989	0.170	0.300	0.015	0.445	0.050
1990	0.170	0.300	0.020	0.445	0.050
1991	0.170	0.280	0.025	0.445	0.050
1992	0.170	0.260	0.030	0.445	0.050
1993	0.170	0.240	0.035	0.445	0.050
1994	0.170	0.220	0.040	0.445	0.050
1995	0.170	0.200	0.040	0.445	0.040
1996	0.170	0.200	0.040	0.445	0.030
1997	0.170	0.200	0.040	0.445	0.020
1998	0.170	0.200	0.040	0.445	0.010
1999	0.170	0.200	0.040	0.445	0.010
2000	0.170	0.200	0.040	0.445	0.010
2001	0.170	0.200	0.040	0.445	0.010
2002	0.170	0.200	0.040	0.445	0.010
2003	0.170	0.200	0.040	0.445	0.010
2004	0.170	0.200	0.040	0.445	0.010
2005	0.170	0.200	0.040	0.445	0.010
2006	0.170	0.200	0.040	0.445	0.010
2007	0.170	0.200	0.040	0.445	0.010
2008	0.170	0.200	0.040	0.445	0.010
2009	0.170	0.200	0.040	0.445	0.010
2010	0.170	0.200	0.040	0.445	0.010
2011	0.170	0.200	0.040	0.445	0.010
2012	0.170	0.200	0.040	0.445	0.010
2013	0.170	0.200	0.040	0.445	0.010
2014	0.170	0.200	0.040	0.445	0.010
2015	0.170	0.200	0.040	0.445	0.010

SOURCE: MAP MODEL CASE FML.S90  
 VARIABLES: B10 B11 B12 B13 B15

TABLE D.7. (CONTINUED)

	MATANUSKA/ SUSITNA	PRINCE OF WALES/ OUTER KETCHIKAN	SEWARD	SKAGWAY/ YAKUTAT/ ANGOON	SOUTHEAST FAIRBANKS
1988	0.018	0.600	0.000	0.250	0.004
1989	0.020	0.600	0.000	0.250	0.004
1990	0.025	0.600	0.050	0.250	0.004
1991	0.030	0.540	0.110	0.230	0.004
1992	0.035	0.480	0.110	0.210	0.004
1993	0.040	0.420	0.110	0.190	0.004
1994	0.040	0.360	0.110	0.170	0.004
1995	0.040	0.300	0.110	0.150	0.004
1996	0.040	0.300	0.110	0.150	0.004
1997	0.040	0.300	0.110	0.150	0.004
1998	0.040	0.300	0.110	0.150	0.004
1999	0.040	0.300	0.110	0.150	0.004
2000	0.040	0.300	0.110	0.150	0.004
2001	0.040	0.300	0.110	0.150	0.004
2002	0.040	0.300	0.110	0.150	0.004
2003	0.040	0.300	0.110	0.150	0.004
2004	0.040	0.300	0.110	0.150	0.004
2005	0.040	0.300	0.110	0.150	0.004
2006	0.040	0.300	0.110	0.150	0.004
2007	0.040	0.300	0.110	0.150	0.004
2008	0.040	0.300	0.110	0.150	0.004
2009	0.040	0.300	0.110	0.150	0.004
2010	0.040	0.300	0.110	0.150	0.004
2011	0.040	0.300	0.110	0.150	0.004
2012	0.040	0.300	0.110	0.150	0.004
2013	0.040	0.300	0.110	0.150	0.004
2014	0.040	0.300	0.110	0.150	0.004
2015	0.040	0.300	0.110	0.150	0.004

SOURCE: MAP MODEL CASE FML.S90  
 VARIABLES: B17 B20 B21 B23 B24

TABLE D.7. (CONTINUED)

	VALDEZ/ CHITINA/ WHITTIER	WRANGELL/ PETERSBURG	YUKON KOYUKUK	TOTAL LOW-WAGE MANUFACTURING EMPLOYMENT
	-----	-----	-----	-----
1988	0.004	0.800	0.004	2.717
1989	0.010	0.800	0.004	2.733
1990	0.050	0.800	0.004	2.833
1991	0.075	0.740	0.004	2.768
1992	0.100	0.680	0.004	2.643
1993	0.100	0.620	0.004	2.493
1994	0.100	0.560	0.004	2.338
1995	0.100	0.500	0.004	2.168
1996	0.075	0.500	0.004	2.133
1997	0.050	0.500	0.004	2.098
1998	0.025	0.500	0.004	2.063
1999	0.010	0.500	0.004	2.048
2000	0.010	0.500	0.004	2.048
2001	0.010	0.500	0.004	2.048
2002	0.010	0.500	0.004	2.048
2003	0.010	0.500	0.004	2.048
2004	0.010	0.500	0.004	2.048
2005	0.010	0.500	0.004	2.048
2006	0.010	0.500	0.004	2.048
2007	0.010	0.500	0.004	2.048
2008	0.010	0.500	0.004	2.048
2009	0.010	0.500	0.004	2.048
2010	0.010	0.500	0.004	2.048
2011	0.010	0.500	0.004	2.048
2012	0.010	0.500	0.004	2.048
2013	0.010	0.500	0.004	2.048
2014	0.010	0.500	0.004	2.048
2015	0.010	0.500	0.004	2.048

SOURCE: MAP MODEL CASE FML.S90  
 VARIABLES: B26 B28 B29 EMMX2

TABLE D.8. PULP AND PAPER  
(THOUSANDS OF EMPLOYEES)

	KETCHIKAN	SITKA	TOTAL LOW-WAGE MANUFACTURING EMPLOYMENT
	-----	-----	-----
1988	0.635	0.313	0.948
1989	0.635	0.313	0.948
1990	0.635	0.313	0.948
1991	0.635	0.313	0.948
1992	0.629	0.310	0.939
1993	0.622	0.307	0.929
1994	0.616	0.304	0.920
1995	0.610	0.301	0.911
1996	0.604	0.298	0.902
1997	0.598	0.295	0.893
1998	0.592	0.292	0.884
1999	0.586	0.289	0.875
2000	0.580	0.286	0.866
2001	0.574	0.283	0.857
2002	0.569	0.280	0.849
2003	0.563	0.277	0.840
2004	0.557	0.275	0.832
2005	0.552	0.272	0.824
2006	0.546	0.269	0.815
2007	0.541	0.267	0.807
2008	0.535	0.264	0.799
2009	0.530	0.261	0.791
2010	0.525	0.259	0.783
2011	0.519	0.256	0.775
2012	0.514	0.253	0.768
2013	0.509	0.251	0.760
2014	0.504	0.248	0.752
2015	0.499	0.246	0.745

SOURCE: MAP MODEL CASE FMP.S90  
VARIABLES: B13 B22 EMMX2

TABLE D.9. GREENS CREEK MINE  
(THOUSANDS OF EMPLOYEES)

	JUNEAU	TOTAL LOW-WAGE CONSTRUCTION EMPLOYMENT	TOTAL MINING EMPLOYMENT
	-----	-----	-----
1988	0.130	0.080	0.050
1989	0.200	0.000	0.200
1990	0.250	0.000	0.250
1991	0.250	0.000	0.250
1992	0.250	0.000	0.250
1993	0.250	0.000	0.250
1994	0.250	0.000	0.250
1995	0.250	0.000	0.250
1996	0.250	0.000	0.250
1997	0.250	0.000	0.250
1998	0.250	0.000	0.250
1999	0.250	0.000	0.250
2000	0.250	0.000	0.250
2001	0.250	0.000	0.250
2002	0.250	0.000	0.250
2003	0.250	0.000	0.250
2004	0.250	0.000	0.250
2005	0.250	0.000	0.250
2006	0.250	0.000	0.250
2007	0.250	0.000	0.250
2008	0.250	0.000	0.250
2009	0.250	0.000	0.250
2010	0.250	0.000	0.250
2011	0.250	0.000	0.250
2012	0.250	0.000	0.250
2013	0.250	0.000	0.250
2014	0.250	0.000	0.250
2015	0.250	0.000	0.250

SOURCE: MAP MODEL CASE GCM.S90  
VARIABLES: B11 EMCNX2 EMPMINE

TABLE D.9. GREENS CREEK MINE  
(THOUSANDS OF EMPLOYEES)

	JUNEAU	TOTAL LOW-WAGE CONSTRUCTION EMPLOYMENT	TOTAL MINING EMPLOYMENT
1988	0.130	0.080	0.050
1989	0.200	0.000	0.200
1990	0.250	0.000	0.250
1991	0.250	0.000	0.250
1992	0.250	0.000	0.250
1993	0.250	0.000	0.250
1994	0.250	0.000	0.250
1995	0.250	0.000	0.250
1996	0.250	0.000	0.250
1997	0.250	0.000	0.250
1998	0.250	0.000	0.250
1999	0.250	0.000	0.250
2000	0.250	0.000	0.250
2001	0.250	0.000	0.250
2002	0.250	0.000	0.250
2003	0.250	0.000	0.250
2004	0.250	0.000	0.250
2005	0.250	0.000	0.250
2006	0.250	0.000	0.250
2007	0.250	0.000	0.250
2008	0.250	0.000	0.250
2009	0.250	0.000	0.250
2010	0.250	0.000	0.250
2011	0.250	0.000	0.250
2012	0.250	0.000	0.250
2013	0.250	0.000	0.250
2014	0.250	0.000	0.250
2015	0.250	0.000	0.250

SOURCE: MAP MODEL CASE GCM.S90  
VARIABLES: B11 EMCNX2 EMPMINE

TABLE D.10. KENSINGTON MINE  
(THOUSANDS OF EMPLOYEES)

	JUNEAU	TOTAL HIGH-WAGE CONSTRUCTION EMPLOYMENT	TOTAL MINING EMPLOYMENT
	-----	-----	-----
1988	0.050	0.050	0.000
1989	0.040	0.040	0.000
1990	0.070	0.070	0.000
1991	0.150	0.150	0.000
1992	0.300	0.300	0.000
1993	0.250	0.100	0.150
1994	0.340	0.000	0.340
1995	0.340	0.000	0.340
1996	0.340	0.000	0.340
1997	0.340	0.000	0.340
1998	0.340	0.000	0.340
1999	0.340	0.000	0.340
2000	0.340	0.000	0.340
2001	0.340	0.000	0.340
2002	0.340	0.000	0.340
2003	0.340	0.000	0.340
2004	0.340	0.000	0.340
2005	0.340	0.000	0.340
2006	0.340	0.000	0.340
2007	0.340	0.000	0.340
2008	0.340	0.000	0.340
2009	0.340	0.000	0.340
2010	0.340	0.000	0.340
2011	0.340	0.000	0.340
2012	0.340	0.000	0.340
2013	0.340	0.000	0.340
2014	0.340	0.000	0.340
2015	0.340	0.000	0.340

