

What do we know about the effects of the Alaska Permanent Fund Dividend?

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May 20, 2019

Abstract

The Alaska Permanent Fund Dividend (PFD) has been distributed to Alaska residents for 37 years, providing each resident an equal share of a yearly government appropriation based on the earnings of the Alaska Permanent Fund. While support for the program is high, work assessing the PFD's influence on the lives of Alaskans is limited. Recently, a number of researchers have analyzed the causal effect of the PFD on a variety of socio-economic outcomes including employment, consumption, income inequality, health, and crime. This paper summarizes this empirical literature and highlights future areas of research.

Keywords: Permanent Fund Dividend, Research, Alaska, universal income.

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1 Summary

1.1 Main findings

- Alaskans have received an unconditional cash transfer since 1982. The recent literature is starting to shed light on the socio-economic effects of the distribution on employment, consumption, poverty, health, and crime. While this research has been useful, there are still significant gaps in our understanding of the role the PFD plays in influencing education, health care usage, financial health, migration, and general welfare. In the years to come, there should be a strong push to use detailed administrative datasets to evaluate the long term effects of the program. Below is a summary of what we know:

Employment:

- Three papers have examined the effect of the Permanent Fund Dividend on employment and hours. The findings across papers show that the PFD has not had a negative influence on the labor market. In fact, there is evidence of small positive demand responses. Overall, however, the employment-related effects of the dividend are fairly small on annualized basis.

Consumption:

- Early research showed that Alaskans do not change their consumption patterns in the months after the distribution. More recent work using a detailed data set shows that Alaskans spend significantly more on non-durables¹ and services in the month when they receive the dividend payment, and this excess consumption persists over the first quarter after the dividend payment.

¹

¹Examples of non-durable goods include cosmetics, cleaning products, food, fuel, clothing, footwear, and other consumables.

Health:

- Birthweight: The evidence indicates that the PFD has a positive, but modest effect on birth weight. This effect is particularly pronounced for low income mothers.
- Childhood Obesity: A recent paper finds that the health benefits extend beyond birth weight. For three-year-olds, there is strong evidence that the PFD reduces obesity.

Poverty:

- The PFD has resulted in substantial poverty reductions for rural Alaska Natives. These effects have been particularly pronounced for the elderly. Interestingly, the poverty reducing effect of the PFD has declined as regional corporation dividends have increased in size over time.

Income inequality:

- Perhaps the most unexpected result in this literature is that while the distribution has been shown to reduce poverty, recent evidence suggests that the PFD increases income inequality in both the short and long run.

Crime:

- In the weeks following the PFD distribution, substance abuse related incidents increase while property crime related events decrease. Additionally, both substance abuse and medical assist instances are increasing in the payment size but there is no evidence that property crime is responsive to fluctuations in the amount.

1.2 Future work

There is significant room for improving our understanding of the PFD's effect on education, health care usage, migration, financial health, and general welfare. To evaluate these questions adequately, there should be an attempt to use detailed health, financial, and expenditure datasets.

- Alaskans can save PFDs towards their children's education and yet there is no understanding of how this option has affected educational opportunities or outcomes.
- All Alaska residents qualify for a PFD after one year of residency which has raised questions about its effect on migration decisions. To date, there has been no empirical work on the effect of the PFD on within state migration patterns or its role in attracting individuals/families from outside of the state.
- Alaska health-care costs are the highest in the country and access is challenging in rural areas. Therefore, the PFD can potentially relax the financial constraints and increase usage. Studying this question would, however, require access to hospital discharge or claims data.
- Debt levels and delinquencies are argued to be affected by the PFD and yet there has been no rigorous evaluation of this link.
- Finally, there should be efforts to ask questions with a regional dimension as the PFD interacts with industrial structure, remoteness, and availability of resources.

2 Background on the Permanent Fund Dividend

The state's financial windfall tied to the discovery of the large Prudhoe Bay oil resulted in the establishment of the Alaska Permanent Fund (APF) in 1976 to save a portion of the revenues. The fund receives a percentage of Alaska's revenue from oil production as an investment and has grown substantially in value, reaching 65 billion dollars as of April, 2019. It is now well diversified with assets in stocks, bonds, and real estate. Each year since 1982 in the late fall, every person who has been a resident of Alaska for the previous year and indicates an intention to remain gets a Permanent Fund Dividend (PFD) check from the state. As Goldsmith (2001) notes, the reasons for establishing the program are many and have evolved over time. They range from the fact that it creates a constituency to protect the Permanent Fund to the idea that people own the resource and the revenues from its sale. Other reasons often cited include compensation for the high cost of living, and that individuals know better than the government. Through 2017, almost \$22 billion has been paid out in annual amounts ranging from about \$300 to \$2100² per Alaskan. The PFD is routinely covered in the state's newspapers and as a result of the state's recent financial difficulties, there has been intense debate over the appropriate size of the dividend, the role it plays in the economy, and in people's lives. The real difficulty underlying the discussions, however, is the lack of empirical research done on the PFD.

3 Paper structure

We summarize all the empirical papers that have examined different aspects of the PFD. They fall into six different categories and include a total of 10 papers. Employment(3 papers), income inequality(1), health(2), spending(2), poverty(1), and crime(1). For the purposes of this summary, we do not include surveys and economic impact analyses.

²These figures are in nominal dollars.

