

## What do we know to date about the Alaska recession and the fiscal crunch?

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Note: An earlier version of this report had an error on page 26, in the sentence that said, “Given the fiscal pressures the state is experiencing it does not seem realistic that a long-term solution will be achieved without resorting to a use of the PFD.” The author mistakenly referred to “use of the PFD” when he meant “use of the PF (Permanent Fund) earnings.” That error has been corrected.

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### **Abstract:**

We provide a broad overview of the state's economic and fiscal conditions. We show how the economic contraction has spread away from natural resource and mining and state government to household spending dependent sectors. We also show that while the rate at which jobs are being lost has slowed, it is inaccurate to think about that as a sign of a recovery. That is because the engine of growth that is O&G employment as of June 2017 was only 75% of what it was in 2014. Additionally, the softness in spending activity may linger for an extended period of time.

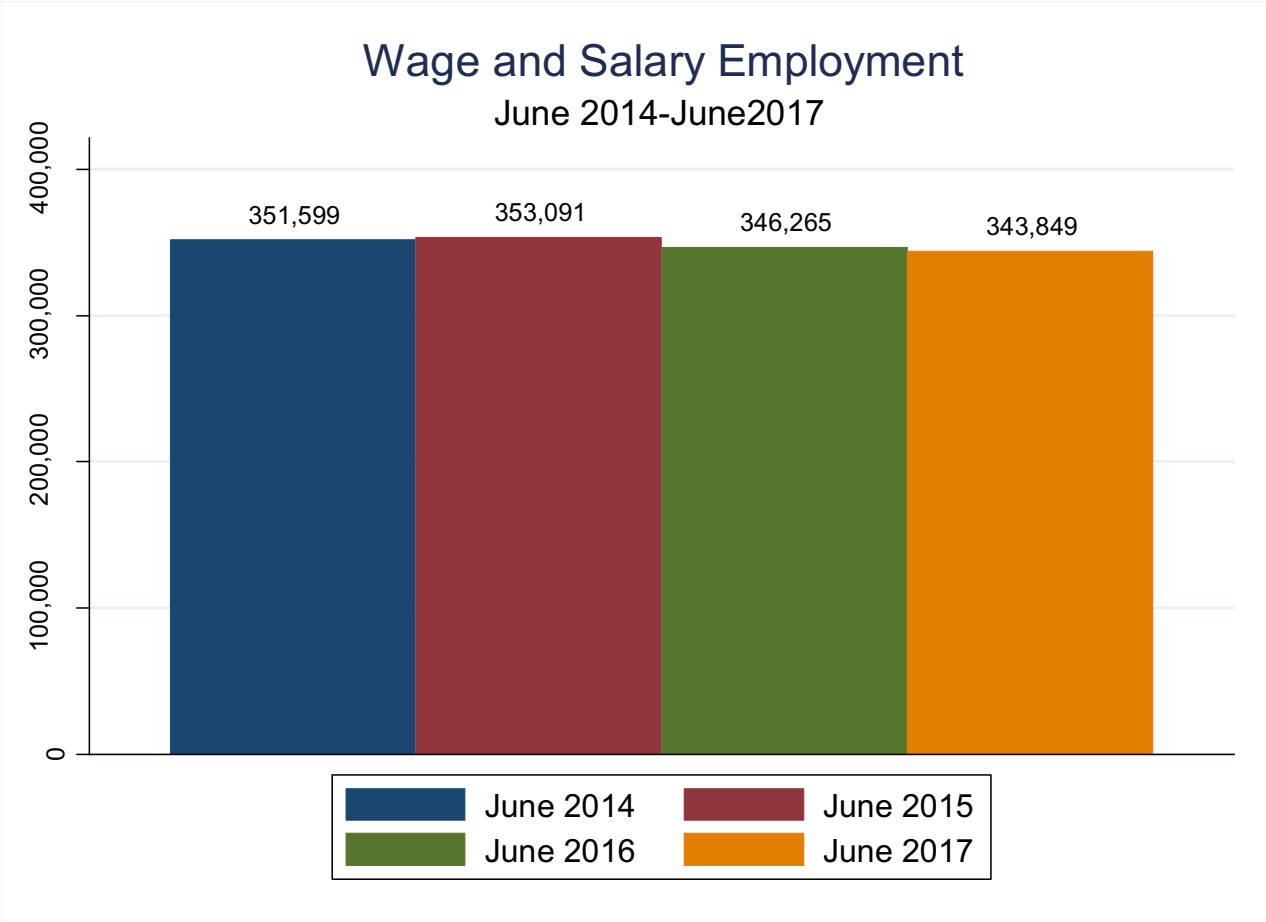
We also assess the regional effects of the recession and show the significant heterogeneity in experience. Unsurprisingly, areas with economic bases not associated with Oil and Gas and with relatively little dependence on state government spending are holding up best.

After establishing an understanding of the economic conditions, we offer a back of the envelope calculation of the capital investment losses associated with the fiscal uncertainty. Then, we provide a comparison of Alaska's taxes relative to the rest of the US, and a simulation of the effects of different withdrawal amounts on the permanent fund balance and the earnings reserve.

**I) General patterns of activity**

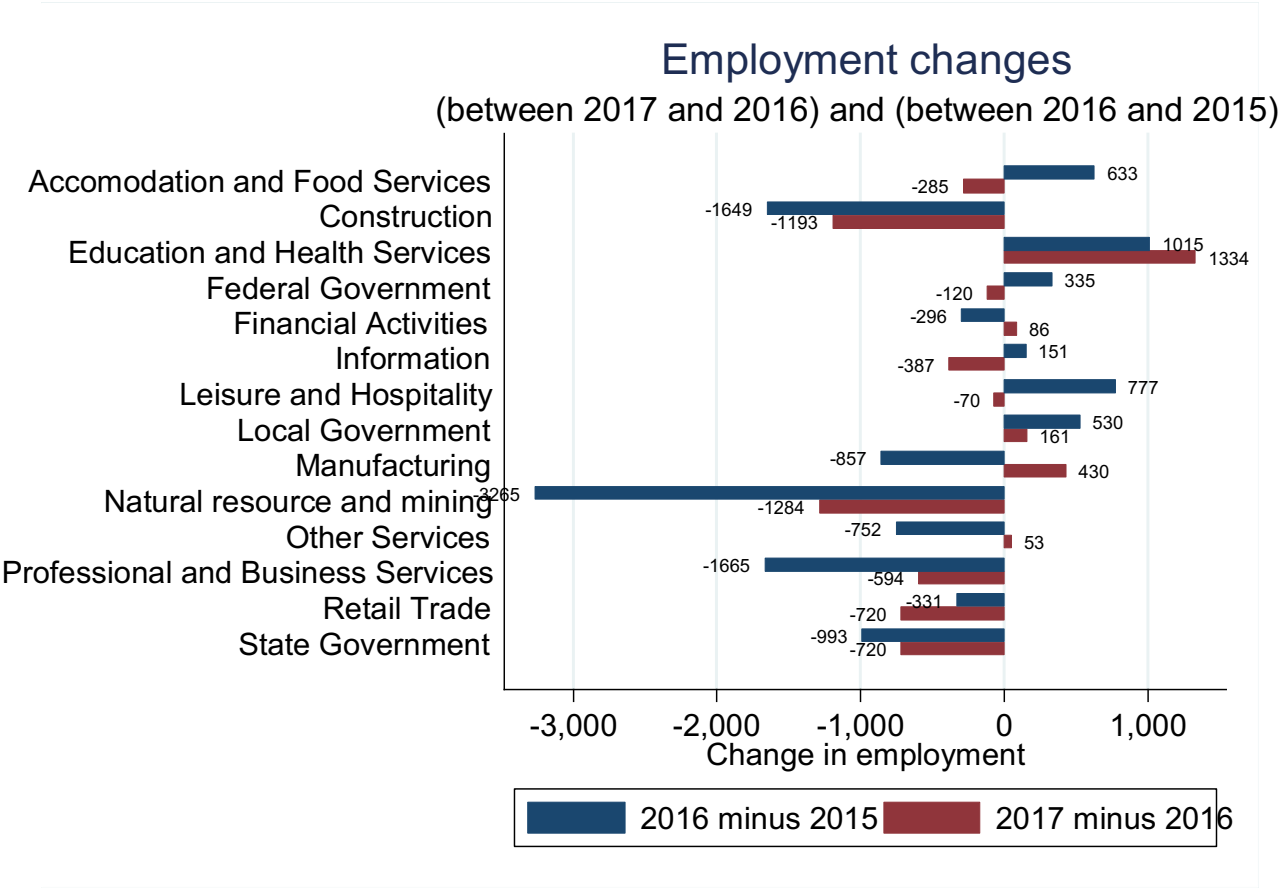
In this section, we present the current economic activity using wage and salary employment. Figure 1 shows uses June employment- the last month for which we have accurate data- to show employment levels from 2014 to 2017. We can see that employment declined by 6,826 jobs between June 2015 and June 2016. There was another decrease of 2,416 jobs between June 2016 and June 2017. The smaller decline in 2017 is mainly due to the fact that the large losses in Oil & Gas, Construction, and Professional & Business Services occurred in 2016. This, however, does not mean that the recession is over or that we are on our way to a recovery. It is simply reflective of a slowdown in job losses in the initially affected sectors.

Figure 1: State level Wage and Salary Employment



To better understand which sectors are responsible for the aggregate losses we present in figure 1, we turn our attention to figure 2. In it, we show sectoral changes between June 2016 and June 2015 using the blue bars and those between June 2017 and June 2016 using the red bars. This exercise allows us to determine the extent to which the initially affected sectors are still shedding jobs, and whether or not the losses have spread to household spending dependent sectors.

1.1 ) Figure 2 Sectoral changes<sup>2</sup>



The only sector with positive growth in both 2016 and 2017 was Education and Health services. In fact, the number of jobs added in 2017 was higher than what we observed in 2016 (1,134 Vs 1,015). More specifically, these are gains in the health care sector<sup>3</sup>.

The following sectors lost jobs in both 2016 and 2017 –Construction, Natural Resources and Mining, Professional and Business Services, and State Government- but the pace of losses were smaller in 2017 than in 2016. Accommodation and Food services, Leisure and Hospitality, and Information were still positive in 2016 but lost jobs in 2017, while Retail Trade lost twice as many jobs in 2017 than it did in 2016. The fact that these few last sectors have lost jobs in 2017 means that as expected, the recession

<sup>2</sup> Most of the decline in the Other services sector between 2015 and 2016 came from declines in religious organizations.