SOURCE: MAP MODEL CASE KEN.S90  
VARIABLES: B11 EMCNX1 EMPMINE





**TABLE D.11. LIGHT ARMY DIVISION DEPLOYMENT  
(THOUSANDS OF EMPLOYEES)**

	PRIVATE SECTOR		GOVERNMENT	
	ANCHORAGE	FAIRBANKS	ANCHORAGE	FAIRBANKS
1988	0.125	0.375	3.420	3.510
1989	0.075	0.225	3.430	3.540
1990	0.050	0.150	3.170	3.430
1991	0.000	0.000	2.920	3.810
1992	0.000	0.000	2.920	3.810
1993	0.000	0.000	2.920	3.810
1994	0.000	0.000	2.920	3.810
1995	0.000	0.000	2.920	3.810
1996	0.000	0.000	2.920	3.810
1997	0.000	0.000	2.920	3.810
1998	0.000	0.000	2.920	3.810
1999	0.000	0.000	2.920	3.810
2000	0.000	0.000	2.920	3.810
2001	0.000	0.000	2.920	3.810
2002	0.000	0.000	2.920	3.810
2003	0.000	0.000	2.920	3.810
2004	0.000	0.000	2.920	3.810
2005	0.000	0.000	2.920	3.810
2006	0.000	0.000	2.920	3.810
2007	0.000	0.000	2.920	3.810
2008	0.000	0.000	2.920	3.810
2009	0.000	0.000	2.920	3.810
2010	0.000	0.000	2.920	3.810
2011	0.000	0.000	2.920	3.810
2012	0.000	0.000	2.920	3.810
2013	0.000	0.000	2.920	3.810
2014	0.000	0.000	2.920	3.810
2015	0.000	0.000	2.920	3.810

SOURCE: MAP MODEL CASE LID.S90  
VARIABLES: B02 B09 G02 G09

TABLE D.11. (CONTINUED)

	TOTAL LOW-WAGE CONSTRUCTION EMPLOYMENT -----	TOTAL CIVILIAN FEDERAL EMPLOYMENT -----	TOTAL ACTIVE DUTY MILITARY EMPLOYMENT -----
1988	0.500	0.210	6.720
1989	0.300	0.250	6.720
1990	0.200	0.250	6.350
1991	0.000	0.300	6.430
1992	0.000	0.300	6.430
1993	0.000	0.300	6.430
1994	0.000	0.300	6.430
1995	0.000	0.300	6.430
1996	0.000	0.300	6.430
1997	0.000	0.300	6.430
1998	0.000	0.300	6.430
1999	0.000	0.300	6.430
2000	0.000	0.300	6.430
2001	0.000	0.300	6.430
2002	0.000	0.300	6.430
2003	0.000	0.300	6.430
2004	0.000	0.300	6.430
2005	0.000	0.300	6.430
2006	0.000	0.300	6.430
2007	0.000	0.300	6.430
2008	0.000	0.300	6.430
2009	0.000	0.300	6.430
2010	0.000	0.300	6.430
2011	0.000	0.300	6.430
2012	0.000	0.300	6.430
2013	0.000	0.300	6.430
2014	0.000	0.300	6.430
2015	0.000	0.300	6.430

SOURCE: MAP MODEL CASE LID.S90  
 VARIABLES: EMCNX2 EMGC EMGM

TABLE D.12. FEDERAL MILITARY  
(THOUSANDS OF EMPLOYEES)

	ALEUTIAN ISLANDS	ANCHORAGE	BARROW/ NORTH SLOPE	BETHEL	BRISTOL BAY
1988	2.698	7.678	0.000	0.000	0.283
1989	2.698	7.678	0.000	0.000	0.283
1990	2.698	7.598	0.000	0.000	0.283
1991	2.698	7.598	0.000	0.000	0.283
1992	2.698	7.598	0.000	0.000	0.283
1993	2.698	7.598	0.000	0.000	0.283
1994	2.698	7.598	0.000	0.000	0.283
1995	2.698	7.598	0.000	0.000	0.283
1996	2.698	7.598	0.000	0.000	0.283
1997	2.698	7.598	0.000	0.000	0.283
1998	2.698	7.598	0.000	0.000	0.283
1999	2.698	7.598	0.000	0.000	0.283
2000	2.698	7.598	0.000	0.000	0.283
2001	2.698	7.598	0.000	0.000	0.283
2002	2.698	7.598	0.000	0.000	0.283
2003	2.698	7.598	0.000	0.000	0.283
2004	2.698	7.598	0.000	0.000	0.283
2005	2.698	7.598	0.000	0.000	0.283
2006	2.698	7.598	0.000	0.000	0.283
2007	2.698	7.598	0.000	0.000	0.283
2008	2.698	7.598	0.000	0.000	0.283
2009	2.698	7.598	0.000	0.000	0.283
2010	2.698	7.598	0.000	0.000	0.283
2011	2.698	7.598	0.000	0.000	0.283
2012	2.698	7.598	0.000	0.000	0.283
2013	2.698	7.598	0.000	0.000	0.283
2014	2.698	7.598	0.000	0.000	0.283
2015	2.698	7.598	0.000	0.000	0.283

SOURCE: MAP MODEL CASE MIL.S90  
VARIABLES: G01 G02 G04 G05 G06

TABLE D.12. (CONTINUED)

	CORDOVA/ MCCARTHY	FAIRBANKS	HAINES	JUNEAU	KENAI/ COOK INLET
1988	0.043	3.757	0.000	0.195	0.067
1989	0.043	3.757	0.000	0.195	0.067
1990	0.043	3.967	0.000	0.195	0.067
1991	0.043	3.967	0.000	0.195	0.067
1992	0.043	3.967	0.000	0.195	0.067
1993	0.043	3.967	0.000	0.195	0.067
1994	0.043	3.967	0.000	0.195	0.067
1995	0.043	3.967	0.000	0.195	0.067
1996	0.043	3.967	0.000	0.195	0.067
1997	0.043	3.967	0.000	0.195	0.067
1998	0.043	3.967	0.000	0.195	0.067
1999	0.043	3.967	0.000	0.195	0.067
2000	0.043	3.967	0.000	0.195	0.067
2001	0.043	3.967	0.000	0.195	0.067
2002	0.043	3.967	0.000	0.195	0.067
2003	0.043	3.967	0.000	0.195	0.067
2004	0.043	3.967	0.000	0.195	0.067
2005	0.043	3.967	0.000	0.195	0.067
2006	0.043	3.967	0.000	0.195	0.067
2007	0.043	3.967	0.000	0.195	0.067
2008	0.043	3.967	0.000	0.195	0.067
2009	0.043	3.967	0.000	0.195	0.067
2010	0.043	3.967	0.000	0.195	0.067
2011	0.043	3.967	0.000	0.195	0.067
2012	0.043	3.967	0.000	0.195	0.067
2013	0.043	3.967	0.000	0.195	0.067
2014	0.043	3.967	0.000	0.195	0.067
2015	0.043	3.967	0.000	0.195	0.067

SOURCE: MAP MODEL CASE MIL.S90  
 VARIABLES: G08 G09 G10 G11 G12

TABLE D.12. (CONTINUED)

	NORTHWEST			MATANUSKA/	
	KETCHIKAN	ARCTIC	KODIAK	KUSKOKWIM	SUSITNA
	-----	-----	-----	-----	-----
1988	0.205	0.000	0.992	0.027	0.000
1989	0.205	0.000	0.992	0.027	0.000
1990	0.205	0.000	0.992	0.027	0.000
1991	0.205	0.000	0.992	0.027	0.000
1992	0.205	0.000	0.992	0.027	0.000
1993	0.205	0.000	0.992	0.027	0.000
1994	0.205	0.000	0.992	0.027	0.000
1995	0.205	0.000	0.992	0.027	0.000
1996	0.205	0.000	0.992	0.027	0.000
1997	0.205	0.000	0.992	0.027	0.000
1998	0.205	0.000	0.992	0.027	0.000
1999	0.205	0.000	0.992	0.027	0.000
2000	0.205	0.000	0.992	0.027	0.000
2001	0.205	0.000	0.992	0.027	0.000
2002	0.205	0.000	0.992	0.027	0.000
2003	0.205	0.000	0.992	0.027	0.000
2004	0.205	0.000	0.992	0.027	0.000
2005	0.205	0.000	0.992	0.027	0.000
2006	0.205	0.000	0.992	0.027	0.000
2007	0.205	0.000	0.992	0.027	0.000
2008	0.205	0.000	0.992	0.027	0.000
2009	0.205	0.000	0.992	0.027	0.000
2010	0.205	0.000	0.992	0.027	0.000
2011	0.205	0.000	0.992	0.027	0.000
2012	0.205	0.000	0.992	0.027	0.000
2013	0.205	0.000	0.992	0.027	0.000
2014	0.205	0.000	0.992	0.027	0.000
2015	0.205	0.000	0.992	0.027	0.000

SOURCE: MAP MODEL CASE MIL.S90  
 VARIABLES: G13 G14 G15 G16 G17

TABLE D.12. (CONTINUED)