4 Employment

4.1 Short run

One of the most pressing questions associated with unconditional cash transfers has to do with its effect on work. In the case of a universal transfer such as the PFD, there are questions about its potential effect on labor supply as well as any increases in labor demand due to higher consumption levels. Using the timing of disbursements and annual fluctuations in disbursement size, Bibler et al. (2019) find evidence of both a positive labor demand response and a negative labor supply response to the PFD in the short-run. They estimate that a \$1,000 increase in the size of the per person PFD increases the probability of employment among men by 1.8 percent over the months following the disbursement, which they interpret as direct empirical evidence that universal transfers can induce demand shocks that increase the demand for labor. For women, they find that a \$1,000 increase in the size of the per person PFD leads to a reduction of 0.9 hours per week (a four-percent decrease) among employed women in the months following the disbursement, with no corresponding extensive-margin response. Importantly, they find that decreases in hours of work among women are concentrated among those who are younger, lower wage earners, and those with young children in the household. Combining the effects for men and women together, they find that an additional \$1,000 in the per-person PFD results in a 0.7% labor market contraction in the months following the disbursement, or less than a 0.2% contraction on an annual basis.

In a related paper, Feinberg and Kuhn (2018) use the American Community Survey between 2005 and 2015 to evaluate how the PFD affects the number of hours worked in the year prior year to the survey. Unlike Bibler et al. (2019), they use yearly data to compare long term residents to people who have been in the state for less than a year, and also compare Alaskans' labor supply to those living in Hawaii and Montana. They find that married women are the most responsive to the family's cumulative PFD with elasticities³

³Elasticity is defined as the percentage change in the number of hours induced by a 1 percent change in the size of the family PFD. In this case, a 10% increase in the size of the PFD is associated, in the case of

ranging from -0.17 to -0.18. The elasticity for single women is -0.138 (compared to -0.141 in the baseline model). For men, they find that the elasticity is -0.115. They conclude that the decline in labor are modest and are unlikely to offset the income gains from the PFD distribution.

4.2 Long run

Unlike the two previous papers which exploit the variation in the size of the PFD, Jones and Marinescu (2018) investigate the long-term effect of the PFD on the Alaska labor market. Essentially, they attempt to identify how Alaskans' hours and employment rates changed since the inception of the program in 1982. They use the synthetic control method to create a counterfactual Alaska from the other U.S. states. They find that the employment to population ratio in Alaska after the introduction of the dividend is similar to that of synthetic control states. On the other hand, the share of people employed part-time in the overall population increases by 1.8 percentage points after the introduction of the dividend and relative to the synthetic controls. They conclude that the PFD has no significant effect on employment, yet increases part-time work.

- **Takeaway:** From these three papers, it appears clear that the PFD does not discourage employment and that it has mild demand positive effects. There is no evidence that the PFD has fundamentally changed the Alaska labor market in either the short or long run.

married women, with a 1.7 to 1.8% decrease in number of hours of worked in a year.

5 Health

5.1 Birthweight

There is a great deal of interest and research on the relationship between income and health (Smith, 1999). This relationship is notoriously difficult to parse out as it is two-directional -income influences health and vice-versa- and low income individuals may have attributes that cause poor health aside from income. Lately, a number of papers exploiting exogenous changes to transfers have examined the causal link of income on health (Jo, 2018). The first paper to evaluate the PFD’s effect on health focuses on birth weight (Chung et al., 2016). The authors find that income has a positive, but modest effect on birth weight. They find that an additional \$1,000 increases birth weight by 17.7g and substantially decreases the likelihood of a low birth weight (a decrease of around 14% of the sample mean). This income effect is higher for less educated mothers. Additionally, the authors evaluate the effect of the PFD on the “Appearance, Pulse, Grimace, Activity, and Respiration” (APGAR) score which assesses the infant’s health. They find small but positive effects indicating that the distribution positively influences infants’ health. These positive birthweight PFD induced effects seem to be driven by earlier pre-natal visits and longer gestation periods.

5.2 Childhood obesity

The second paper to investigate the health effects of the PFD focuses on the weight of toddlers. The authors take advantage of the yearly fluctuations in the size of the PFD coupled with eligibility rules based on date of birth (Watson et al., 2019a). In their analysis, they exploit these features to evaluate how the accumulation of PFDs by age 3 affects obesity. The authors find that the effect of the PFD on obesity and overweight status is negative and statistically significant. An additional \$1,000 decreases the probability of being obese as a child by 4.5 percentage points. Extrapolating these estimated effects to the Alaska three-year-old population, they find that 500 cases of obesity were averted from an additional

\$1,000 in PFD payments, which is equivalent to a 22.4% reduction in the number of obese three-year-olds. Using a simulation exercise, they find that the state of Alaska saves between two and 10 million dollars due to the averted cases. Furthermore, they find that the results are driven by toddlers in families earning between (\$25,000-\$75,000) and find no effect for low and high income households.

- **Takeaway:** From these two papers, it is clear that the PFD improves children's health by increasing birth weight and decreasing childhood obesity.

5.3 Future health related work

The intersection of the PFD and health, in particular how additional income affects health-care usage, is an important potential avenue for research. Recent work shows that, for example, women with low incomes who had high-deductible insurance plans waited an average of 1.6 months longer for diagnostic breast imaging, 2.7 months for first biopsy, 6.6 months for first early-stage breast cancer diagnosis and 8.7 months for first chemotherapy, compared with low-income women with low-deductible plans (Wharam et al., 2019). These findings indicate that it would be useful to, for example, understand how the PFD distribution affects the type of care people seek immediately before and after the cash transfer. Another question worth pursuing is the amount of follow up care people receive if a health incident occurs around the cash distribution versus follow up received if an incident occurs in months distant from the distribution.