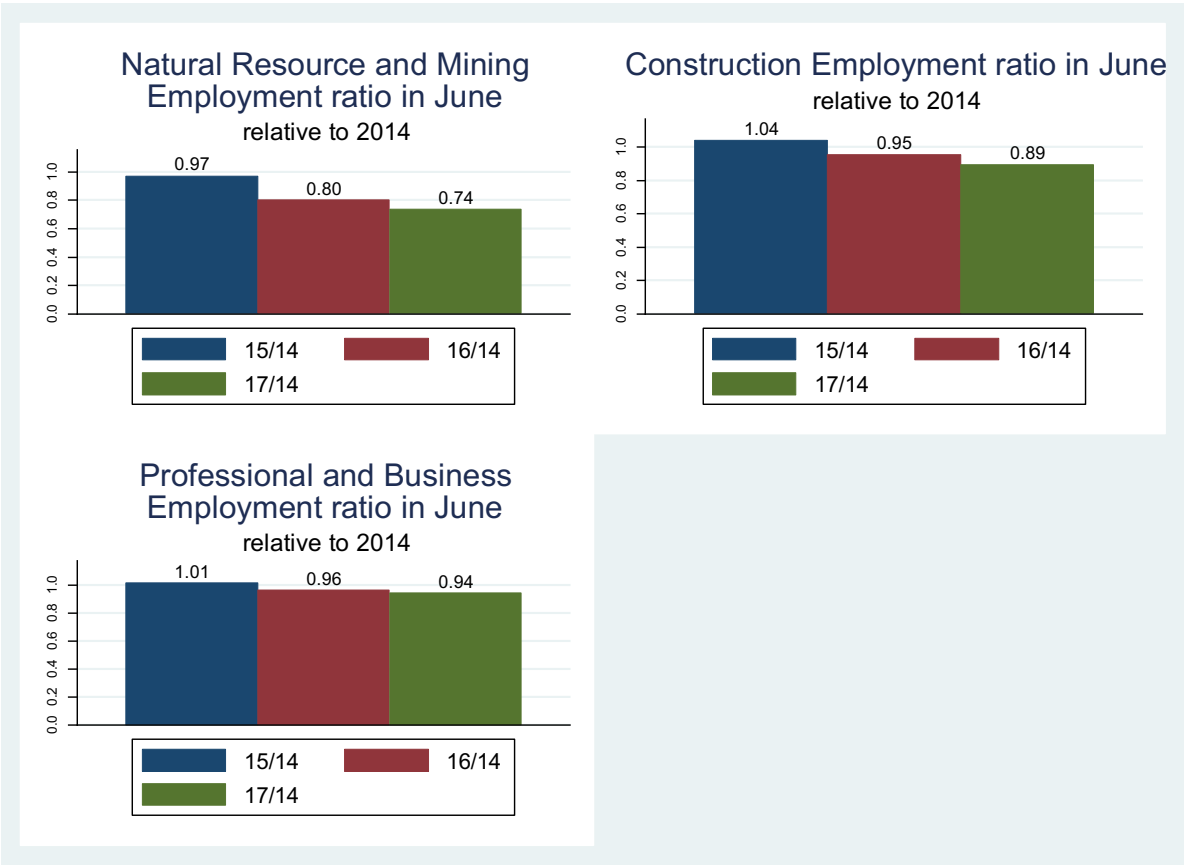
<sup>3</sup> K-12 and the University are not part of education and Health care sector.

has spread to the sectors most sensitive to household's finances which have been affected due to the initial round of losses and the uncertainty of what is to come.

1.2) Changes relative to 2014

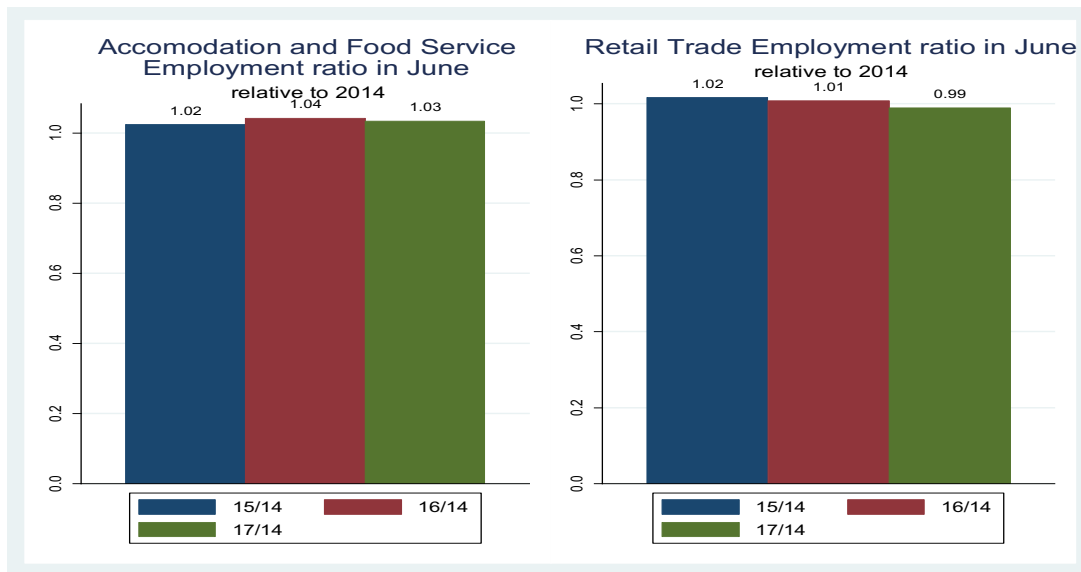
Below we show how different sectors are performing relative to 2014. We use June employment data in 2015, 2016, and 2017 and create a ratio of that year's employment relative to June 2014. This exercise allows us to determine the employment size in the sectors of interest relative to the base. From figure 3, for example, Natural resource employment was 97% in June 2015 relative to what it was in June 2014. By June 2017, it was 74% of its size in 2014.

Figure 3: Private sector wave one



In figure 4, we turn our attention to household spending dependent sectors to determine the extent to which the recession has spread from the initially affected industries. While from figure 2, we show that both of these sectors have lost jobs between 2016 and 2017 their employment levels have held up well relative to 2014.

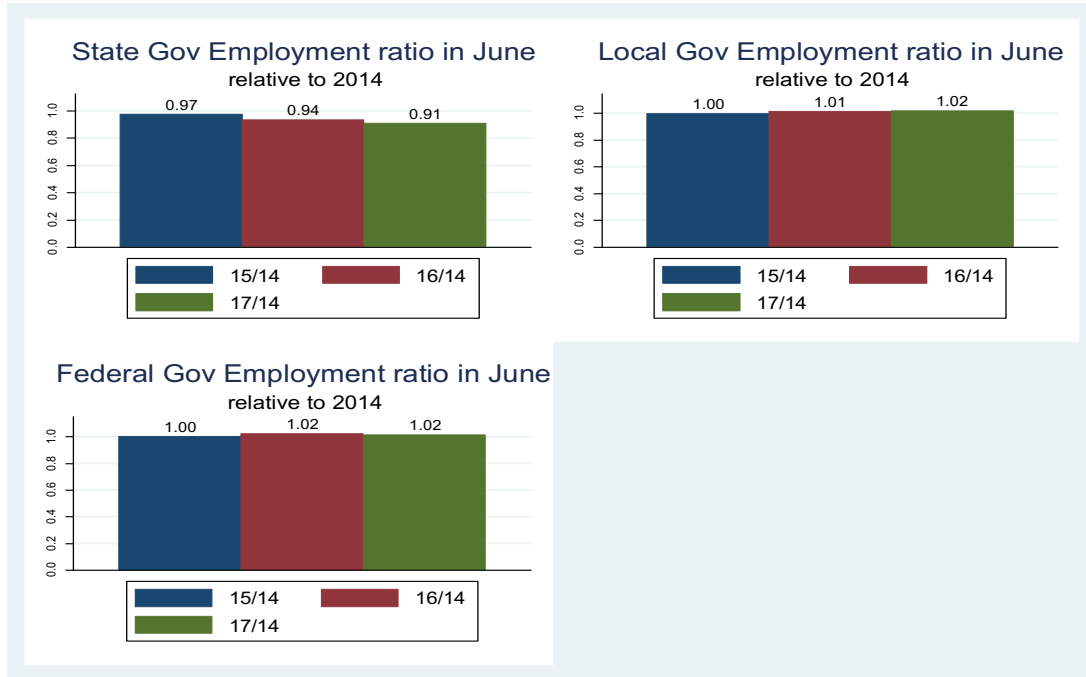
Figure 4: Two Household spending sensitive sectors



In figure 5, we shift attention towards the public sector. State government employment in June 2017 was 91% of what it was in June 2014. Local government<sup>4</sup> is holding up very well and was 102% in June 2017 relative to what it was in June 2014. This potentially represents considerable future downside if communities start shrinking their workforces as funding from state continues to decline.

<sup>4</sup> Local government includes K-12 education and the university. In fact, Education represents the largest slice of local government both from a budgetary and employment standpoint.

Figure 5: Government

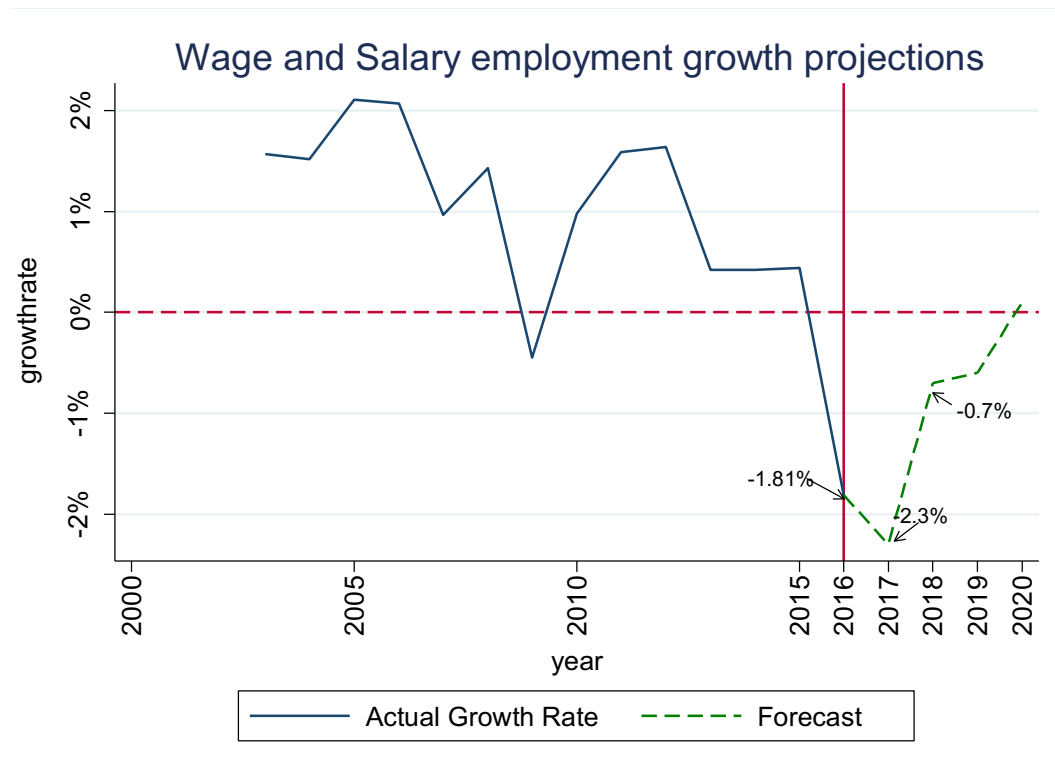


## II) Revisiting the statewide forecast

In 2016, the state economy lost 6,221 wage and salary jobs (a decrease of about 1.8%). For 2017, we predicted a slightly more severe decrease of 2.3%. For 2018, we expect smaller year over year losses of -0.7%. It is important to note that the decline in year over year losses does not indicate a recovery in activity. It merely shows that the losses caused by the decline in oil prices would have made their way out of the economy. It is difficult to project how the Alaska economy will perform in the long run if oil prices were to remain between the \$40 and \$60 per barrel range.