	NOME	PRINCE OF WALES/OUTER KETCHIKAN	SEWARD	SITKA	SKAGWAY/ YAKUTAT/ ANGOON
1988	0.027	0.000	0.018	0.214	0.000
1989	0.027	0.000	0.018	0.214	0.000
1990	0.027	0.000	0.018	0.214	0.000
1991	0.027	0.000	0.018	0.214	0.000
1992	0.027	0.000	0.018	0.214	0.000
1993	0.027	0.000	0.018	0.214	0.000
1994	0.027	0.000	0.018	0.214	0.000
1995	0.027	0.000	0.018	0.214	0.000
1996	0.027	0.000	0.018	0.214	0.000
1997	0.027	0.000	0.018	0.214	0.000
1998	0.027	0.000	0.018	0.214	0.000
1999	0.027	0.000	0.018	0.214	0.000
2000	0.027	0.000	0.018	0.214	0.000
2001	0.027	0.000	0.018	0.214	0.000
2002	0.027	0.000	0.018	0.214	0.000
2003	0.027	0.000	0.018	0.214	0.000
2004	0.027	0.000	0.018	0.214	0.000
2005	0.027	0.000	0.018	0.214	0.000
2006	0.027	0.000	0.018	0.214	0.000
2007	0.027	0.000	0.018	0.214	0.000
2008	0.027	0.000	0.018	0.214	0.000
2009	0.027	0.000	0.018	0.214	0.000
2010	0.027	0.000	0.018	0.214	0.000
2011	0.027	0.000	0.018	0.214	0.000
2012	0.027	0.000	0.018	0.214	0.000
2013	0.027	0.000	0.018	0.214	0.000
2014	0.027	0.000	0.018	0.214	0.000
2015	0.027	0.000	0.018	0.214	0.000

SOURCE: MAP MODEL CASE MIL.S90  
 VARIABLES: G18 G19 G21 G22 G23

TABLE D.12. (CONTINUED)

	SOUTHEAST FAIRBANKS	UPPER YUKON	VALDEZ/ CHITINA/ WHITTIER	WADE HAMPTON	WRANGELL/ PETERSBURG
1988	0.658	0.027	0.033	0.000	0.028
1989	0.658	0.027	0.033	0.000	0.028
1990	0.658	0.027	0.033	0.000	0.028
1991	0.658	0.027	0.033	0.000	0.028
1992	0.658	0.027	0.033	0.000	0.028
1993	0.658	0.027	0.033	0.000	0.028
1994	0.658	0.027	0.033	0.000	0.028
1995	0.658	0.027	0.033	0.000	0.028
1996	0.658	0.027	0.033	0.000	0.028
1997	0.658	0.027	0.033	0.000	0.028
1998	0.658	0.027	0.033	0.000	0.028
1999	0.658	0.027	0.033	0.000	0.028
2000	0.658	0.027	0.033	0.000	0.028
2001	0.658	0.027	0.033	0.000	0.028
2002	0.658	0.027	0.033	0.000	0.028
2003	0.658	0.027	0.033	0.000	0.028
2004	0.658	0.027	0.033	0.000	0.028
2005	0.658	0.027	0.033	0.000	0.028
2006	0.658	0.027	0.033	0.000	0.028
2007	0.658	0.027	0.033	0.000	0.028
2008	0.658	0.027	0.033	0.000	0.028
2009	0.658	0.027	0.033	0.000	0.028
2010	0.658	0.027	0.033	0.000	0.028
2011	0.658	0.027	0.033	0.000	0.028
2012	0.658	0.027	0.033	0.000	0.028
2013	0.658	0.027	0.033	0.000	0.028
2014	0.658	0.027	0.033	0.000	0.028
2015	0.658	0.027	0.033	0.000	0.028

SOURCE: MAP MODEL CASE MIL.S90  
 VARIABLES: G24 G25 G26 G27 G28

TABLE D.12. (CONTINUED)

	YUKON KOYUKUK -----	TOTAL ACTIVE DUTY MILITARY EMPLOYMENT -----
1988	0.394	17.344
1989	0.394	17.344
1990	0.394	17.474
1991	0.394	17.474
1992	0.394	17.474
1993	0.394	17.474
1994	0.394	17.474
1995	0.394	17.474
1996	0.394	17.474
1997	0.394	17.474
1998	0.394	17.474
1999	0.394	17.474
2000	0.394	17.474
2001	0.394	17.474
2002	0.394	17.474
2003	0.394	17.474
2004	0.394	17.474
2005	0.394	17.474
2006	0.394	17.474
2007	0.394	17.474
2008	0.394	17.474
2009	0.394	17.474
2010	0.394	17.474
2011	0.394	17.474
2012	0.394	17.474
2013	0.394	17.474
2014	0.394	17.474
2015	0.394	17.474

SOURCE: MAP MODEL CASE MIL.S90  
 VARIABLES: G29 EMGM



**TABLE D.13. NORTH SLOPE PETROLEUM  
(THOUSANDS OF EMPLOYEES)**

	<b>BARROW/ NORTH SLOPE</b>	<b>TOTAL HIGH-WAGE CONSTRUCTION EMPLOYMENT</b>	<b>TOTAL PETROLEUM MINING EMPLOYMENT</b>
1988	3.096	0.272	2.824
1989	3.200	0.300	2.900
1990	3.300	0.300	3.000
1991	3.500	0.400	3.100
1992	3.700	0.500	3.200
1993	3.900	0.600	3.300
1994	4.100	0.700	3.400
1995	4.300	0.800	3.500
1996	4.400	0.900	3.500
1997	4.500	1.000	3.500
1998	4.500	1.000	3.500
1999	4.500	1.000	3.500
2000	4.500	1.000	3.500
2001	4.500	1.000	3.500
2002	4.500	1.000	3.500
2003	4.500	1.000	3.500
2004	4.500	1.000	3.500
2005	4.500	1.000	3.500
2006	4.500	1.000	3.500
2007	4.500	1.000	3.500
2008	4.500	1.000	3.500
2009	4.500	1.000	3.500
2010	4.500	1.000	3.500
2011	4.500	1.000	3.500
2012	4.500	1.000	3.500
2013	4.500	1.000	3.500
2014	4.500	1.000	3.500
2015	4.500	1.000	3.500

**SOURCE: MAP MODEL CASE NSO.S90H  
VARIABLES: B04 EMCNX1 EMPP**

TABLE D.14. OIL INDUSTRY HEADQUARTERS  
(THOUSANDS OF EMPLOYEES)

	ANCHORAGE	FAIRBANKS	TOTAL PETROLEUM MINING EMPLOYMENT
	-----	-----	-----
1988	4.662	0.050	4.712
1989	4.755	0.051	4.806
1990	4.850	0.052	4.902
1991	4.947	0.053	5.000
1992	5.046	0.054	5.100
1993	5.147	0.055	5.202
1994	5.250	0.056	5.306
1995	5.355	0.057	5.413
1996	5.462	0.059	5.521
1997	5.572	0.060	5.631
1998	5.683	0.061	5.744
1999	5.797	0.062	5.859
2000	5.913	0.063	5.976
2001	6.031	0.065	6.096
2002	6.151	0.066	6.217
2003	6.274	0.067	6.342
2004	6.400	0.069	6.469
2005	6.528	0.070	6.598
2006	6.659	0.071	6.730
2007	6.792	0.073	6.865
2008	6.928	0.074	7.002
2009	7.066	0.076	7.142
2010	7.207	0.077	7.285
2011	7.352	0.079	7.430
2012	7.499	0.080	7.579
2013	7.649	0.082	7.731
2014	7.802	0.084	7.885
2015	7.958	0.085	8.043

SOURCE: MAP MODEL CASE OHQ.S90  
VARIABLES: B02 B09 EMPP

TABLE D.15. OTHER MINING  
(THOUSANDS OF EMPLOYEES)

	ALEUTIAN ISLANDS	ANCHORAGE	BARROW/ NORTH SLOPE	BETHEL	BRISTOL BAY
1988	0.003	0.183	0.000	0.020	0.002
1989	0.003	0.188	0.000	0.021	0.002
1990	0.003	0.194	0.000	0.021	0.002
1991	0.003	0.200	0.000	0.022	0.002
1992	0.003	0.206	0.000	0.023	0.002
1993	0.003	0.212	0.000	0.023	0.002
1994	0.004	0.219	0.000	0.024	0.002
1995	0.004	0.225	0.000	0.025	0.002
1996	0.004	0.232	0.000	0.025	0.003
1997	0.004	0.239	0.000	0.026	0.003
1998	0.004	0.246	0.000	0.027	0.003
1999	0.004	0.253	0.000	0.028	0.003
2000	0.004	0.261	0.000	0.029	0.003
2001	0.004	0.269	0.000	0.029	0.003
2002	0.005	0.277	0.000	0.030	0.003
2003	0.005	0.285	0.000	0.031	0.003
2004	0.005	0.294	0.000	0.032	0.003
2005	0.005	0.302	0.000	0.033	0.003
2006	0.005	0.312	0.000	0.034	0.003
2007	0.005	0.321	0.000	0.035	0.004
2008	0.005	0.331	0.000	0.036	0.004
2009	0.006	0.340	0.000	0.037	0.004
2010	0.006	0.351	0.000	0.038	0.004
2011	0.006	0.361	0.000	0.039	0.004
2012	0.006	0.372	0.000	0.041	0.004
2013	0.006	0.383	0.000	0.042	0.004
2014	0.006	0.395	0.000	0.043	0.004
2015	0.007	0.406	0.000	0.044	0.004

SOURCE: MAP MODEL CASE OMN.S90  
VARIABLES: B01 B02 B04 B05 B06

TABLE D.15. (CONTINUED)

	CORDOVA/ MCCARTHY	FAIRBANKS	JUNEAU	KENAI/ COOK INLET	NORTHWEST ARCTIC
1988	0.002	0.130	0.090	0.002	0.030
1989	0.002	0.134	0.093	0.002	0.031
1990	0.002	0.138	0.095	0.002	0.032
1991	0.002	0.142	0.098	0.002	0.033
1992	0.002	0.146	0.101	0.002	0.034
1993	0.002	0.151	0.104	0.002	0.035
1994	0.002	0.155	0.107	0.002	0.036
1995	0.002	0.160	0.111	0.002	0.037
1996	0.003	0.165	0.114	0.003	0.038
1997	0.003	0.170	0.117	0.003	0.039
1998	0.003	0.175	0.121	0.003	0.040
1999	0.003	0.180	0.125	0.003	0.042
2000	0.003	0.185	0.128	0.003	0.043
2001	0.003	0.191	0.132	0.003	0.044
2002	0.003	0.197	0.136	0.003	0.045
2003	0.003	0.203	0.140	0.003	0.047
2004	0.003	0.209	0.144	0.003	0.048
2005	0.003	0.215	0.149	0.003	0.050
2006	0.003	0.221	0.153	0.003	0.051
2007	0.004	0.228	0.158	0.004	0.053
2008	0.004	0.235	0.163	0.004	0.054
2009	0.004	0.242	0.167	0.004	0.056
2010	0.004	0.249	0.172	0.004	0.057
2011	0.004	0.257	0.178	0.004	0.059
2012	0.004	0.264	0.183	0.004	0.061
2013	0.004	0.272	0.188	0.004	0.063
2014	0.004	0.280	0.194	0.004	0.065
2015	0.004	0.289	0.200	0.004	0.067