6 Consumption

The economics profession has grappled for years with the extent to which individuals change consumption patterns in response to anticipated payments. In theory, because the PFD is fully predetermined in October and predictable with reasonable accuracy months in advance, the textbook models imply that non-durable consumption by households with sufficient liquid

assets should not be responsive to the PFD payments. Two papers have tried to use the PFD to test this question (Hsieh, 2003; Kueng, 2018). They find contradictory results as Hsieh (2003) finds that Alaskans are not responsive to the distribution, while Kueng (2018) finds that households do, in fact, respond to the distribution and increase their consumption on non-durables by 22 to 24 cents per PFD dollar in the three months post distribution.

6.1 Using Consumer Expenditure Survey Data

To our knowledge, Hsieh (2003) is the first paper to ever empirically evaluate any aspect of the PFD. He finds no evidence that the consumption of Alaskan households reacts to these payments. Interestingly, he finds that although households in Alaska do not overreact to payments from the Permanent Fund, the consumption of the very same households is excessively sensitive to their income tax refunds.

6.2 Using detailed transaction data

The second and more recent paper relies on transaction level data from a personal finance website. The data is considerably more detailed than the Consumer Expenditure Survey (CES) but potentially includes individuals who are more financially savvy than average. In his paper, Kueng (2018) finds non-durable consumption strongly responds to the arrival of dividend payments. On average, consumption increases by 11 cents for each dollar of PFD received in October, 5 cents in November, and another 7 cents in December. Overall, this points to an increase of between 22 and 24 cents for every PFD dollar in the three months post distribution. When evaluating the responsiveness by income level, the author finds that households in the top income quintile have a marginal propensity to consume (MPC)⁴ of around 70%. This is much higher than an MPC of about 10% for households in the lowest quintile, for whom the PFD is a substantial source of total family income. While the author

⁴the proportion of an increase in income -PFD in this case- that a consumer spends on the consumption of goods and services.

acknowledges that it is difficult to explain the reasons why higher income households are more responsive, he offers the following two theories as potential explanations: “First, households might see the unearned PFD income as an annual windfall, and richer households might feel less guilty squandering it than the less affluent. Second, the fact that almost everybody receives these salient payments regularly at the same time of year suggests that social norms or common practices might have evolved, and richer households can afford to spend more lavishly on these occasions.”

- **Takeaway:** Based on the most recent and complete evidence, The PFD increases the consumption of Alaskans when the payment occurs. On average, the marginal propensity to consume non-durables out of the PFD is 25 cents out of each dollar.

7 Poverty

The PFD provides an income floor and therefore, perhaps, one of its most important contributions is in alleviating poverty. Yet, establishing this fact is challenging due to the inaccurate reporting of income in the American Community Survey (ACS), the omission of the income received by children younger than 15, and the fact that only about half of households reported receiving “other income” (Berman, 2018). The author solves these issues by correctly adding the right amount of PFD to each survey respondent and then calculating income with and without the PFD. He finds that the PFD has resulted in substantial poverty reductions for rural Alaska Natives. In 2000, the PFD lifted 12.4 percent of the rural Alaska Native population out of poverty. Interestingly by 2011-2015, the poverty reducing effect of the PFD declined to 6.1% as regional corporation dividends have increased in size over time. When examining sub-groups, the author finds that the poverty reducing effects of the PFD were particularly pronounced for the elderly.

8 Income inequality

Perhaps the most surprising result regarding the PFD concerns income inequality. Most observers, including Goldsmith (2001), note that it is the most equitable way to distribute the benefits from oil development. It is argued that the PFD reduces income inequality because it represents a larger share of income for lower income households; these statements are, however, at odds with new findings (Kozminski and Baek, 2017). Using time series techniques and income inequality indices, they find that the PFD worsens income inequality in both the short and long run. The authors argue that one possible explanation for their finding is that there may exist differences in consumption patterns between low- and high-income groups with the PFD payment. If the PFD is spent on non-durable goods by the lowest income groups but is saved or invested by the higher income, then it may gradually result in increasing disparities between the groups.⁵

9 Crime

The last paper we cover examines the relationship between the PFD and crime. While the relationship between earned income and crime has been explored in numerous articles, there is less known about how unearned income- such as the PFD- affects crime (Watson et al., 2019b). The authors estimate the causal effects of the PFD on criminal activity by exploiting the timing and size of the PFD between 2000 and 2016. Using a database of daily policing incidents, they find a 10% increase in substance-abuse incidents and an 8% decrease in property-crime in the four weeks after the PFD is issued, with no average change in violence. They also show that medical assist instances and substance abuse are increasing in payment size. Given that socially undesirable outcomes are increasing in payment size but the socially beneficial outcome -property crime decrease- is not, the authors suggest that there may be implied gains from spreading the payments over the year.

⁵It is important to note that this explanation is inconsistent with Kueng (2018) who finds that the MPC for the highest income group is much higher than lower income Alaskans.

10 Where does the research on the PFD go?

The PFD has been distributed to Alaska residents for 37 years and yet the first empirical evaluation only happened in 2003. Since then, a number of researchers have evaluated different facets of the program's effects. As interest in universal basic continues to rise, research on the PFD can provide many useful answers even if it is too small to be considered basic.⁶ As Hoynes and Rothstein (2019) note, many of the basic income pilots are trying to understand the short-term effects of giving people money with no strings attached but are ill-suited to understand the long term implications. Therefore, the PFD's longevity provides a rather unique opportunity to understand how the distribution affects long term outcomes such as education, financial health, migration, and healthcare usage.

⁶If the statutory formula is retained, the payments will continue to grow with the fund. This year, for example, the PFD is expected to be \$3,000.

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Budget options: What are the short term effects?