This forecast does not take into account legislative actions such as further government reductions or the imposition of taxes.

Figure 6: Basic economic forecast



*Downside risk:*

It appears based on the most recent data available that actual jobs losses will end up being smaller by the end of 2017 than our forecast indicates. The difference is mainly due to the surprising strength of local government and the fact that the support sectors have been more robust than expected. However, in the absence of the economic engine that is O&G, the non-basic sector (Retail, accommodation, and other household spending sectors) may have an extended period of slow growth. Additionally, while local government has held up well in the last two years, its funding is tied to the state budget and may start experiencing losses as the smaller budgets become the new normal. On the bright side, year over year losses are smaller which could potentially indicate a return of stability.



### III) Who is recovering and who is not? An assessment by region using place of work data:

In this section, we turn our attention to the last 2 years of the recession using employment by place of work. Below, we present an exercise by region to showcase which boroughs/census areas have fared well and which ones continue to experience difficulties. The table below shows how to interpret the graphs:

Table 1: Percent employment changes matrix

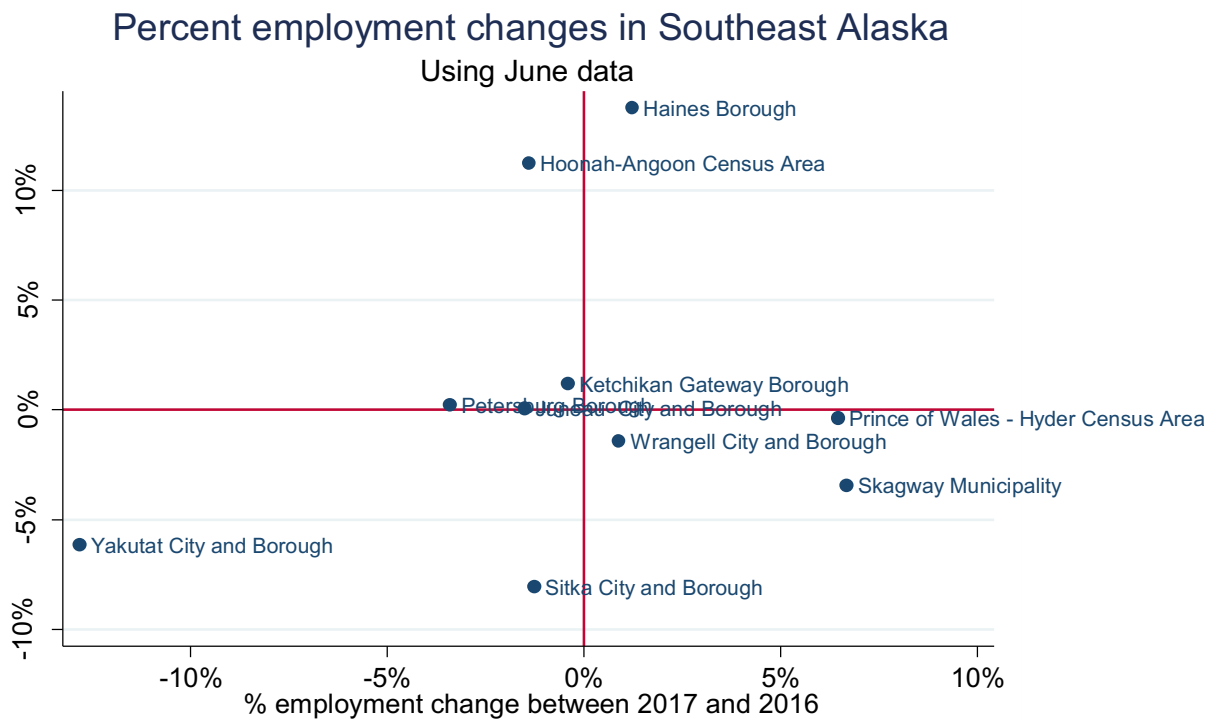
<p>Positive in 2016 but negative in 2017.</p> <p><b>Boroughs in this quadrant were still growing in 2016 but saw a decline in activity in 2017.</b></p>	<p>Positive in both 2016 and 2017.</p> <p><b>Boroughs in this quadrant grew in both 2016 and 2017.</b></p>
<p>Negative in both 2016 and 2017.</p> <p><b>Boroughs in this quadrant saw declines in employment in both 2016 and 2017.</b></p>	<p>Positive in 2017 but negative in 2016.</p> <p><b>Boroughs in this quadrant have recovered and experienced positive growth in 2017 after experiencing negative growth in 2016.</b></p>

We divide Alaska in five regions: Southeast, Southwest, Southcentral, Interior, and the Far North. For each region, we show a two way graph of employment percent changes between 2015-2016 and those of 2016-2017. This permits us to see how boroughs/census areas have performed in both years at the same time.

---Southeast Alaska:

Figure 7 shows, for example, that Haines is the only borough in the southeast to have experienced positive growth in both 2016 and 2017. It is, however, true that the rate of growth in 2017 was much smaller than it was in 2016 (13.7% Vs 1.23%). The majority of gains in the borough were in Accommodation and Food Services and leisure and Hospitality. On the other side of the spectrum, Yakutat city and borough experienced negative growth in both years with 2017 being even worse than 2016. Skagway, Wrangell, and Prince of Wales all had positive growth in 2017 after suffering a year of negative growth in 2016.

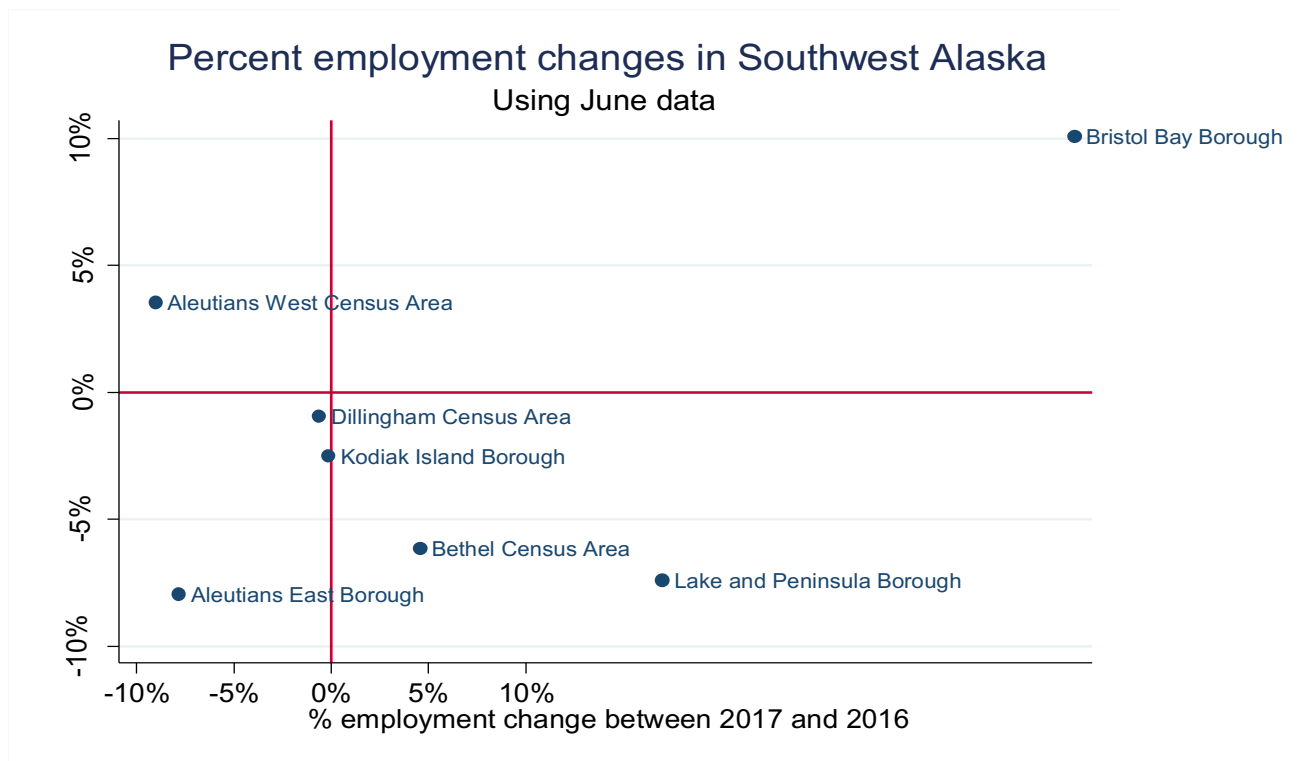
Figure 7 Percent employment changes in Southeast Alaska



----*Southwest Alaska*

Figure 8 shows the experience of Southwest Alaska boroughs over the last 2 years. Similar to southeast, there is considerable heterogeneity across places. For example, Bristol Bay had 2 years of very fast growth while Aleutians East suffered 2 consecutive years of negative growth. All the gains in Bristol Bay are in the manufacturing sector-processing- which is not connected to the current recession. In Aleutians East, the losses were spread across a variety of sectors including Education and Healthcare services, local government, and retail trade.