SOURCE: MAP MODEL CASE OMN.S90  
 VARIABLES: B08 B09 B11 B12 B14

TABLE D.15. (CONTINUED)

	KUSKOKWIM	MATANUSKA/ SUSITNA	NOME	PRINCE OF WALES/OUTER KETCHIKAN	SEWARD
	-----	-----	-----	-----	-----
1988	0.010	0.020	0.271	0.002	0.010
1989	0.010	0.021	0.279	0.002	0.010
1990	0.011	0.021	0.288	0.002	0.011
1991	0.011	0.022	0.296	0.002	0.011
1992	0.011	0.023	0.305	0.002	0.011
1993	0.012	0.023	0.314	0.002	0.012
1994	0.012	0.024	0.324	0.002	0.012
1995	0.012	0.025	0.333	0.002	0.012
1996	0.013	0.025	0.343	0.003	0.013
1997	0.013	0.026	0.354	0.003	0.013
1998	0.013	0.027	0.364	0.003	0.013
1999	0.014	0.028	0.375	0.003	0.014
2000	0.014	0.029	0.386	0.003	0.014
2001	0.015	0.029	0.398	0.003	0.015
2002	0.015	0.030	0.410	0.003	0.015
2003	0.016	0.031	0.422	0.003	0.016
2004	0.016	0.032	0.435	0.003	0.016
2005	0.017	0.033	0.448	0.003	0.017
2006	0.017	0.034	0.461	0.003	0.017
2007	0.018	0.035	0.475	0.004	0.018
2008	0.018	0.036	0.489	0.004	0.018
2009	0.019	0.037	0.504	0.004	0.019
2010	0.019	0.038	0.519	0.004	0.019
2011	0.020	0.039	0.535	0.004	0.020
2012	0.020	0.041	0.551	0.004	0.020
2013	0.021	0.042	0.567	0.004	0.021
2014	0.022	0.043	0.584	0.004	0.022
2015	0.022	0.044	0.602	0.004	0.022

SOURCE: MAP MODEL CASE OMN.S90  
 VARIABLES: B16 B17 B18 B19 B21

TABLE D.15. (CONTINUED)

	SITKA	SOUTHEAST FAIRBANKS	UPPER YUKON	VALDEZ/ CHITINA/ WHITTIER	WADE HAMPTON
1988	0.005	0.010	0.010	0.002	0.002
1989	0.005	0.010	0.010	0.002	0.002
1990	0.005	0.011	0.011	0.002	0.002
1991	0.005	0.011	0.011	0.002	0.002
1992	0.006	0.011	0.011	0.002	0.002
1993	0.006	0.012	0.012	0.002	0.002
1994	0.006	0.012	0.012	0.002	0.002
1995	0.006	0.012	0.012	0.002	0.002
1996	0.006	0.013	0.013	0.003	0.003
1997	0.007	0.013	0.013	0.003	0.003
1998	0.007	0.013	0.013	0.003	0.003
1999	0.007	0.014	0.014	0.003	0.003
2000	0.007	0.014	0.014	0.003	0.003
2001	0.007	0.015	0.015	0.003	0.003
2002	0.008	0.015	0.015	0.003	0.003
2003	0.008	0.016	0.016	0.003	0.003
2004	0.008	0.016	0.016	0.003	0.003
2005	0.008	0.017	0.017	0.003	0.003
2006	0.009	0.017	0.017	0.003	0.003
2007	0.009	0.018	0.018	0.004	0.004
2008	0.009	0.018	0.018	0.004	0.004
2009	0.009	0.019	0.019	0.004	0.004
2010	0.010	0.019	0.019	0.004	0.004
2011	0.010	0.020	0.020	0.004	0.004
2012	0.010	0.020	0.020	0.004	0.004
2013	0.010	0.021	0.021	0.004	0.004
2014	0.011	0.022	0.022	0.004	0.004
2015	0.011	0.022	0.022	0.004	0.004

SOURCE: MAP MODEL CASE OMN.S90

VARIABLES: B22 B24 B25 B26 B27

TABLE D.15. (CONTINUED)

	YUKON KOYUKUK	TOTAL MINING EMPLOYMENT	TOTAL TRANSPORTATION EMPLOYMENT
	-----	-----	-----
1988	0.125	0.921	0.008
1989	0.129	0.949	0.008
1990	0.133	0.977	0.008
1991	0.137	1.006	0.009
1992	0.141	1.037	0.009
1993	0.145	1.068	0.009
1994	0.149	1.100	0.010
1995	0.154	1.133	0.010
1996	0.158	1.167	0.010
1997	0.163	1.202	0.010
1998	0.168	1.238	0.011
1999	0.173	1.275	0.011
2000	0.178	1.313	0.011
2001	0.184	1.353	0.012
2002	0.189	1.393	0.012
2003	0.195	1.435	0.012
2004	0.201	1.478	0.013
2005	0.207	1.522	0.013
2006	0.213	1.568	0.014
2007	0.219	1.615	0.014
2008	0.226	1.663	0.014
2009	0.233	1.713	0.015
2010	0.240	1.765	0.015
2011	0.247	1.818	0.016
2012	0.254	1.872	0.016
2013	0.262	1.928	0.017
2014	0.270	1.986	0.017
2015	0.278	2.046	0.018

SOURCE: MAP MODEL CASE OMN.S90  
 VARIABLES: B29 EMPMINE EMT9X

TABLE D.16. RED DOG MINE  
(THOUSANDS OF EMPLOYEES)

	ANCHORAGE	FAIRBANKS	NORTHWEST ARCTIC
	-----	-----	-----
1988	0.230	0.160	0.000
1989	0.230	0.160	0.000
1990	0.030	0.020	0.340
1991	0.000	0.000	0.390
1992	0.000	0.000	0.390
1993	0.000	0.000	0.390
1994	0.000	0.000	0.390
1995	0.000	0.000	0.390
1996	0.000	0.000	0.390
1997	0.000	0.000	0.390
1998	0.000	0.000	0.390
1999	0.000	0.000	0.390
2000	0.000	0.000	0.390
2001	0.000	0.000	0.390
2002	0.000	0.000	0.390
2003	0.000	0.000	0.390
2004	0.000	0.000	0.390
2005	0.000	0.000	0.390
2006	0.000	0.000	0.390
2007	0.000	0.000	0.390
2008	0.000	0.000	0.390
2009	0.000	0.000	0.390
2010	0.000	0.000	0.390
2011	0.000	0.000	0.390
2012	0.000	0.000	0.390
2013	0.000	0.000	0.390
2014	0.000	0.000	0.390
2015	0.000	0.000	0.390

SOURCE: MAP MODEL CASE RED.S90  
VARIABLES: B02 B09 B14



TABLE D.16. (CONTINUED)

	TOTAL LOW-WAGE CONSTRUCTION EMPLOYMENT -----	TOTAL MINING EMPLOYMENT -----	TOTAL TRANSPORTATION EMPLOYMENT -----
1988	0.390	0.000	0.000
1989	0.390	0.000	0.000
1990	0.050	0.300	0.040
1991	0.000	0.350	0.040
1992	0.000	0.350	0.040
1993	0.000	0.350	0.040
1994	0.000	0.350	0.040
1995	0.000	0.350	0.040
1996	0.000	0.350	0.040
1997	0.000	0.350	0.040
1998	0.000	0.350	0.040
1999	0.000	0.350	0.040
2000	0.000	0.350	0.040
2001	0.000	0.350	0.040
2002	0.000	0.350	0.040
2003	0.000	0.350	0.040
2004	0.000	0.350	0.040
2005	0.000	0.350	0.040
2006	0.000	0.350	0.040
2007	0.000	0.350	0.040
2008	0.000	0.350	0.040
2009	0.000	0.350	0.040
2010	0.000	0.350	0.040
2011	0.000	0.350	0.040
2012	0.000	0.350	0.040
2013	0.000	0.350	0.040
2014	0.000	0.350	0.040
2015	0.000	0.350	0.040

SOURCE: MAP MODEL CASE RED.S90  
 VARIABLES: EMCNX2 EMPMINE EMT9X

TABLE D.17. COMMERCIAL FISH HARVESTING AND PROCESSING--BOTTOMFISH  
(THOUSANDS OF EMPLOYEES)

	ALEUTIAN ISLANDS	ANCHORAGE	BRISTOL BAY	KENAI/ COOK INLET	KODIAK
1988	1.200	0.200	0.300	0.138	0.260
1989	1.200	0.200	0.300	0.138	0.270
1990	1.200	0.200	0.300	0.138	0.280
1991	1.200	0.200	0.300	0.138	0.290
1992	1.200	0.200	0.300	0.138	0.300
1993	1.200	0.200	0.300	0.138	0.300
1994	1.200	0.200	0.300	0.138	0.300
1995	1.200	0.200	0.300	0.138	0.300
1996	1.200	0.200	0.300	0.138	0.300
1997	1.200	0.200	0.300	0.138	0.300
1998	1.200	0.200	0.300	0.138	0.300
1999	1.200	0.200	0.300	0.138	0.300
2000	1.200	0.200	0.300	0.138	0.300
2001	1.200	0.200	0.300	0.138	0.300
2002	1.200	0.200	0.300	0.138	0.300
2003	1.200	0.200	0.300	0.138	0.300
2004	1.200	0.200	0.300	0.138	0.300
2005	1.200	0.200	0.300	0.138	0.300
2006	1.200	0.200	0.300	0.138	0.300
2007	1.200	0.200	0.300	0.138	0.300
2008	1.200	0.200	0.300	0.138	0.300
2009	1.200	0.200	0.300	0.138	0.300
2010	1.200	0.200	0.300	0.138	0.300
2011	1.200	0.200	0.300	0.138	0.300
2012	1.200	0.200	0.300	0.138	0.300
2013	1.200	0.200	0.300	0.138	0.300
2014	1.200	0.200	0.300	0.138	0.300
2015	1.200	0.200	0.300	0.138	0.300