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3/7/2019

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Background

In 2016, at the request of the Alaska Department of Administration, UAA's Institute of Social and Economic Research's Gunnar Knapp, Matthew Berman, and Mouhcine Guettabi provided an analysis of the economic impact of various state budget options, "**The Short-run Economic Impacts of Alaska's Fiscal Options.**"

The analysis focused on the short term impacts and therefore should not be used to evaluate the long run impacts of the budgetary decisions. I will mainly apply these 2016 estimates to the Governor's FY2020 budget to provide an assessment of the near term employment impacts.

What were our conclusions from the original study?

- Different ways of collecting money from Alaskans affect those with lower and higher incomes in significantly different ways.
- **Anything** the state does to reduce the deficit will cost the economy jobs and money. But spending some of the Permanent Fund earnings the state currently saves would not have short-run economic effects. Saving less would, however, slow Permanent Fund growth and reduce future earnings.
- Because the deficit is so big, the overall economic effects of closing the deficit will also be big.

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What tools did we use?

- To analyze the short term impacts, we relied on a standard input output model which captures linkages across Alaska's economic sectors. This allows us to determine how changes or "shocks" to any sector, or household income reverberate through the economy.
- The technique is therefore very useful in estimating how a change in spending or income attributable to a particular industry or government policy "ripples" through the economy as a result of further changes in spending flows between industries and households.

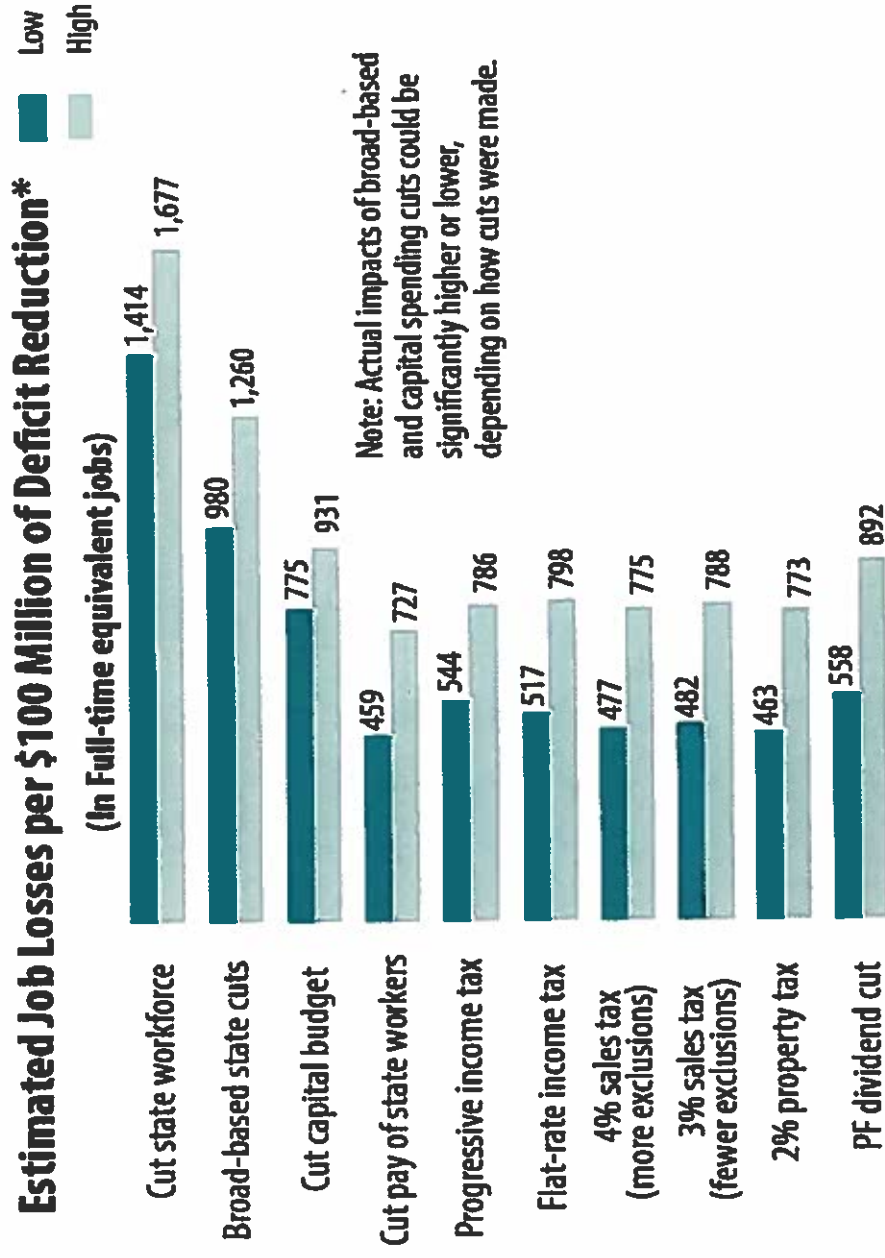
How are the effects estimated?

- It is important to explain that the total effects we estimate for both government cuts and higher PFDs include direct, indirect, and induced effects.
- For a change in income, through a higher a PFD, there are no direct employment effects because the PFD represents an income shock.
- There are, however, induced effects because households spend a portion of their checks which result in retailers employing additional people.
- For a significant number of government cuts, the person laid off loses his or her job which represents a direct effect, and then the economy experiences further employment losses due to the decreased spending.