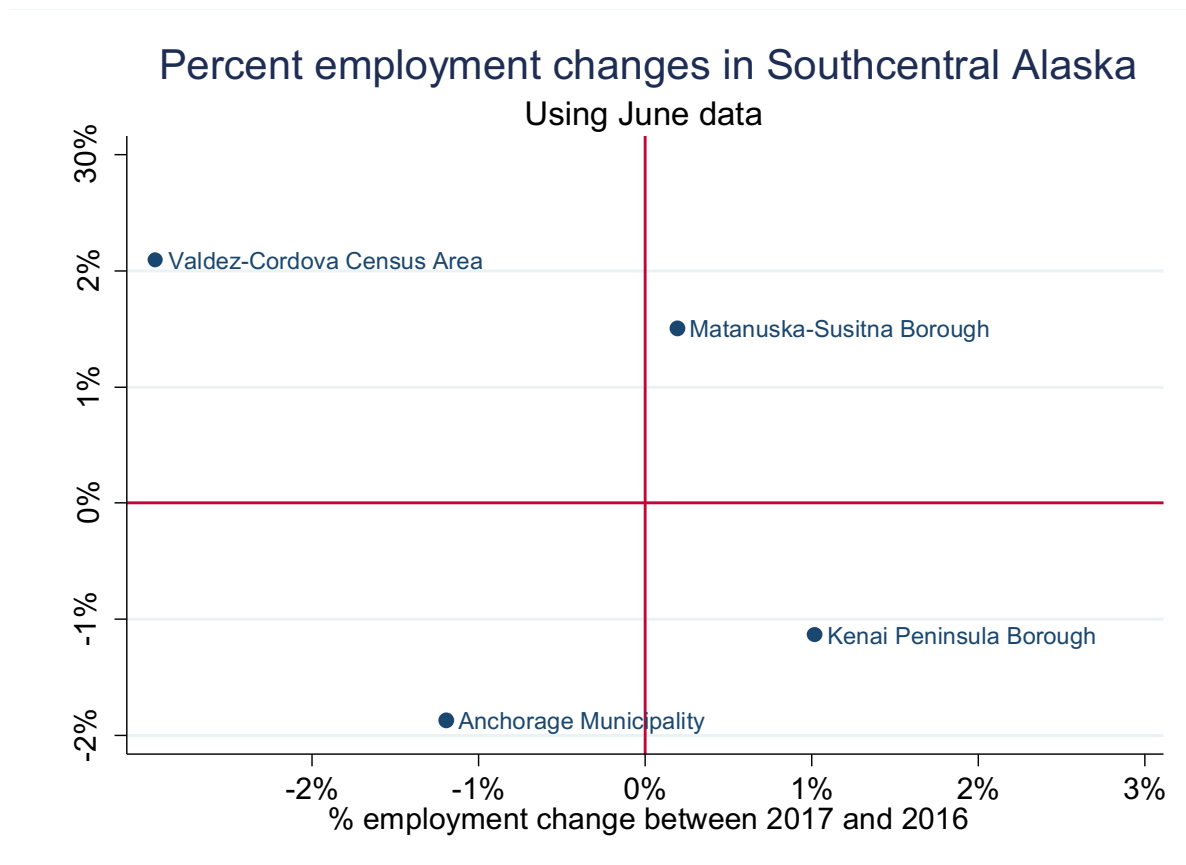
Figure 8 Percent employment changes in southwest Alaska



----Southcentral Alaska

Of the four boroughs in southcentral Alaska, the Matsu is the only to have had positive growth in both 2016 and 2017. However, the growth in 2017 is much smaller than the one in 2016. Anchorage, on the other hand, experienced 2 years of negative growth with the losses in 2017 being slightly less pronounced. Valdez performed worse in 2017 than it did in 2016, while Kenai performed better in 2017 than it did in 2016. It is important to note that these graphs are back looking and do not speak to the potential future resilience of these communities. While The Matsu borough, for example, has recently performed better than all other areas in Alaska, it is very vulnerable to the current slowdown given that 41% of its employment is in retail trade, accommodation and food services, and leisure and hospitality. All three of these sectors are dependent on household spending which means contraction in people's finances can ripple through the borough's economy in very fast fashion.

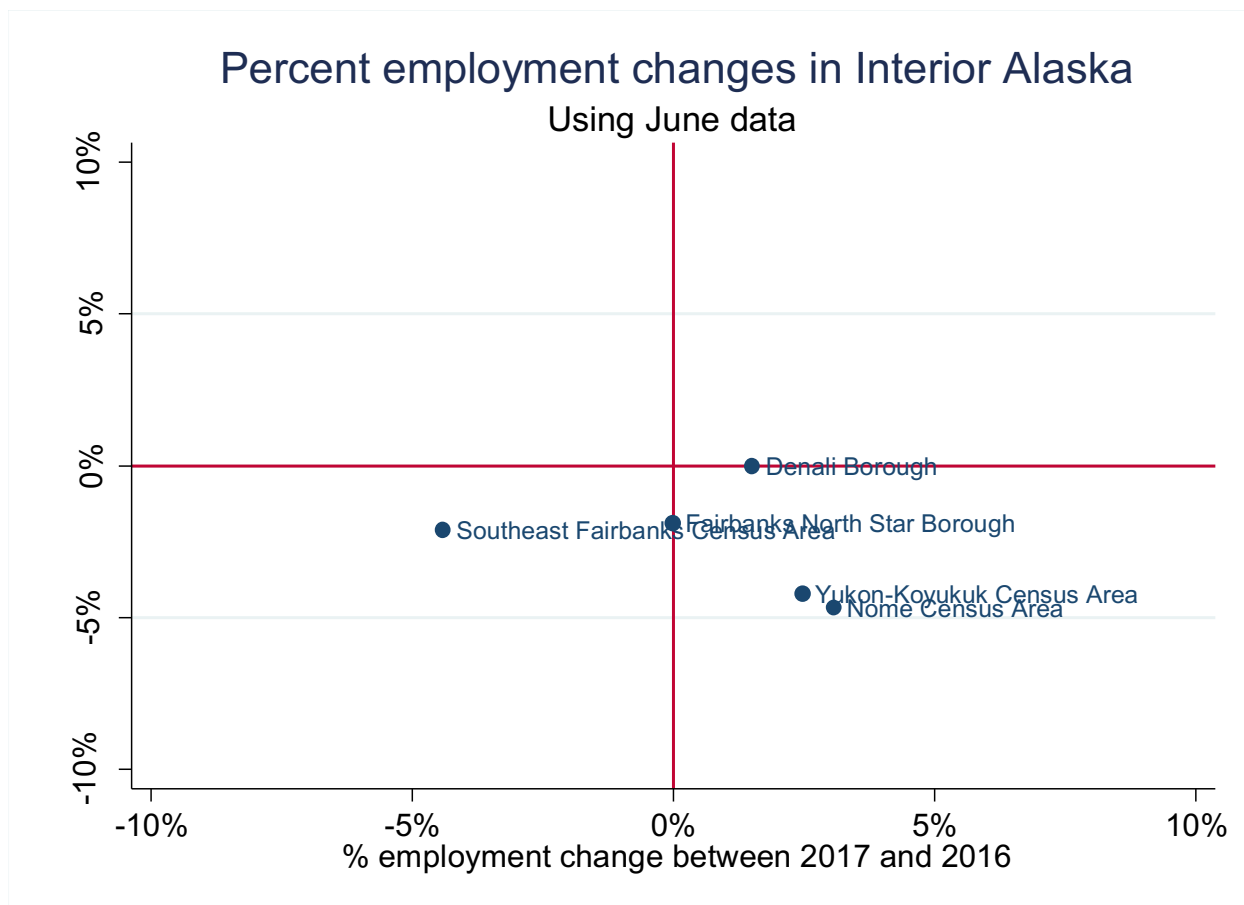
Figure 9 Percent employment changes in southcentral Alaska



----Interior Alaska

With the exception of Southeast Fairbanks, all the boroughs in interior Alaska have had a better 2017 than 2016. Denali did not experience negative growth in either year but had zero growth in 2017, while Yukon and Nome had negative 2016 and a positive 2017. Fairbanks economy lost around 1.8% of jobs in 2016 and had close to zero growth in 2017. Nome where more than 40% of jobs are in government had a significant turnaround between 2016 and 2017 driven mostly by the Other services<sup>5</sup> sector. Of note, are the 44 local government jobs it lost in 2017.

Figure 10 Percent employment changes in Interior Alaska

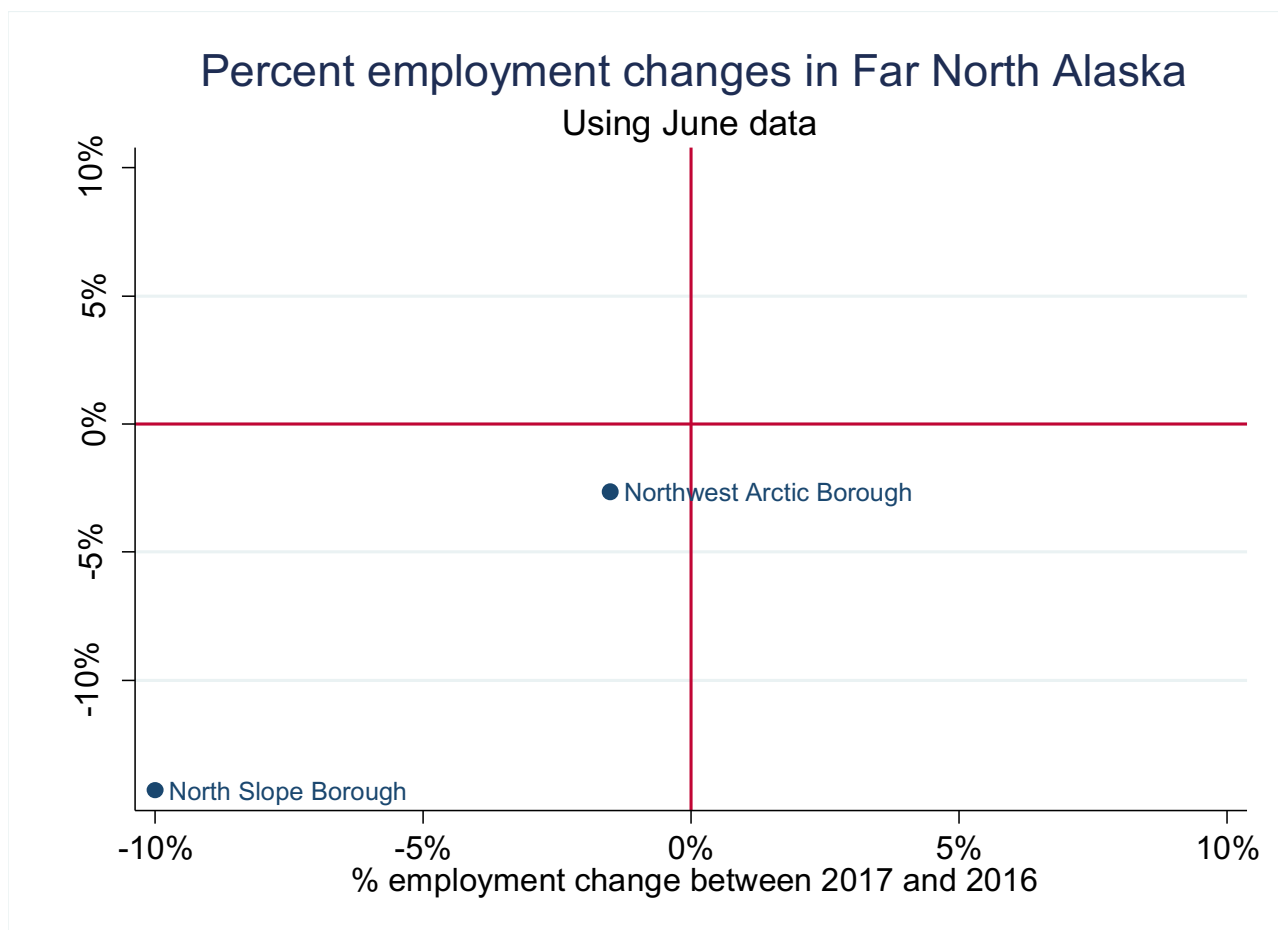


<sup>5</sup> The Other Services (except Public Administration) sector comprises establishments engaged in providing services not specifically provided for elsewhere in the classification system. Establishments in this sector are primarily engaged in activities, such as equipment and machinery repairing, promoting or administering religious activities, grantmaking, advocacy, and providing dry cleaning and laundry services, personal care services, death care services, pet care services, photofinishing services, temporary parking services, and dating services.