SOURCE: MAP MODEL CASE SBO.S90  
VARIABLES: B01 B02 B06 B12 B15

TABLE D.17. (CONTINUED)

	TOTAL FISH HARVESTING EMPLOYMENT -----	TOTAL LOW-WAGE MANUFACTURING EMPLOYMENT -----
1988	0.839	1.259
1989	0.843	1.265
1990	0.847	1.271
1991	0.851	1.277
1992	0.855	1.283
1993	0.855	1.283
1994	0.855	1.283
1995	0.855	1.283
1996	0.855	1.283
1997	0.855	1.283
1998	0.855	1.283
1999	0.855	1.283
2000	0.855	1.283
2001	0.855	1.283
2002	0.855	1.283
2003	0.855	1.283
2004	0.855	1.283
2005	0.855	1.283
2006	0.855	1.283
2007	0.855	1.283
2008	0.855	1.283
2009	0.855	1.283
2010	0.855	1.283
2011	0.855	1.283
2012	0.855	1.283
2013	0.855	1.283
2014	0.855	1.283
2015	0.855	1.283

SOURCE: MAP MODEL CASE SBO.S90  
 VARIABLES: EMPFISH EMMX2

**TABLE D.18. COMMERCIAL FISH HARVESTING--NONBOTTOMFISH  
(THOUSANDS OF EMPLOYEES)**

	<b>ALEUTIAN ISLANDS</b>	<b>ANGOON</b>	<b>BETHEL</b>	<b>BRISTOL BAY</b>	<b>CORDOVA/ MCCARTHY</b>
1988	1.300	0.049	0.323	1.106	0.263
1989	1.300	0.049	0.323	1.106	0.263
1990	1.300	0.049	0.323	1.106	0.263
1991	1.300	0.049	0.323	1.106	0.263
1992	1.300	0.049	0.323	1.106	0.263
1993	1.300	0.049	0.323	1.106	0.263
1994	1.300	0.049	0.323	1.106	0.263
1995	1.300	0.049	0.323	1.106	0.263
1996	1.300	0.049	0.323	1.106	0.263
1997	1.300	0.049	0.323	1.106	0.263
1998	1.300	0.049	0.323	1.106	0.263
1999	1.300	0.049	0.323	1.106	0.263
2000	1.300	0.049	0.323	1.106	0.263
2001	1.300	0.049	0.323	1.106	0.263
2002	1.300	0.049	0.323	1.106	0.263
2003	1.300	0.049	0.323	1.106	0.263
2004	1.300	0.049	0.323	1.106	0.263
2005	1.300	0.049	0.323	1.106	0.263
2006	1.300	0.049	0.323	1.106	0.263
2007	1.300	0.049	0.323	1.106	0.263
2008	1.300	0.049	0.323	1.106	0.263
2009	1.300	0.049	0.323	1.106	0.263
2010	1.300	0.049	0.323	1.106	0.263
2011	1.300	0.049	0.323	1.106	0.263
2012	1.300	0.049	0.323	1.106	0.263
2013	1.300	0.049	0.323	1.106	0.263
2014	1.300	0.049	0.323	1.106	0.263
2015	1.300	0.049	0.323	1.106	0.263

**SOURCE: MAP MODEL CASE SFH.S88  
VARIABLES: B01 B03 B05 B06 B08**

TABLE D.18. (CONTINUED)

	HAINES	JUNEAU	KENAI/ COOK INLET	KETCHIKAN	NORTHWEST ARCTIC
1988	0.092	0.388	0.866	0.384	0.192
1989	0.092	0.388	0.866	0.384	0.192
1990	0.092	0.388	0.866	0.384	0.192
1991	0.092	0.388	0.866	0.384	0.192
1992	0.092	0.388	0.866	0.384	0.192
1993	0.092	0.388	0.866	0.384	0.192
1994	0.092	0.388	0.866	0.384	0.192
1995	0.092	0.388	0.866	0.384	0.192
1996	0.092	0.388	0.866	0.384	0.192
1997	0.092	0.388	0.866	0.384	0.192
1998	0.092	0.388	0.866	0.384	0.192
1999	0.092	0.388	0.866	0.384	0.192
2000	0.092	0.388	0.866	0.384	0.192
2001	0.092	0.388	0.866	0.384	0.192
2002	0.092	0.388	0.866	0.384	0.192
2003	0.092	0.388	0.866	0.384	0.192
2004	0.092	0.388	0.866	0.384	0.192
2005	0.092	0.388	0.866	0.384	0.192
2006	0.092	0.388	0.866	0.384	0.192
2007	0.092	0.388	0.866	0.384	0.192
2008	0.092	0.388	0.866	0.384	0.192
2009	0.092	0.388	0.866	0.384	0.192
2010	0.092	0.388	0.866	0.384	0.192
2011	0.092	0.388	0.866	0.384	0.192
2012	0.092	0.388	0.866	0.384	0.192
2013	0.092	0.388	0.866	0.384	0.192
2014	0.092	0.388	0.866	0.384	0.192
2015	0.092	0.388	0.866	0.384	0.192

SOURCE: MAP MODEL CASE SFH.S88  
 VARIABLES: B10 B11 B12 B13 B14

TABLE D.18. (CONTINUED)

	KODIAK	KUSKOKWIM	NOME	OUTER KETCHIKAN	PRINCE OF WALES
1988	1.207	0.035	0.008	0.060	0.138
1989	1.207	0.035	0.008	0.060	0.138
1990	1.207	0.035	0.008	0.060	0.138
1991	1.207	0.035	0.008	0.060	0.138
1992	1.207	0.035	0.008	0.060	0.138
1993	1.207	0.035	0.008	0.060	0.138
1994	1.207	0.035	0.008	0.060	0.138
1995	1.207	0.035	0.008	0.060	0.138
1996	1.207	0.035	0.008	0.060	0.138
1997	1.207	0.035	0.008	0.060	0.138
1998	1.207	0.035	0.008	0.060	0.138
1999	1.207	0.035	0.008	0.060	0.138
2000	1.207	0.035	0.008	0.060	0.138
2001	1.207	0.035	0.008	0.060	0.138
2002	1.207	0.035	0.008	0.060	0.138
2003	1.207	0.035	0.008	0.060	0.138
2004	1.207	0.035	0.008	0.060	0.138
2005	1.207	0.035	0.008	0.060	0.138
2006	1.207	0.035	0.008	0.060	0.138
2007	1.207	0.035	0.008	0.060	0.138
2008	1.207	0.035	0.008	0.060	0.138
2009	1.207	0.035	0.008	0.060	0.138
2010	1.207	0.035	0.008	0.060	0.138
2011	1.207	0.035	0.008	0.060	0.138
2012	1.207	0.035	0.008	0.060	0.138
2013	1.207	0.035	0.008	0.060	0.138
2014	1.207	0.035	0.008	0.060	0.138
2015	1.207	0.035	0.008	0.060	0.138

SOURCE: MAP MODEL CASE SFH.S88  
 VARIABLES: B15 B16 B18 B19 B20

TABLE D.18. (CONTINUED)

	SEWARD	SITKA	SKAGWAY/ YAKUTAT/ ANGOON	VALDEZ/ CHITINA/ WHITTIER	WADE HAMPTON
1988	0.262	0.423	0.154	0.026	0.315
1989	0.262	0.423	0.154	0.026	0.315
1990	0.262	0.423	0.154	0.026	0.315
1991	0.262	0.423	0.154	0.026	0.315
1992	0.262	0.423	0.154	0.026	0.315
1993	0.262	0.423	0.154	0.026	0.315
1994	0.262	0.423	0.154	0.026	0.315
1995	0.262	0.423	0.154	0.026	0.315
1996	0.262	0.423	0.154	0.026	0.315
1997	0.262	0.423	0.154	0.026	0.315
1998	0.262	0.423	0.154	0.026	0.315
1999	0.262	0.423	0.154	0.026	0.315
2000	0.262	0.423	0.154	0.026	0.315
2001	0.262	0.423	0.154	0.026	0.315
2002	0.262	0.423	0.154	0.026	0.315
2003	0.262	0.423	0.154	0.026	0.315
2004	0.262	0.423	0.154	0.026	0.315
2005	0.262	0.423	0.154	0.026	0.315
2006	0.262	0.423	0.154	0.026	0.315
2007	0.262	0.423	0.154	0.026	0.315
2008	0.262	0.423	0.154	0.026	0.315
2009	0.262	0.423	0.154	0.026	0.315
2010	0.262	0.423	0.154	0.026	0.315
2011	0.262	0.423	0.154	0.026	0.315
2012	0.262	0.423	0.154	0.026	0.315
2013	0.262	0.423	0.154	0.026	0.315
2014	0.262	0.423	0.154	0.026	0.315
2015	0.262	0.423	0.154	0.026	0.315

SOURCE: MAP MODEL CASE SFH.S88  
 VARIABLES: B21 B22 B23 B26 B27

TABLE D.18. (CONTINUED)

	WRANGELL/ PETERSBURG -----	TOTAL FISH HARVESTING EMPLOYMENT -----
1988	0.609	8.200
1989	0.609	8.200
1990	0.609	8.200
1991	0.609	8.200
1992	0.609	8.200
1993	0.609	8.200
1994	0.609	8.200
1995	0.609	8.200
1996	0.609	8.200
1997	0.609	8.200
1998	0.609	8.200
1999	0.609	8.200
2000	0.609	8.200
2001	0.609	8.200
2002	0.609	8.200
2003	0.609	8.200
2004	0.609	8.200
2005	0.609	8.200
2006	0.609	8.200
2007	0.609	8.200
2008	0.609	8.200
2009	0.609	8.200
2010	0.609	8.200
2011	0.609	8.200
2012	0.609	8.200
2013	0.609	8.200
2014	0.609	8.200
2015	0.609	8.200

SOURCE: MAP MODEL CASE SFH.S88  
 VARIABLES: B28 EMFISH



TABLE D.19. COMMERCIAL FISH PROCESSING--NONBOTTOMFISH  
(THOUSANDS OF EMPLOYEES)