Some important limitations

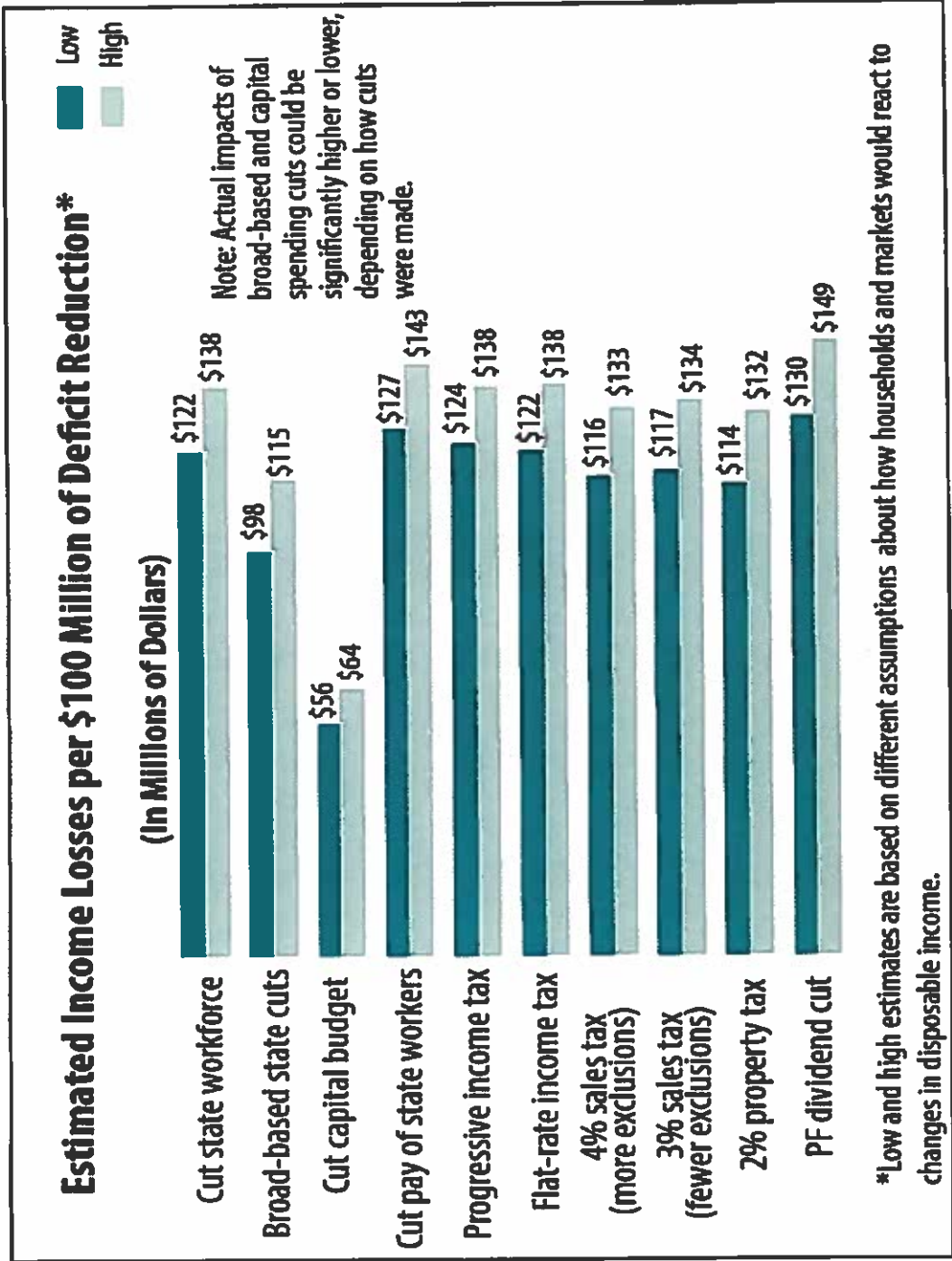
- Our ability to analyze impacts of spending cuts is limited by uncertainty about how they would be implemented. Therefore our analysis uses generic cuts.
- Our analysis focuses on the short run and therefore does not account for potential behavioral adjustments in spending, wage rates, prices, or migration to and from Alaska. The best way to interpret our estimates is to say that they reflect immediate income and jobs losses resulting from less/more money circulating in the economy.
- **Most importantly**, these changes do not provide us with guidance on the long term ramifications of the changes in services, quality of education/life, and the attractiveness of the business environment.
- The devil is in the details.

Employment losses from deficit reduction measures



*Low and high estimates are based on different assumptions about how households and markets would react to changes in disposable income.

Income losses from deficit reduction measures



What are the effects of government cuts?