---Far North Alaska

As most Alaskans know, the far north is home to considerable resources. This means that the economies of the North Slope and the Northwest Arctic borough are very sensitive to changes in the prices of commodities. Therefore, it is unsurprising to see that the North Slope Borough had 2 successive years of very significant negative growth. To be clear, all these job changes include non-residents and therefore not just reflective of the welfare of these areas' residents. Almost all the losses in both years are in Natural resources and mining with some job losses in 2017 in Professional and Business services. The Northwest Arctic also experienced 2 years of negative growth but much smaller changes relative to the North Slope. Also, its 2017 had much smaller losses than in 2016 (1.5% Vs 2.6%).

Figure 11 Percent employment changes in Far North Alaska

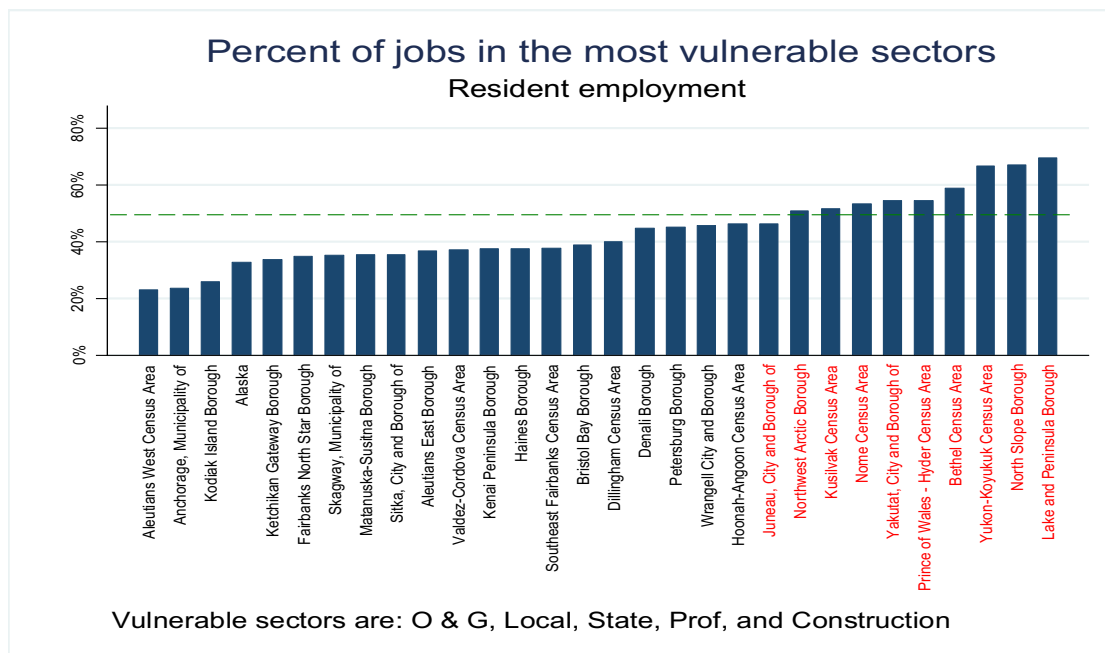


The regional analysis above highlights the experience of the boroughs over the last two years as the recession made its way to household spending sectors. As we make our way out of the recession, it will be important to keep an eye on some of the most affected areas and how they will rebound. This is especially important in areas which lack a diverse economic base and where the reliance on oil & gas and government is high. Given the high share of non-resident employment in certain areas of Alaska, we focus in section 4 on economic vulnerability using employment by place of residence.

#### IV) Regional Vulnerability using employment by place of residence

Figure 12 shows the reliance on the most vulnerable sectors -O&G, Local, State, Prof, and Construction- across boroughs/census areas. Nine boroughs/census areas had more than 50% of their employment in these 5 sectors with another five having more than 40% of residentiary employment in these industries. This employment by place of residence is more reflective of the boroughs' welfare because it shows jobs held by residents who live and shop there.

Figure 12: Regional vulnerability



Given the regional diversity and vulnerability we explain in figure 7, we turn our attention to an exercise that identifies which communities have fared better in the midst of the state's recession.

Since of interest is how different regions (or localities or cities) are affected by a common recession, a particular type of expected or 'counterfactual' reaction suggests itself, namely, the resistance of the state economy. In other words, the expectation is that, other things being equal, each region's employment would contract in recessions at the same rate as that statewide

Where equation (1) below shows the counterfactual we develop:

$$(\Delta E_r^{(t+k)})^e = \sum_i (g_N)^{(t+k)} E_{ir}^t \rightarrow \text{this develops a counterfactual}$$

$$(\Delta E_r^{(t+k)})^e$$

Represents the change in expected employment between periods t and t+k. In other words, the amount by which employment would have changed in borough r if it had growth at the same rate at the state.

$$\sum_i (g_N)^{(t+k)}$$

Gn represents overall growth in the reference area (state of Alaska in our case). across all sectors i.

$$E_{ir}^t$$

Employment in industry i a borough of interest r at time t.

Equation (2) below allows us to measure the distance between the actual decline in activity between two time periods and the one that would have occurred if the borough of interest would have had the same growth rate as the reference ( in this case: Alaska).

$$Resis_r = (\Delta E_r^{(contraction)} - (\Delta E_r^{(Contraction)^{(expected)}}) / | (\Delta E_r^{(Contraction)^{(expected)}}) |$$

A positive value of  $Resis_r$  indicates that a region is more resistant to recession (that is, less affected) than the state as a whole, and less resistant (more affected) for a negative value. For example, a value of 0.31 for Anchorage indicates that the borough employment in question is 31% more resistant than the state employment. From the graph below (figure 8), only six boroughs have been more resistant than the state to the slowdown in economic conditions. To be clear, this evaluates how many jobs would have been lost or added if the borough of interest had grown at the same rate as the state and compares it to the actual number of jobs that were added or lost.

This does not predict how the different areas will fare going forward but tells how the different the growth trajectory between 2012 and 2016 has been in each borough relative to the state. Figure 13 and Table 2 show that only 6 boroughs performed better than the state as a whole during the period of interest. It is important to remember that this analysis uses employment by place of residence which means it does not take into account employment held by non-residents. In a place such as Bristol Bay, those non-resident employment numbers are particularly important.



Figure 13 A measure of resilience

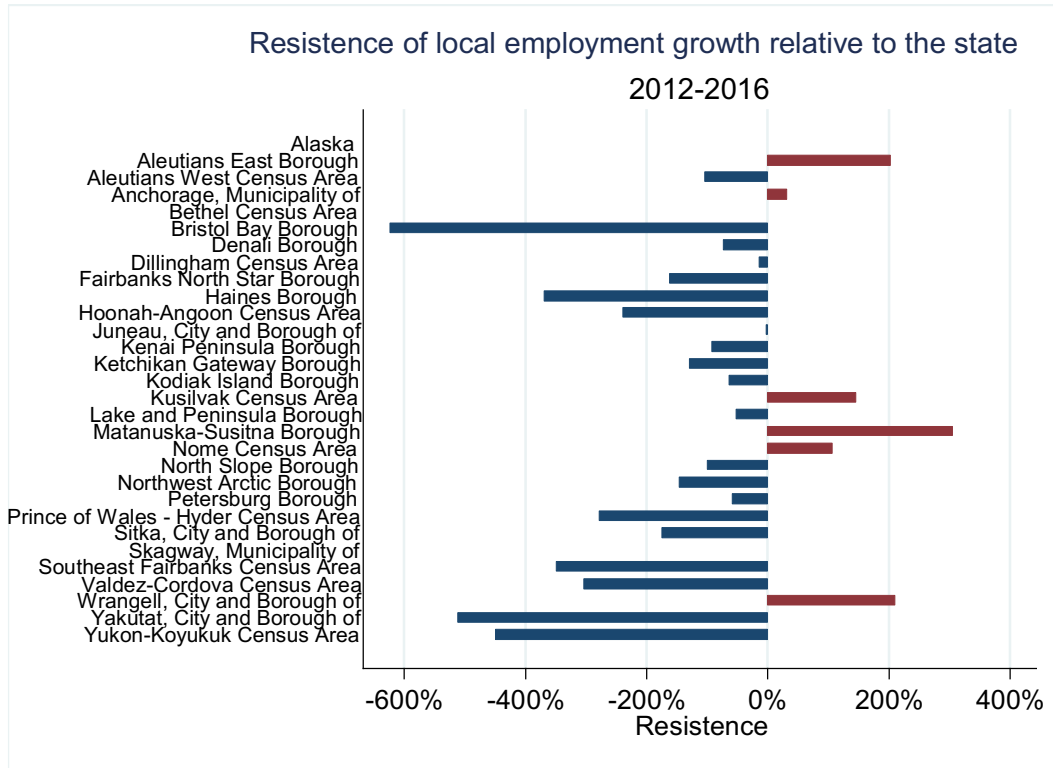


Table 2: Resistance of boroughs/census to the state recession

	Area code	Resistance
<b>Aleutians East Borough, Alaska</b>	<b>13</b>	<b>203.05%</b>
Aleutians West Census Area	16	-103.87%
<b>Anchorage Municipality</b>	<b>20</b>	<b>31.10%</b>
Bristol Bay Borough	60	-623.66%
Denali Borough	68	-73.72%
Dillingham Census Area	70	-13.82%
Fairbanks North Star Borough	90	-162.29%
Haines Borough	100	-369.09%
Hoonah-Angoon Census Area	105	-239.47%
Juneau City and Borough	110	-3.01%
Kenai Peninsula Borough	122	-92.16%
Ketchikan Gateway Borough	130	-129.13%
Kodiak Island Borough	150	-63.84%

<b>Kusilvak Census Area</b>	<b>158</b>	<b>146.18%</b>
Lake and Peninsula Borough	164	-51.76%
<b>Matanuska-Susitna Borough</b>	<b>170</b>	<b>305.28%</b>
<b>Nome Census Area</b>	<b>180</b>	<b>105.95%</b>
North Slope Borough	185	-99.28%
Northwest Arctic Borough	188	-146.64%
Petersburg Borough	195	-58.05%
Prince of Wales - Hyder Census Area	198	-278.02%
Sitka City and Borough	220	-175.20%
Southeast Fairbanks Census Area	240	-349.31%
Valdez-Cordova Census Area	261	-304.11%
<b>Wrangell, City and Borough of</b>	<b>275</b>	<b>209.63%</b>
Yakutat City and Borough, Alaska	282	-511.92%
Yukon-Koyukuk Census Area, Alaska	290	-449.12%

In the earlier sections our analysis focused on the economy and its regional effects. However, it is important to think about the linkage between the fiscal crisis and general economic activity. To start, we show that the legislative uncertainty we have been experiencing causes considerable drops in private investment. This means that it is important to think of the fiscal solution as inextricably linked to the broader economy. Then, we turn our attention to the state of the budget and the remaining deficit after accounting for the traditional sources of revenue. There have been numerous proposed solutions to the state's financial difficulties and we can't examine every one of them. Instead, we focus on a state by state comparison of broad based taxes and then present an analysis of how drawing money from the permanent fund can affect its future growth and potential solvency.