	ALEUTIAN ISLANDS	ANCHORAGE	ANGOON	BETHEL	BRISTOL BAY
1988	1.084	0.539	0.033	0.016	1.232
1989	1.109	0.539	0.033	0.016	1.257
1990	1.134	0.539	0.033	0.016	1.282
1991	1.159	0.539	0.033	0.016	1.307
1992	1.159	0.539	0.033	0.016	1.307
1993	1.159	0.539	0.033	0.016	1.307
1994	1.159	0.539	0.033	0.016	1.307
1995	1.159	0.539	0.033	0.016	1.307
1996	1.159	0.539	0.033	0.016	1.307
1997	1.159	0.539	0.033	0.016	1.307
1998	1.159	0.539	0.033	0.016	1.307
1999	1.159	0.539	0.033	0.016	1.307
2000	1.159	0.539	0.033	0.016	1.307
2001	1.159	0.539	0.033	0.016	1.307
2002	1.159	0.539	0.033	0.016	1.307
2003	1.159	0.539	0.033	0.016	1.307
2004	1.159	0.539	0.033	0.016	1.307
2005	1.159	0.539	0.033	0.016	1.307
2006	1.159	0.539	0.033	0.016	1.307
2007	1.159	0.539	0.033	0.016	1.307
2008	1.159	0.539	0.033	0.016	1.307
2009	1.159	0.539	0.033	0.016	1.307
2010	1.159	0.539	0.033	0.016	1.307
2011	1.159	0.539	0.033	0.016	1.307
2012	1.159	0.539	0.033	0.016	1.307
2013	1.159	0.539	0.033	0.016	1.307
2014	1.159	0.539	0.033	0.016	1.307
2015	1.159	0.539	0.033	0.016	1.307

SOURCE: MAP MODEL CASE SFP.S90  
VARIABLES: B01 B02 B03 B05 B06

TABLE D.19. (CONTINUED)

	CORDOVA/ MCCARTHY	HAINES	JUNEAU	KENAI/ COOK INLET	KETCHIKAN
1988	0.313	0.060	0.050	0.853	0.300
1989	0.313	0.060	0.050	0.853	0.312
1990	0.313	0.060	0.050	0.853	0.325
1991	0.313	0.060	0.050	0.853	0.338
1992	0.313	0.060	0.050	0.853	0.338
1993	0.313	0.060	0.050	0.853	0.338
1994	0.313	0.060	0.050	0.853	0.338
1995	0.313	0.060	0.050	0.853	0.338
1996	0.313	0.060	0.050	0.853	0.338
1997	0.313	0.060	0.050	0.853	0.338
1998	0.313	0.060	0.050	0.853	0.388
1999	0.313	0.060	0.050	0.853	0.338
2000	0.313	0.060	0.050	0.853	0.338
2001	0.313	0.060	0.050	0.853	0.338
2002	0.313	0.060	0.050	0.853	0.338
2003	0.313	0.060	0.050	0.853	0.338
2004	0.313	0.060	0.050	0.853	0.338
2005	0.313	0.060	0.050	0.853	0.338
2006	0.313	0.060	0.050	0.853	0.338
2007	0.313	0.060	0.050	0.853	0.338
2008	0.313	0.060	0.050	0.853	0.338
2009	0.313	0.060	0.050	0.853	0.338
2010	0.313	0.060	0.050	0.853	0.338
2011	0.313	0.060	0.050	0.853	0.338
2012	0.313	0.060	0.050	0.853	0.338
2013	0.313	0.060	0.050	0.853	0.338
2014	0.313	0.060	0.050	0.853	0.338
2015	0.313	0.060	0.050	0.853	0.338

SOURCE: MAP MODEL CASE SFP.S90  
 VARIABLES: B08 B10 B11 B12 B13

TABLE D.19. (CONTINUED)

	NORTHWEST ARCTIC	KODIAK	KUSKOKWIM	NOME	OUTER KETCHIKAN
1988	0.000	1.635	0.000	0.011	0.080
1989	0.000	1.660	0.000	0.011	0.080
1990	0.000	1.685	0.000	0.011	0.080
1991	0.000	1.710	0.000	0.011	0.080
1992	0.000	1.710	0.000	0.011	0.080
1993	0.000	1.710	0.000	0.011	0.080
1994	0.000	1.710	0.000	0.011	0.080
1995	0.000	1.710	0.000	0.011	0.080
1996	0.000	1.710	0.000	0.011	0.080
1997	0.000	1.710	0.000	0.011	0.080
1998	0.000	1.710	0.000	0.011	0.080
1999	0.000	1.710	0.000	0.011	0.080
2000	0.000	1.710	0.000	0.011	0.080
2001	0.000	1.710	0.000	0.011	0.080
2002	0.000	1.710	0.000	0.011	0.080
2003	0.000	1.710	0.000	0.011	0.080
2004	0.000	1.710	0.000	0.011	0.080
2005	0.000	1.710	0.000	0.011	0.080
2006	0.000	1.710	0.000	0.011	0.080
2007	0.000	1.710	0.000	0.011	0.080
2008	0.000	1.710	0.000	0.011	0.080
2009	0.000	1.710	0.000	0.011	0.080
2010	0.000	1.710	0.000	0.011	0.080
2011	0.000	1.710	0.000	0.011	0.080
2012	0.000	1.710	0.000	0.011	0.080
2013	0.000	1.710	0.000	0.011	0.080
2014	0.000	1.710	0.000	0.011	0.080
2015	0.000	1.710	0.000	0.011	0.080

SOURCE: MAP MODEL CASE SFP.S90  
 VARIABLES: B14 B15 B16 B18 B19

TABLE D.19. (CONTINUED)

	PRINCE OF WALES	SEWARD	SITKA	SKAGWAY/ YAKUTAT/ ANGOON	VALDEZ/ CHITINA/ WHITTIER
1988	0.030	0.205	0.200	0.150	0.205
1989	0.030	0.205	0.213	0.150	0.205
1990	0.030	0.205	0.225	0.150	0.205
1991	0.030	0.205	0.237	0.150	0.205
1992	0.030	0.205	0.237	0.150	0.205
1993	0.030	0.205	0.237	0.150	0.205
1994	0.030	0.205	0.237	0.150	0.205
1995	0.030	0.205	0.237	0.150	0.205
1996	0.030	0.205	0.237	0.150	0.205
1997	0.030	0.205	0.237	0.150	0.205
1998	0.030	0.205	0.237	0.150	0.205
1999	0.030	0.205	0.237	0.150	0.205
2000	0.030	0.205	0.237	0.150	0.205
2001	0.030	0.205	0.237	0.150	0.205
2002	0.030	0.205	0.237	0.150	0.205
2003	0.030	0.205	0.237	0.150	0.205
2004	0.030	0.205	0.237	0.150	0.205
2005	0.030	0.205	0.237	0.150	0.205
2006	0.030	0.205	0.237	0.150	0.205
2007	0.030	0.205	0.237	0.150	0.205
2008	0.030	0.205	0.237	0.150	0.205
2009	0.030	0.205	0.237	0.150	0.205
2010	0.030	0.205	0.237	0.150	0.205
2011	0.030	0.205	0.237	0.150	0.205
2012	0.030	0.205	0.237	0.150	0.205
2013	0.030	0.205	0.237	0.150	0.205
2014	0.030	0.205	0.237	0.150	0.205
2015	0.030	0.205	0.237	0.150	0.205

SOURCE: MAP MODEL CASE SFP.S90  
 VARIABLES: B20 B21 B22 B23 B26

TABLE D.19. (CONTINUED)

	WADE HAMPTON	WRANGELL/ PETERSBURG	TOTAL LOW-WAGE MANUFACTURING EMPLOYMENT
	-----	-----	-----
1988	0.050	0.154	7.200
1989	0.050	0.154	7.300
1990	0.050	0.154	7.400
1991	0.050	0.154	7.500
1992	0.050	0.154	7.500
1993	0.050	0.154	7.500
1994	0.050	0.154	7.500
1995	0.050	0.154	7.500
1996	0.050	0.154	7.500
1997	0.050	0.154	7.500
1998	0.050	0.154	7.500
1999	0.050	0.154	7.500
2000	0.050	0.154	7.500
2001	0.050	0.154	7.500
2002	0.050	0.154	7.500
2003	0.050	0.154	7.500
2004	0.050	0.154	7.500
2005	0.050	0.154	7.500
2006	0.050	0.154	7.500
2007	0.050	0.154	7.500
2008	0.050	0.154	7.500
2009	0.050	0.154	7.500
2010	0.050	0.154	7.500
2011	0.050	0.154	7.500
2012	0.050	0.154	7.500
2013	0.050	0.154	7.500
2014	0.050	0.154	7.500
2015	0.050	0.154	7.500

SOURCE: MAP MODEL CASE SFP.S90  
 VARIABLES: B27 B28 EMMX2

TABLE D.20. STATE HYDROELECTRIC PROJECTS  
(THOUSANDS OF EMPLOYEES)

	KENAI/ COOK INLET -----	TOTAL LOW-WAGE CONSTRUCTION EMPLOYMENT -----
1988	0.300	0.300
1989	0.300	0.300
1990	0.200	0.200
1991	0.100	0.100
1992	0.000	0.000
1993	0.000	0.000
1994	0.000	0.000
1995	0.000	0.000
1996	0.000	0.000
1997	0.000	0.000
1998	0.000	0.000
1999	0.000	0.000
2000	0.000	0.000
2001	0.000	0.000
2002	0.000	0.000
2003	0.000	0.000
2004	0.000	0.000
2005	0.000	0.000
2006	0.000	0.000
2007	0.000	0.000
2008	0.000	0.000
2009	0.000	0.000
2010	0.000	0.000
2011	0.000	0.000
2012	0.000	0.000
2013	0.000	0.000
2014	0.000	0.000
2015	0.000	0.000

SOURCE: MAP MODEL CASE SHP.S90  
VARIABLES: B12 EMCNX2

TABLE D.21. EXXON VALDEZ OIL SPILL CLEANUP  
(THOUSANDS OF EMPLOYEES)