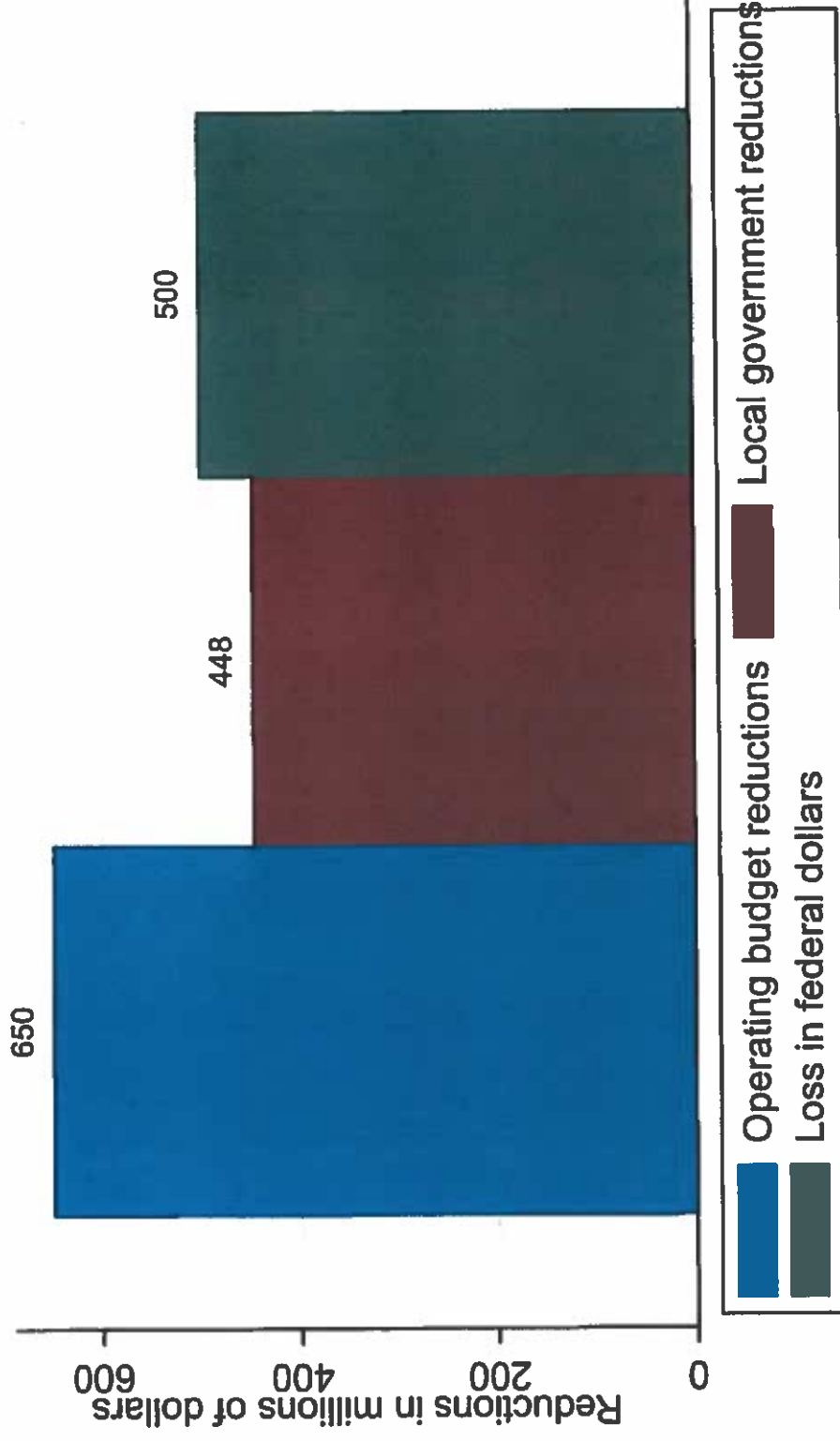
- The employment graph shows that for each \$100 million government related cut, we would expect about 1,086 jobs to be lost.
- This estimate is an average across three scenarios: Government layoffs, broad-based state cuts, and pay cuts for government workers. State government layoffs would result in the greatest job losses: between **1,414 jobs and 1,677 jobs**. We estimate broad-based cuts to result in losses ranging between **980 and 1,260 jobs**. Pay cuts would result in job losses ranging between **459 and 727 jobs**.

What is the goal of the summary?

- This summary attempts to assess the short term employment impacts from the decreases in spending, and increases in the PFDs.
- Given that we are interested in understanding the aggregate economic effects, we need to take into account how the proposed changes influence state spending, local government revenues, federal funds, and households.

Describing the cuts

Reductions in spending
using numbers from legislative finance
and estimated reductions in federal funding



What is not included?

- School debt reimbursement and debt service.
- Capital budget reductions.
- Use of reserves.