## **V) Uncertainty**

Given the decline in economic activity and the interaction between the fiscal decisions and broad private sector decision making, we shift our attention to discussing the potential implications of the fiscal uncertainty and the delay in charting a clear path forward on investment activity in Alaska. Due the decline in oil prices, the state has had to rely on savings to fund government for the last few years. The legislature has, however, not decided how it intends to fund government activity going forward. Given the size of the deficit and the paucity of non-oil sources, it seems that a draw from the Permanent fund is necessary. While understanding the potential short term effects from the imposition of taxes or government cuts seems to be fairly well understood, we try to quantify below the potential investment losses stemming from delaying a decision that provides fiscal stability.

*What is the scale of private capital spending in Alaska?*

While there does not exist a database of private and public capital spending by year for the state of Alaska, we have yearly construction forecasts which use as a proxy for these activities. In figure 14, we show that non-oil private spending between 2013 and 2017 declined by 410 million dollars. In figure 15, we show that O&G capital spending peaked in 2014 at 4.25 billion dollars and was only 2.43 billion in 2017. In other words, capital spending- including oil and non-oil- decreased by more than 2.5 billion dollars in the three years since oil prices declined.

Figure 14: Private sector construction spending (No Oil and Gas) between 2013 and 2017

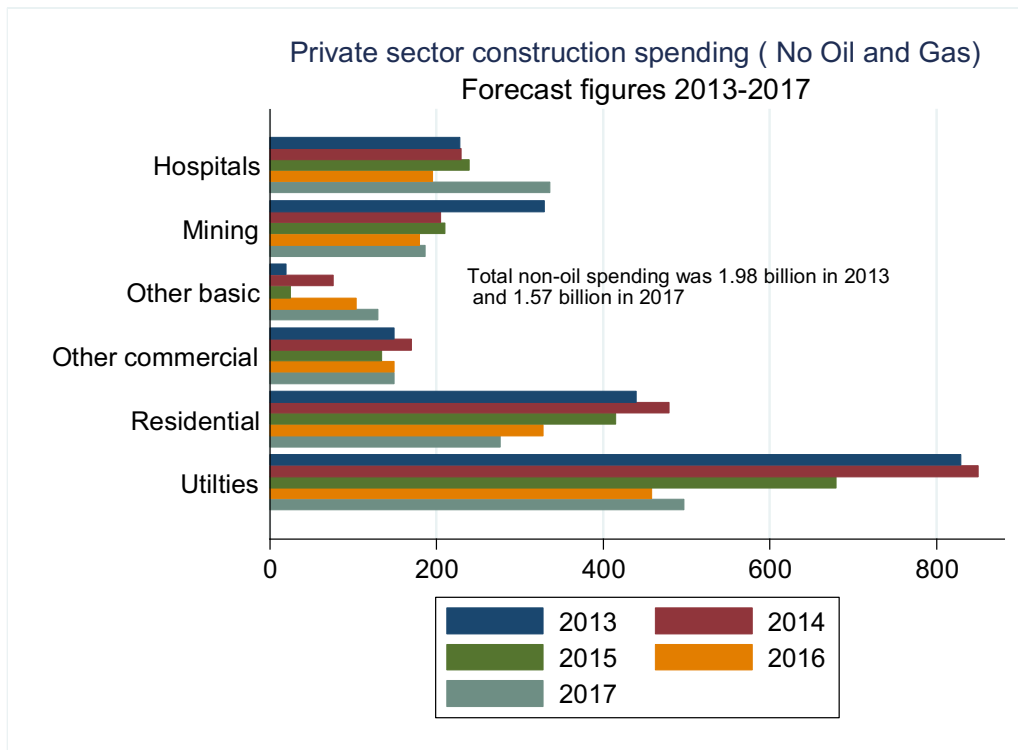
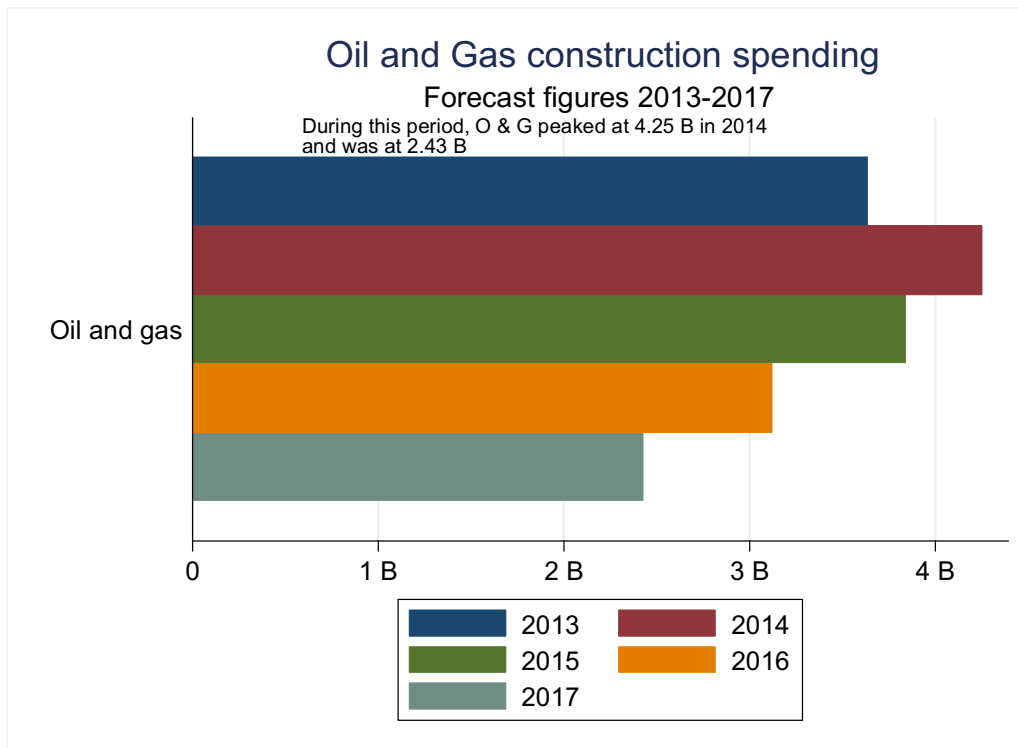


Figure 15: Oil and Gas construction spending between 2013 and 2017



Is there any academic evidence linking uncertainty and investment?

Baker, Bloom, and Davis (2013) construct a novel index of economic policy based on a diverse array of metrics, performing tests of the index's validity through a human audit of 3,500 newspaper sources and other common-sense measures. They find that the increase in policy uncertainty that followed the onset of the Great Recession had significant negative effects on aggregate investment and on employment as well as on consumption expenditures. Matching firm-level data with the data series of this index, Gulen and Ion (2013) find that economic policy uncertainty can explain up to 32% of the drop in corporate investment over the 2007-2009 time period.

Do we know anything about the effect of uncertainty at the state level?

Gao and Qi (2012) find that municipal bonds issued by state governments immediately before a gubernatorial election pay a premium of 6 to 8 basis points due to this electoral proximity. Jens (2013) estimates the investment-suppressing effect of a gubernatorial election on the state-level investment during the quarter of the election at between 5% and 15% depending on the subsample, with the closeness of an election exacerbating the decline.

Does the information above allow us to determine how uncertainty affects the Alaska economy?

Private Construction spending in 2017 is supposed to be around 4 billion dollars. Using the 5 to 15% estimated by Jens (2013), we would conclude that the direct effects of policy uncertainty is costing the state somewhere between 200 and 600 million in private capital spending. The decline in spending due to policy uncertainty would indicate that waiting is not a costless option. In fact, the losses due to uncertainty are important and similar in magnitude to the ones the economy would experience due to a tax or further government cuts.

Table 2: Capital spending in billions in Alaska between 2012 and 2017<sup>6</sup>

	2012	2013	2014	2015	2016	2017
<b>Private</b>						
Oil and gas	3.152	3.638	4.255	3.84	3.125	2.43
Mining	0.34	0.33	0.205	0.21	0.18	0.187
Other basic	0.01	0.02	0.076	0.025	0.104	0.13
Utilities	0.794	0.83	0.851	0.68	0.459	0.498
Hospitals	0.325	0.229	0.23	0.24	0.195	0.336
Other commercial	0.12	0.15	0.17	0.135	0.15	0.15
Residential	0.4	0.44	0.48	0.415	0.329	0.277

<sup>6</sup> We use the forecast figures from the construction forecast produced by ISER to proxy for actual capital spending.