	ANCHORAGE	CORDOVA/ MCCARTHY	FAIRBANKS	JUNEAU	KENAI/ COOK INLET
1988	0.000	0.000	0.000	0.000	0.000
1989	0.828	0.057	0.199	0.050	0.282
1990	0.200	0.000	0.050	0.000	0.050
1991	0.075	0.000	0.015	0.000	0.020
1992	0.000	0.000	0.000	0.000	0.000
1993	0.000	0.000	0.000	0.000	0.000
1994	0.000	0.000	0.000	0.000	0.000
1995	0.000	0.000	0.000	0.000	0.000
1996	0.000	0.000	0.000	0.000	0.000
1997	0.000	0.000	0.000	0.000	0.000
1998	0.000	0.000	0.000	0.000	0.000
1999	0.000	0.000	0.000	0.000	0.000
2000	0.000	0.000	0.000	0.000	0.000
2001	0.000	0.000	0.000	0.000	0.000
2002	0.000	0.000	0.000	0.000	0.000
2003	0.000	0.000	0.000	0.000	0.000
2004	0.000	0.000	0.000	0.000	0.000
2005	0.000	0.000	0.000	0.000	0.000
2006	0.000	0.000	0.000	0.000	0.000
2007	0.000	0.000	0.000	0.000	0.000
2008	0.000	0.000	0.000	0.000	0.000
2009	0.000	0.000	0.000	0.000	0.000
2010	0.000	0.000	0.000	0.000	0.000
2011	0.000	0.000	0.000	0.000	0.000
2012	0.000	0.000	0.000	0.000	0.000
2013	0.000	0.000	0.000	0.000	0.000
2014	0.000	0.000	0.000	0.000	0.000
2015	0.000	0.000	0.000	0.000	0.000

SOURCE: MAP MODEL CASE SPL.S90  
VARIABLES: B02 B08 B09 B11 B12

TABLE D.21. (CONTINUED)

	KODIAK	MATANUSKA/ SUSITNA	SOUTHEAST FAIRBANKS	VALDEZ/ CHITINA/ WHITTIER	TOTAL TRANSPORTATION EMPLOYMENT
1988	0.000	0.000	0.000	0.000	0.000
1989	0.467	0.182	0.050	0.535	2.650
1990	0.050	0.050	0.000	0.100	0.500
1991	0.025	0.015	0.000	0.050	0.200
1992	0.000	0.000	0.000	0.000	0.000
1993	0.000	0.000	0.000	0.000	0.000
1994	0.000	0.000	0.000	0.000	0.000
1995	0.000	0.000	0.000	0.000	0.000
1996	0.000	0.000	0.000	0.000	0.000
1997	0.000	0.000	0.000	0.000	0.000
1998	0.000	0.000	0.000	0.000	0.000
1999	0.000	0.000	0.000	0.000	0.000
2000	0.000	0.000	0.000	0.000	0.000
2001	0.000	0.000	0.000	0.000	0.000
2002	0.000	0.000	0.000	0.000	0.000
2003	0.000	0.000	0.000	0.000	0.000
2004	0.000	0.000	0.000	0.000	0.000
2005	0.000	0.000	0.000	0.000	0.000
2006	0.000	0.000	0.000	0.000	0.000
2007	0.000	0.000	0.000	0.000	0.000
2008	0.000	0.000	0.000	0.000	0.000
2009	0.000	0.000	0.000	0.000	0.000
2010	0.000	0.000	0.000	0.000	0.000
2011	0.000	0.000	0.000	0.000	0.000
2012	0.000	0.000	0.000	0.000	0.000
2013	0.000	0.000	0.000	0.000	0.000
2014	0.000	0.000	0.000	0.000	0.000
2015	0.000	0.000	0.000	0.000	0.000

SOURCE: MAP MODEL CASE SPL.S90  
 VARIABLES: B15 B17 B24 B26 EMT9X



TABLE D.22. TRANS-ALASKA PIPELINE  
(THOUSANDS OF EMPLOYEES)

	ANCHORAGE	BARROW/ NORTH SLOPE	FAIRBANKS	SOUTHEAST FAIRBANKS	VALDEZ/ CHITINA/ WHITTIER
1988	0.390	0.101	0.040	0.026	0.252
1989	0.430	0.101	0.040	0.026	0.252
1990	0.430	0.101	0.040	0.026	0.252
1991	0.430	0.101	0.040	0.026	0.252
1992	0.430	0.101	0.040	0.026	0.252
1993	0.430	0.101	0.040	0.026	0.252
1994	0.430	0.101	0.040	0.026	0.252
1995	0.430	0.101	0.040	0.026	0.252
1996	0.430	0.101	0.040	0.026	0.252
1997	0.430	0.101	0.040	0.026	0.252
1998	0.430	0.101	0.040	0.026	0.252
1999	0.430	0.101	0.040	0.026	0.252
2000	0.430	0.101	0.040	0.026	0.252
2001	0.430	0.101	0.040	0.026	0.252
2002	0.430	0.101	0.040	0.026	0.252
2003	0.430	0.101	0.040	0.026	0.252
2004	0.430	0.101	0.040	0.026	0.252
2005	0.430	0.101	0.040	0.026	0.252
2006	0.430	0.101	0.040	0.026	0.252
2007	0.430	0.101	0.040	0.026	0.252
2008	0.430	0.101	0.040	0.026	0.252
2009	0.430	0.101	0.040	0.026	0.252
2010	0.430	0.101	0.040	0.026	0.252
2011	0.430	0.101	0.040	0.026	0.252
2012	0.430	0.101	0.040	0.026	0.252
2013	0.430	0.101	0.040	0.026	0.252
2014	0.430	0.101	0.040	0.026	0.252
2015	0.430	0.101	0.040	0.026	0.252

SOURCE: MAP MODEL CASE TAP.S90  
VARIABLES: B02 B04 B09 B24 B26

TABLE D.22. (CONTINUED)

	YUKON KOYUKUK	TOTAL HIGH-WAGE CONSTRUCTION EMPLOYMENT	TOTAL TRANSPORTATION EMPLOYMENT
	-----	-----	-----
1988	0.076	0.000	0.885
1989	0.076	0.000	0.925
1990	0.076	0.000	0.925
1991	0.076	0.000	0.925
1992	0.076	0.000	0.925
1993	0.076	0.000	0.925
1994	0.076	0.000	0.925
1995	0.076	0.000	0.925
1996	0.076	0.000	0.925
1997	0.076	0.000	0.925
1998	0.076	0.000	0.925
1999	0.076	0.000	0.925
2000	0.076	0.000	0.925
2001	0.076	0.000	0.925
2002	0.076	0.000	0.925
2003	0.076	0.000	0.925
2004	0.076	0.000	0.925
2005	0.076	0.000	0.925
2006	0.076	0.000	0.925
2007	0.076	0.000	0.925
2008	0.076	0.000	0.925
2009	0.076	0.000	0.925
2010	0.076	0.000	0.925
2011	0.076	0.000	0.925
2012	0.076	0.000	0.925
2013	0.076	0.000	0.925
2014	0.076	0.000	0.925
2015	0.076	0.000	0.925

SOURCE: MAP MODEL CASE TAP.S90  
 VARIABLES: B29 EMCNX1 EMT9X

TABLE D.23. NUMBER OF TOURISTS  
(THOUSANDS OF EMPLOYEES)

TOURISTS ENTERING ALASKA -----	
1988	610.700
1989	629.021
1990	647.891
1991	667.328
1992	687.347
1993	707.967
1994	729.206
1995	751.082
1996	773.614
1997	796.822
1998	820.727
1999	845.348
2000	870.708
2001	896.829
2002	923.733
2003	951.445
2004	979.988
2005	1009.387
2006	1039.668
2007	1070.858
2008	1102.983
2009	1136.073
2010	1170.154
2011	1205.259
2012	1241.416
2013	1278.658
2014	1317.017
2015	1356.527

SOURCE: MAP MODEL CASE TRS.S90  
VARIABLE: TOURIST

TABLE D.23. COOK INLET PETROLEUM  
(THOUSANDS OF EMPLOYEES)

	KENAI/ COOK INLET -----	TOTAL PETROLEUM MINING EMPLOYMENT -----
1988	0.833	0.833
1989	0.850	0.850
1990	0.841	0.841
1991	0.833	0.833
1992	0.825	0.825
1993	0.817	0.817
1994	0.808	0.808
1995	0.800	0.800
1996	0.792	0.792
1997	0.784	0.784
1998	0.776	0.776
1999	0.769	0.769
2000	0.761	0.761
2001	0.753	0.753
2002	0.746	0.746
2003	0.738	0.738
2004	0.731	0.731
2005	0.724	0.724
2006	0.717	0.717
2007	0.709	0.709
2008	0.702	0.702
2009	0.695	0.695
2010	0.688	0.688
2011	0.681	0.681
2012	0.675	0.675
2013	0.668	0.668
2014	0.661	0.661
2015	0.655	0.655

SOURCE: MAP MODEL CASE UPC.S90  
VARIABLES: B12 EMPP

**TABLE D.24. PETROLEUM SETTLEMENT REVENUES  
(MILLIONS OF CURRENT \$)**

	<b>STATE SETTLEMENT REVENUES</b>
	-----
1988	329.000
1989	259.700
1990	111.000
1991	200.000
1992	210.000
1993	221.000
1994	232.000
1995	243.000
1996	255.000
1997	268.000
1998	281.000
1999	295.000
2000	310.000
2001	0.000
2002	0.000
2003	0.000
2004	0.000
2005	0.000
2006	0.000
2007	0.000
2008	0.000
2009	0.000
2010	0.000
2011	0.000
2012	0.000
2013	0.000
2014	0.000
2015	0.000

**SOURCE: MAP MODEL CASE WIN.S90  
VARIABLE: RP9X**

TABLE D.25. WISHBONE MINE  
(THOUSANDS OF EMPLOYEES)