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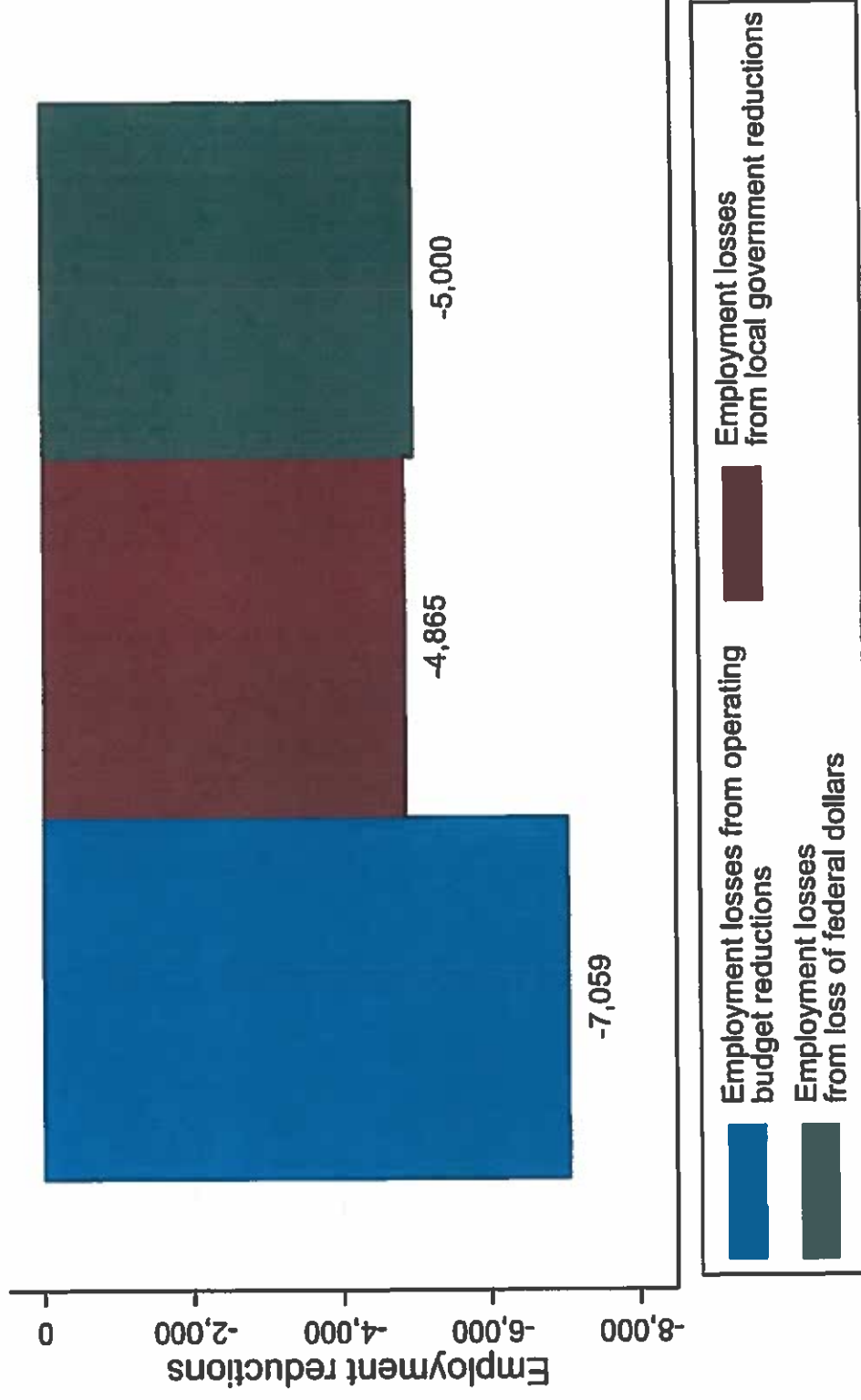
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What are the employment impacts?

Employment reductions from declines in state spending, loss of local government revenues, and federal revenues



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Table: Employment losses summary from reductions

Category	Reductions	Job loss per 100 million	Total job losses
Operating budget reductions	650	1,086	7,059
Local government reductions	448	1,086	4,865
Loss in federal dollars	500	1,000	5,000
All losses	1,598	..	16,924

- The North Slope borough would need to impose a tax equaling 35,972 dollars per person in order to replace the lost revenues.

Table: Oil and gas property taxes

Variable	Fairbanks	North Slope	Kenai	City of Valdez
Local share (in millions)	11.8	372.1	15	38.4
Population	98,957	10,344	58,060	3,862
Tax necessary to replace lost revenues	120	35,972	258	9,943

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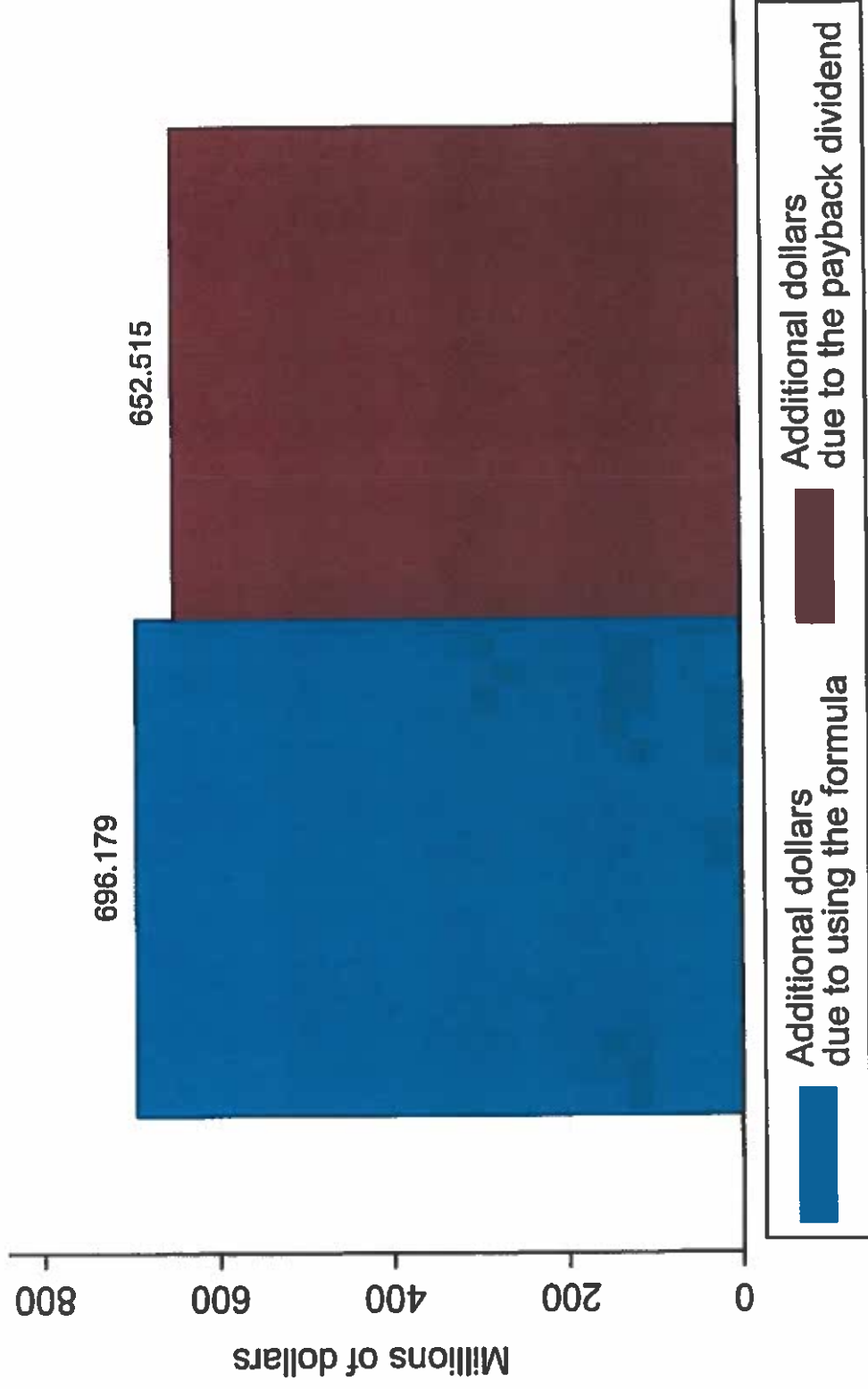
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What about the PFD?