<b>Private sector total</b>	<b>5.141</b>	<b>5.637</b>	<b>6.267</b>	<b>5.545</b>	<b>4.542</b>	<b>4.008</b>
<b>Public</b>						
National defense	0.46	0.209	0.395	0.435	0.552	0.635
Highways	0.585	0.824	0.765	0.755	0.705	0.629
Airports	0.375	0.479	0.425	0.465	0.387	0.37
Alaska railroad	0.055	0.024	0.023	0.025	0.026	0.022
Denali	0.02	0.013	0.009	0.01	0.01	0
Education	0.408	0.497	0.477	0.465	0.406	0.212
Other federal	0.207	0.245	0.3	0.255	0.253	0.255
Other state	0.474	0.45	0.515	0.555	0.422	0.322
<b>Public sector total</b>	<b>2.584</b>	<b>2.741</b>	<b>2.909</b>	<b>2.965</b>	<b>2.761</b>	<b>2.445</b>
Overall total	<u>7.725</u>	<u>8.378</u>	<u>9.176</u>	<u>8.51</u>	<u>7.303</u>	<u>6.453</u>

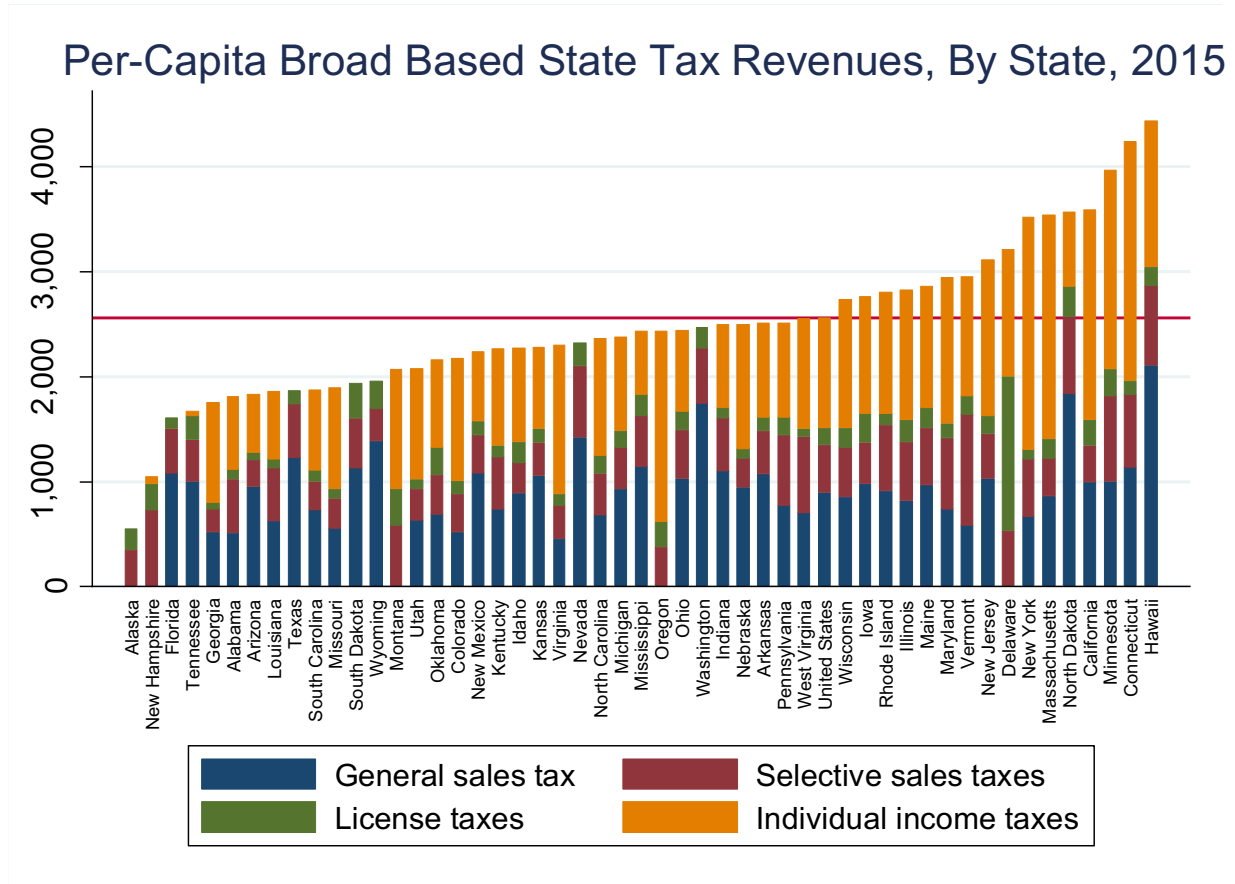
#### V) Short description of the scale of the fiscal problem:

Between 2005 and 2014, 90% of the state's unrestricted general fund was funded from oil revenues. Due to the significant decline in oil prices, the portion of government expenditures that can be funded through oil has shrunk considerably. This deficit has forced decision makers to cut the budget and use non-permanent fund savings. The non-permanent fund savings accounts are close to being exhausted which means that there needs to be a more structural solution to the funding challenge. The options before the legislature can be summarized as being a combination of government cuts, taxes to generate new revenues, and earnings reserve usage. While there are different views on how to approach the funding challenge, it is critical to reach a solution that eliminates uncertainty and provides a path forward for business and individuals alike. In the next two sections, we provide some context on Alaska taxes relative to other states and present an analysis of the implications associated with using the permanent fund earnings.

## VI) Taxes

In this section, we turn our attention to a cross state comparison of per capita broad based state taxes. We define broad based taxes as general sales taxes, license taxes, individual income taxes, and select sales taxes. We focus on these categories as they are the ones likely to borne by consumers. Figure 16 shows that Alaska has the lowest per capita broad based state taxes by a large margin. Alaska’s 514 dollars is 2,087 dollars less than the US average.

Figure 16: Per-Capita Broad-Based State Tax Revenues, By State, 2015

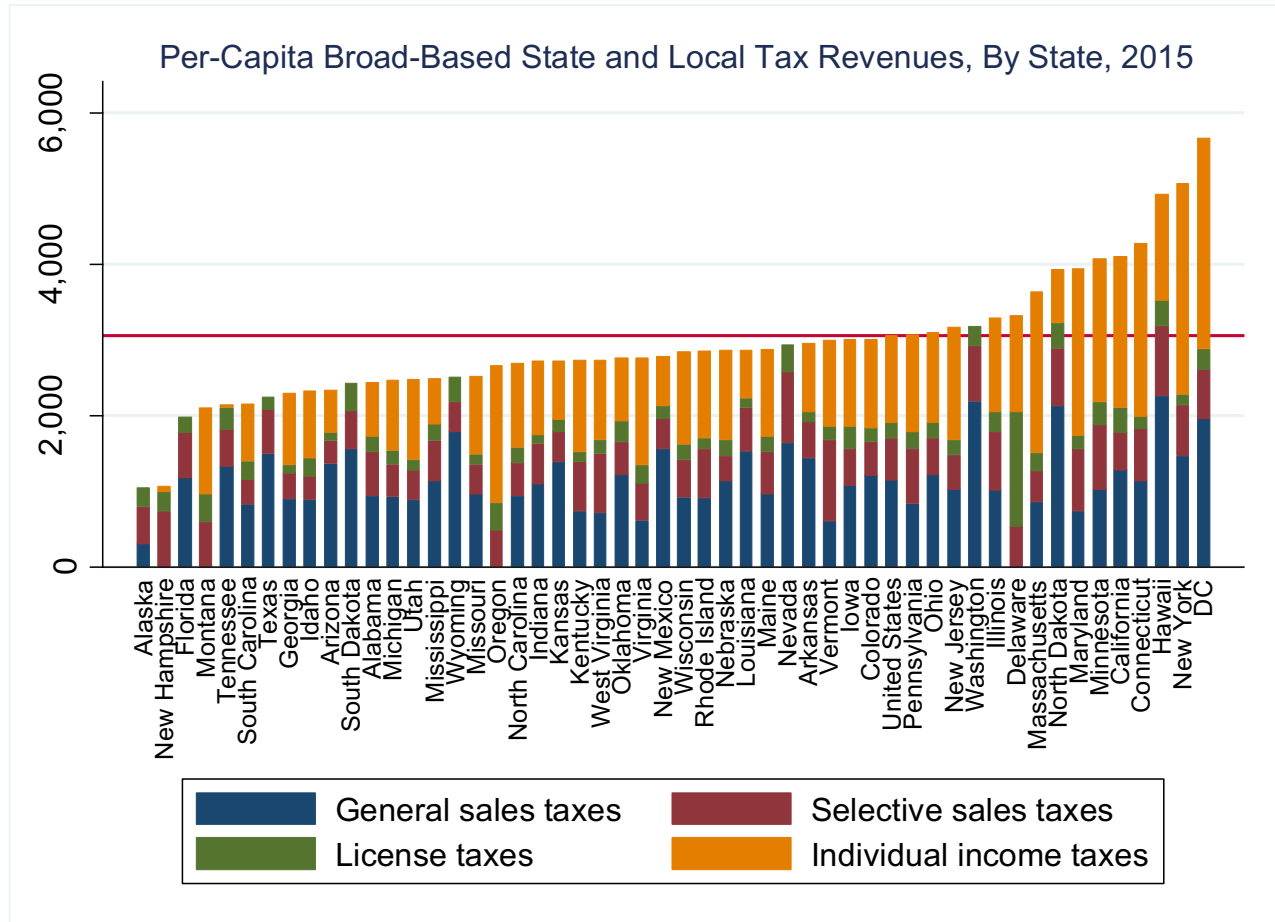


*Does including local taxes change this conclusion?*

The short answer is no. While Alaska does have higher local taxes than a number of other states, it is ranked in the middle of the distribution. In figure ??, we combine both local and state taxes and find that Alaska still has the lowest per capita broad based taxes. This, of course, does not mean that Alaskans should be taxed more simply because they bear the lowest burden. It, however, shows that all other states use more aggressive taxation to fund government services.

Vlb) State and Local taxes combined

Figure 17: Per-Capita Broad Based State and Local Tax Revenues, By State, 2015



VII) Permanent fund use

*What is it and where does the money come from?*

There are two portions of the permanent fund which are distinguished by accounting only: principal and the earnings reserve. The principal is the amount required to remain in the fund in perpetuity, while the earnings reserve is what may be used for spending by government – either in the form of dividends, or otherwise. The permanent fund invests in assets. The assets of the fund are owned collectively by both accounts, making the funds in the portfolio indistinguishable from each other. Thus, each fund bears the same investment risks. In October 2017, the size of the nonspendable portion was 48.4 billion dollars and that of the earnings reserve at 13.023 billion dollars. In other words, the earnings reserve-spendable portion- is 21.2% of the overall size of the fund.

### The principal:

The principal of the fund is composed of three parts: royalty contributions, unrealized earnings, and inflation-proofing transfers. All royalty contributions are included in the principal. The unrealized earnings are the earnings of assets allocated to the principal that are not yet liquidated back into cash. Inflation-proofing transfers come from the earnings reserve, per statute, based on the CPI. Any losses experienced in the principal are replenished by the earnings reserve.

### Earnings:

Gains and losses from investment are accounted for in two categories: realized and unrealized. Realized gains or losses are the changes in market value from purchase to sale. Only the earnings reserve has realized gains recorded. The principal does not grow from its own earnings directly, rather from the inflation-proofing transfer. Unrealized gains or losses are changes in market value of assets that are still in the permanent fund's possession, or simply, that have not been sold yet. Both the principal and the earnings reserve have unrealized gains, because the fund invests both accounts side-by-side. These unrealized gains are allocated based on the relative size of the fund.