	MATANUSKA/ SUSITNA	SEWARD	TOTAL LOW-WAGE CONSTRUCTION EMPLOYMENT	TOTAL MINING EMPLOYMENT	TOTAL TRANSPORTATION EMPLOYMENT
1988	0.000	0.000	0.000	0.000	0.000
1989	0.000	0.000	0.000	0.000	0.000
1990	0.020	0.000	0.010	0.010	0.000
1991	0.205	0.000	0.080	0.110	0.015
1992	0.240	0.010	0.000	0.220	0.030
1993	0.240	0.010	0.000	0.220	0.030
1994	0.240	0.010	0.000	0.220	0.030
1995	0.240	0.010	0.000	0.220	0.030
1996	0.240	0.010	0.000	0.220	0.030
1997	0.240	0.010	0.000	0.220	0.030
1998	0.240	0.010	0.000	0.220	0.030
1999	0.240	0.010	0.000	0.220	0.030
2000	0.240	0.010	0.000	0.220	0.030
2001	0.240	0.010	0.000	0.220	0.030
2002	0.240	0.010	0.000	0.220	0.030
2003	0.240	0.010	0.000	0.220	0.030
2004	0.240	0.010	0.000	0.220	0.030
2005	0.240	0.010	0.000	0.220	0.030
2006	0.240	0.010	0.000	0.220	0.030
2007	0.240	0.010	0.000	0.220	0.030
2008	0.240	0.010	0.000	0.220	0.030
2009	0.240	0.010	0.000	0.220	0.030
2010	0.240	0.010	0.000	0.220	0.030
2011	0.240	0.010	0.000	0.220	0.030
2012	0.240	0.010	0.000	0.220	0.030
2013	0.240	0.010	0.000	0.220	0.030
2014	0.240	0.010	0.000	0.220	0.030
2015	0.240	0.010	0.000	0.220	0.030

SOURCE: MAP MODEL CASE WIS.S90  
VARIABLES: B17 B21 EMCNX2 EMPMINE EMT9X



**APPENDIX E**

**OCS PRODUCTION AND REVENUE ASSUMPTIONS**



TABLE E.1. OCS PRODUCTION AND PROPERTY ASSUMPTIONS

	CHUKCHI SEA OIL PRODUCTION MMBLS		DEPRECIATED PROPERTY (\$MM) OIL		BERING SEA OIL PRODUCTION MMBLS		DEPRECIATED PROPERTY (\$MM)
	ANNUAL	CUMUL.	PIPELINE	SHOREBASE	ANNUAL	CUMUL.	SHOREBASE
1990							
1991							
1992							
1993							5
1994				24			5
1995				73			5
1996				122			5
1997				122			5
1998			567	122			20
1999		0	1133	122		0	40
2000	161	161	1700	122	21	21	50
2001	214	375	1593	114	29	50	47
2002	214	589	1450	104	29	79	43
2003	214	803	1307	94	29	108	38
2004	214	1017	1165	84	29	137	34
2005	214	1231	1022	73	29	166	30
2006	189	1420	879	63	24	190	26
2007	163	1583	753	54	21	211	22
2008	145	1728	645	46	20	231	19
2009	130	1858	548	39	17	248	16
2010	115	1973	461	33	15	263	14
2011	102	2075	385	28	14	277	11
2012	92	2167	317	23	12	289	9
2013	82	2249	255	18	11	300	8
2014	74	2323	201	14	10	310	6
2015	66	2389	151	11	9	319	4
2016	59	2448	107	8	8	327	3
2017	54	2502	68	5	7	334	2
2018	48	2550	32	2	6	340	1
2019							
2020							
CUMULATIVE		2550				340	

ASSUMPTIONS:	Type of Facility	Area	Year Completed	Cost (\$mm)
	shorebase	NSB	1996	122
	onshore pipeline	NSB	1999	1700
	shorebase	Al. Is.	1999	50

Source: Kevin Banks, 4/16/90

- Notes: 1. Depreciation calculated over life of production of oil and gas.  
 2. Capital cost figures assume instantaneous build, 4th quarter 1989 prices.

TABLE E.2. TAX BASE AND PETROLEUM PROPERTY TAXES  
(\$ MILLIONS)

	CHUKCHI PROPERTY (1989\$)	CHUKCHI TAX 0.02*Ti	BERING PROPERTY (1989\$)	BERING TAX 0.02*Ti	GROWTH RATE OF US CPI	PRICE INDEX	TOTAL TAX (NOMINAL \$)	TOTAL TAX BASE (1989 \$)	TOTAL TAX BASE (NOMINAL \$)
1990	0	0.000	0	0.000	5.0%	1.000	0.000	0	0
1991	0	0.000	0	0.000	5.0%	1.050	0.000	0	0
1992	0	0.000	0	0.000	5.0%	1.103	0.000	0	0
1993	0	0.000	5	0.100	5.0%	1.158	0.116	5	6
1994	24	0.488	5	0.100	5.0%	1.216	0.715	29	36
1995	73	1.464	5	0.100	5.0%	1.276	1.996	78	100
1996	122	2.440	5	0.100	5.0%	1.340	3.404	127	170
1997	689	13.773	5	0.100	5.0%	1.407	19.521	694	976
1998	1255	25.107	20	0.400	5.0%	1.477	37.685	1275	1884
1999	1255	25.107	40	0.800	5.0%	1.551	40.190	1295	2009
2000	1822	36.440	50	1.000	5.0%	1.629	60.986	1872	3049
2001	1707	34.139	47	0.938	5.0%	1.710	59.994	1754	3000
2002	1554	31.081	43	0.853	5.0%	1.796	57.349	1597	2867
2003	1401	28.023	38	0.768	5.0%	1.886	54.289	1440	2714
2004	1248	24.965	34	0.682	5.0%	1.980	50.780	1282	2539
2005	1095	21.907	30	0.597	5.0%	2.079	46.784	1125	2339
2006	942	18.849	26	0.512	5.0%	2.183	42.262	968	2113
2007	807	16.148	22	0.441	5.0%	2.292	38.023	829	1901
2008	691	13.819	19	0.379	5.0%	2.407	34.169	710	1708
2009	587	11.747	16	0.321	5.0%	2.527	30.493	603	1525
2010	494	9.889	14	0.271	5.0%	2.653	26.956	508	1348
2011	412	8.245	11	0.226	5.0%	2.786	23.602	424	1180
2012	339	6.788	9	0.185	5.0%	2.925	20.398	349	1020
2013	274	5.473	8	0.150	5.0%	3.072	17.272	281	864
2014	215	4.301	6	0.118	5.0%	3.225	14.252	221	713
2015	162	3.244	4	0.088	5.0%	3.386	11.284	167	564
2016	115	2.301	3	0.062	5.0%	3.556	8.400	118	420
2017	73	1.458	2	0.038	5.0%	3.733	5.585	75	279
2018	34	0.686	1	0.018	5.0%	3.920	2.758	35	138
2019	0	0.000	0	0.000	5.0%	4.116	0.000	0	0
2020	0	0.000	0	0.000	5.0%	4.322	0.000	0	0

Note: Property tax figures represent the combined state and local government shares.

TABLE E.3  
TAPS TARIFF AND INCREMENTAL STATE PETROLEUM REVENUES  
WITH AND WITHOUT OCS PRODUCTION  
(current dollars)

Year	Wellhead Oil Price (\$/bbl)	Projected Thruput (MMbbls)	TAPS Tariff (\$/bbl)	With OCS Thruput (MMbbls)	TAPS Tariff (\$/bbl)	Incr. NS Production (MMbbls)	Marginal Tariff (\$/bbl)	State Share of Revenue	Incr. Production	Incremental Revenues (1989 \$)	Royalties	Severance Taxes
1989	11	669	3.05	669	3.05	0	0.00	0.25	0	0	0	0
1990	11.5	685	3.90	685	3.90	0	0.00	0.25	0	0	0	0
1991	12.3	666	3.63	666	3.63	0	0.00	0.24	0	0	0	0
1992	13.1	645	3.86	645	3.86	0	0.00	0.24	0	0	0	0
1993	14.1	603	3.89	603	3.89	0	0.00	0.23	0	0	0	0
1994	15.3	544	3.88	544	3.88	0	0.00	0.23	0	0	0	0
1995	16.5	484	3.93	484	3.93	0	0.00	0.22	0	0	0	0
1996	18.0	430	3.82	430	3.82	0	0.00	0.22	0	0	0	0
1997	19.6	379	3.60	379	3.60	0	0.00	0.21	0	0	0	0
1998	21.3	368	3.39	368	3.39	0	0.00	0.21	0	0	0	0
1999	22.7	352	3.61	352	3.61	0	0.00	0.20	0	0	0	0
2000	24.3	330	3.69	330	3.69	0	0.00	0.20	0	0	0	0
2001	25.9	304	3.89	489	3.08	8	-0.81	0.20	89.4	49.8	57.0	32.4
2002	27.6	277	4.11	513	3.13	7	-0.98	0.19	89.6	47.5	58.2	31.3
2003	29.5	250	4.35	485	3.17	6	-1.18	0.19	89.6	45.3	59.5	30.2
2004	31.3	232	4.71	467	3.36	5	-1.36	0.18	89.5	43.0	60.6	28.9
2005	33.4	228	4.94	462	3.51	5	-1.43	0.18	87.4	40.0	60.4	27.0
2006	35.4	238	5.03	471	3.64	3	-1.39	0.18	80.8	35.2	56.9	23.8
2007	37.5	251	5.07	456	3.84	3	-1.23	0.17	73.2	30.4	52.6	20.5
2008	39.7	264	5.12	444	4.04	2	-1.08	0.17	65.4	25.9	48.0	17.4
2009	42.0	245	5.53	403	4.37	2	-1.16	0.17	63.2	23.8	47.3	15.9
2010	44.2	236	5.84	374	4.68	2	-1.16	0.16	58.9	21.2	45.0	13.9
2011	46.5	227	6.22	349	5.04	2	-1.18	0.16	56.0	19.1	43.7	12.3
2012	49.0	219	6.44	327	5.30	2	-1.14	0.16	52.0	16.9	41.4	10.6
2013	51.5	211	6.90	305	5.73	1	-1.16	0.15	49.2	15.2	39.9	9.2
2014	54.2	203	7.39	286	6.20	1	-1.19	0.15	47.5	14.0	39.3	8.1
2015	57.1	196	7.92	268	6.72	1	-1.21	0.15	44.4	12.5	37.5	6.9
2016	60.0	189	8.49	252	7.26	1	-1.23	0.14	42.6	11.4	36.7	5.8
2017	63.2	182	9.11	240	7.82	1	-1.29	0.14	41.5	10.6	36.5	5.0
2018	66.5	175	9.78	228	8.44	1	-1.34	0.14	40.2	9.8	36.1	4.1
2019	70.0	169	10.49	216	9.11	1	-1.38	0.14	39.5	9.1	36.2	3.3
2020	73.6	162	11.27	204	9.86	1	-1.40	0.13	37.5	8.3	35.1	2.4

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interest of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. Administration.