### Realized earnings:

All realized earnings are moved into the earnings reserve. The inflation-proofing transfer occurs at fiscal year-end, June 30. The principal has a balance made up of the contributions and inflation-proofing. The earnings reserve is also composed of unrealized earnings that are not part of the principal.

### *How fast can we expect the permanent fund to grow?*

The answer to that question depends on both the potential returns of the fund and the speed at which we draw funds from it. In the figure below, we show the distribution of permanent fund values under three scenarios. In all three scenarios, we are assuming a normal distribution of future returns based on historical data.

-Scenario 1 (in green) shows the distribution if we were to decide not withdraw any money from the fund and simply let it grow

-Scenario 2 (in black) shows the distribution if we were to continue distributing the statutory dividends.

-Scenario 3 (in blue) shows the distribution if we were to start withdrawing 5% of market value from the fund.



Figure 18: Distribution of Permanent Fund Values in 2025 under three scenarios

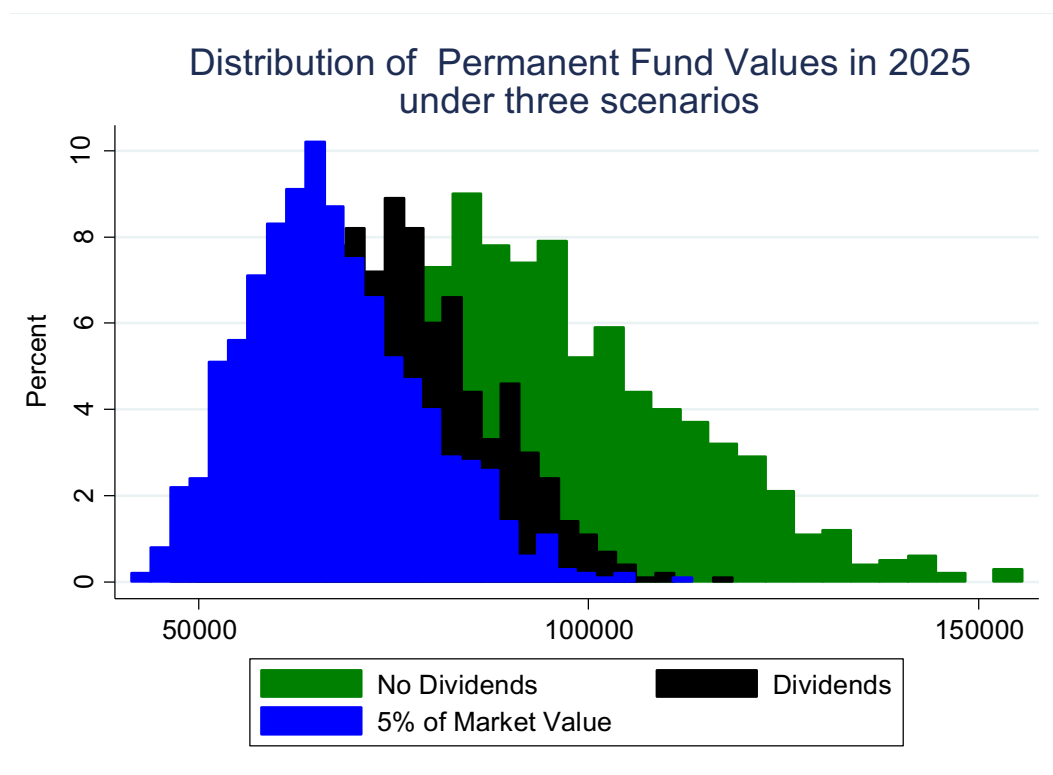


Table 3: Fund Balance under three scenarios

	No distributions	Statutory dividends	5% of market value
5 <sup>th</sup> percentile	63,883.87	55,737.79	50,976.53
Mean	92,123.55	74,710.37	67,227.98
95 <sup>th</sup> percentile	124,905.1	95,073.1	87,511.96

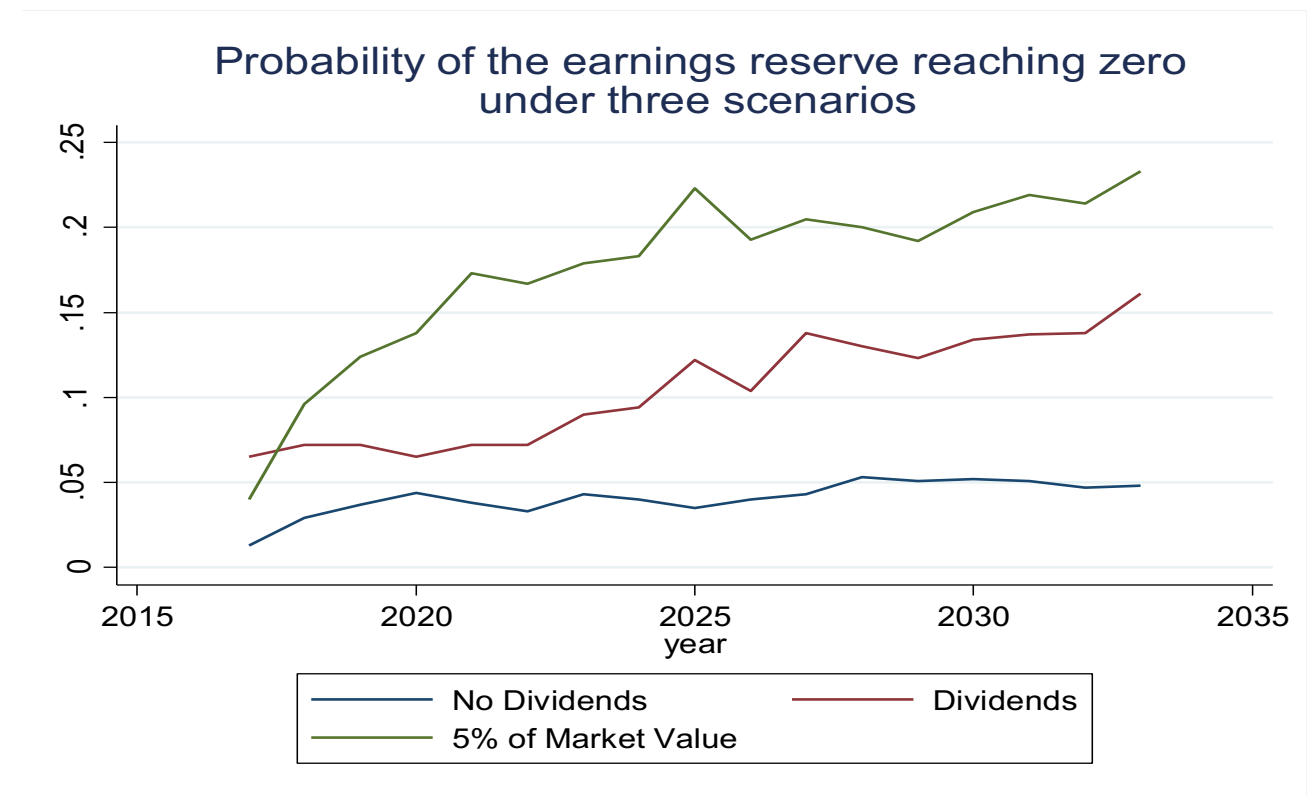
Given that the return assumptions are constant across the three scenarios, it is clear that the amount of money taken out the fund has implications regarding its future size. In other words, today’s consumption affects savings that would be available in the future. Given the current structure of the fund, the size of the earnings reserve and its future solvency may be more relevant regarding the potential continued use of earnings to fund government. Figure 19 shows the likelihood that the earnings reserve is exhausted under each the scenarios we describe above from 2017 to 2035. Unsurprisingly, the “bad” outcome increases along with the size of the draw. For illustration purposes, we show the withdrawal amounts that would have been necessary in 2016 in scenarios 2 and 3 in this table below.

Table 4: Withdrawal amounts necessary under the statutory dividend and 5% of market value setting

	No distributions	Dividends	5% of market value
2016	0	670,599 people*2052(actual dividend size)=1.376 billion	52.769 <sup>7</sup> billion*0.05=2.638 billion
Difference		2.638-1.376= <b>1.262 billion</b>	

As of October 2017, the overall size of the fund was 61.4 billion dollars which would mean that the withdrawal under the 5% of market value would have needed to be 3.07 billion dollars. Given the fiscal pressures the state is experiencing it does not seem realistic that a long-term solution will be achieved without resorting to use of the Permanent Fund earnings. That being said, having the separation between the two funds puts undue pressure on the earnings reserve.

Figure 19: Likelihood of the earnings reserve reaching zero under three different scenarios



<sup>7</sup> Year-end value of the permanent fund.

## VIII) Takeaways

This document presents a broad overview of Alaska fiscal and economic picture. It is clear that the economy has experienced an extended slowdown due to the decline in oil prices. The jobs losses are no longer contained but have spread to household spending sectors. It is also clear that the sensitivity differs considerably from place to place. The North Slope borough experienced the most severe two year decline in employment. Many of those jobs, however, are however held by non-residents which means that they are less likely to affect the local economy. On the other end of the spectrum, Haines, the Matsu and Bristol all experienced two years of positive growth in the midst of the state recession. These three boroughs are all very different as their economies have different economic bases. These economic bases will likely determine how well they fare going forward. We also find that uncertainty associated with delaying a fiscal solution is potentially costing the state between 200 and 600 million dollars a year. The state's deficit is more than 3.2 billion which will need to be funded through a combination of permanent fund revenues, taxes/government cuts. The tax burden per capita faced by Alaskans is considerably lower than that of residents of other states (514.06 vs 2,601.68<sup>8</sup>) which is indicative of the Alaska disconnect and the different way Alaska chooses to fund government activities. Given the size of the fiscal gap and the necessity of using the permanent fund, we present an exercise that shows higher withdrawal amounts affect the future size of the fund and potentially put the earnings reserve at risk. It is also apparent that if the legislature decides to use the permanent fund in a structured manner, there may need to be some changes to the investment structure.

### Some questions and thoughts:

- Using the permanent fund can potentially solve a significant portion of Alaska's fiscal gap, it however does not necessarily address the looming question of how Alaska can have a thriving economy if oil plays a much smaller role going forward. One of the questions going forward is the extent to which the permanent fund should be used to fund business ventures in Alaska. Oil and gas used to affect the Alaska economy through both the funding of government services and the impact it had on support services. This means that the current thinking on permanent fund usage fulfills the government channel role and not the private economy one.

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<sup>8</sup> National average of Per capita broad based taxes.

References:

Baker, Scott R., Nicholas Bloom, and Steven J. Davis (2012), "Measuring Economic Policy Uncertainty," manuscript, Stanford University.

Gulen, H. and Ion, M. 2013. Policy Uncertainty and Corporate Investment. Purdue University mimeo.

Jens, C. 2017. Political uncertainty and investment: Causal evidence from U.S. gubernatorial elections. *Journal of Financial Economics* 124:563-579.