- Under the proposed budget, Alaska residents will receive \$2,932 instead of the \$1,800 that they would have received if the dividends were capped.
- This year, too, most Alaskans will receive an additional 1,061 dollars to pay back for previous capped dividends.
- This will result in a per-person increase of about \$2,193, which translates into an additional \$1.348 billion in the economy if 615,000 people receive the PFD.

Added dollars due to higher PFDs

Additional dollars in people's bank accounts
as a result of using the statutory formula and the first payback dividend



What are the short term impacts of the higher PFDs?

Additional employment in the short run
as a result of using the statutory formula and the first payback dividend

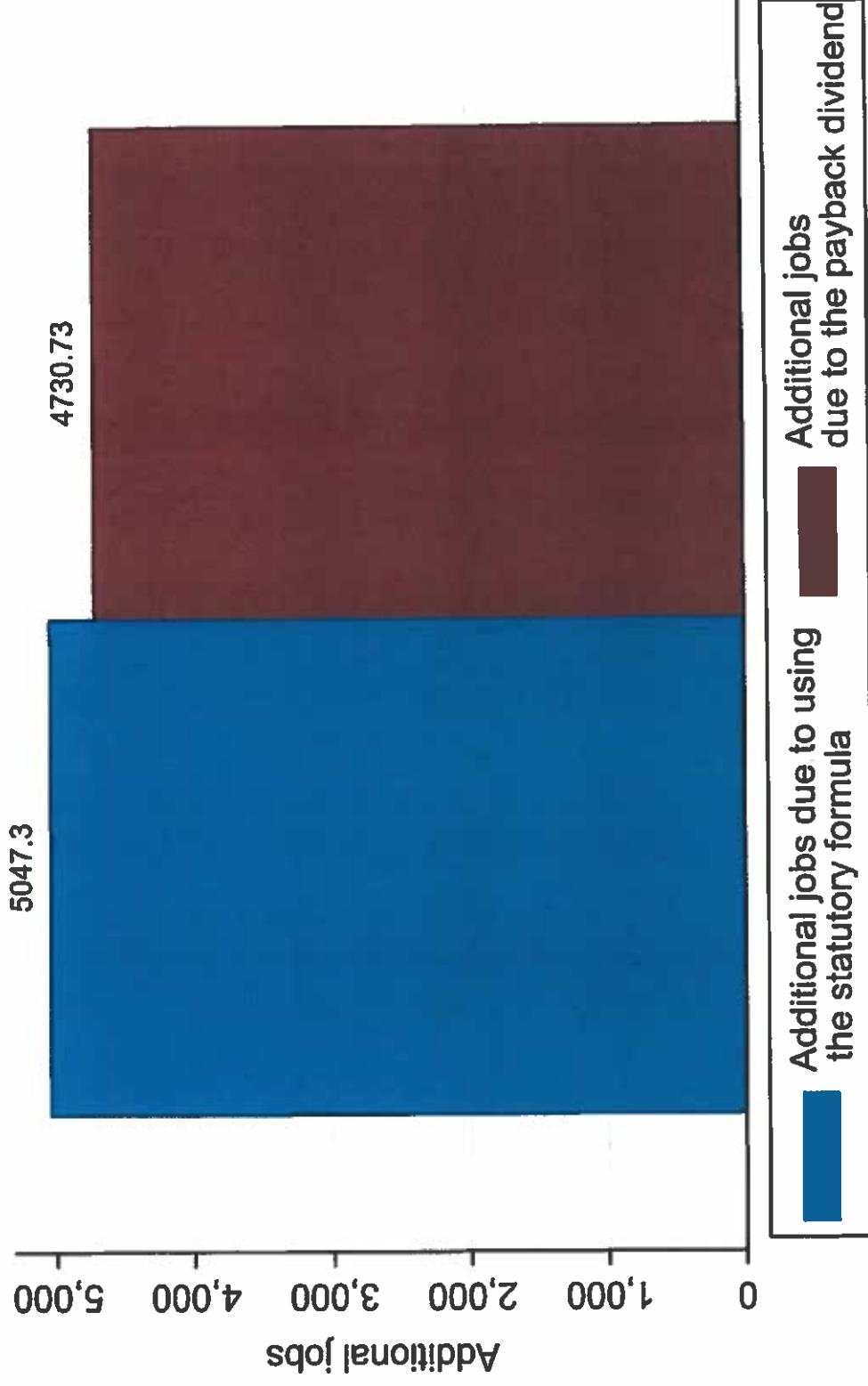
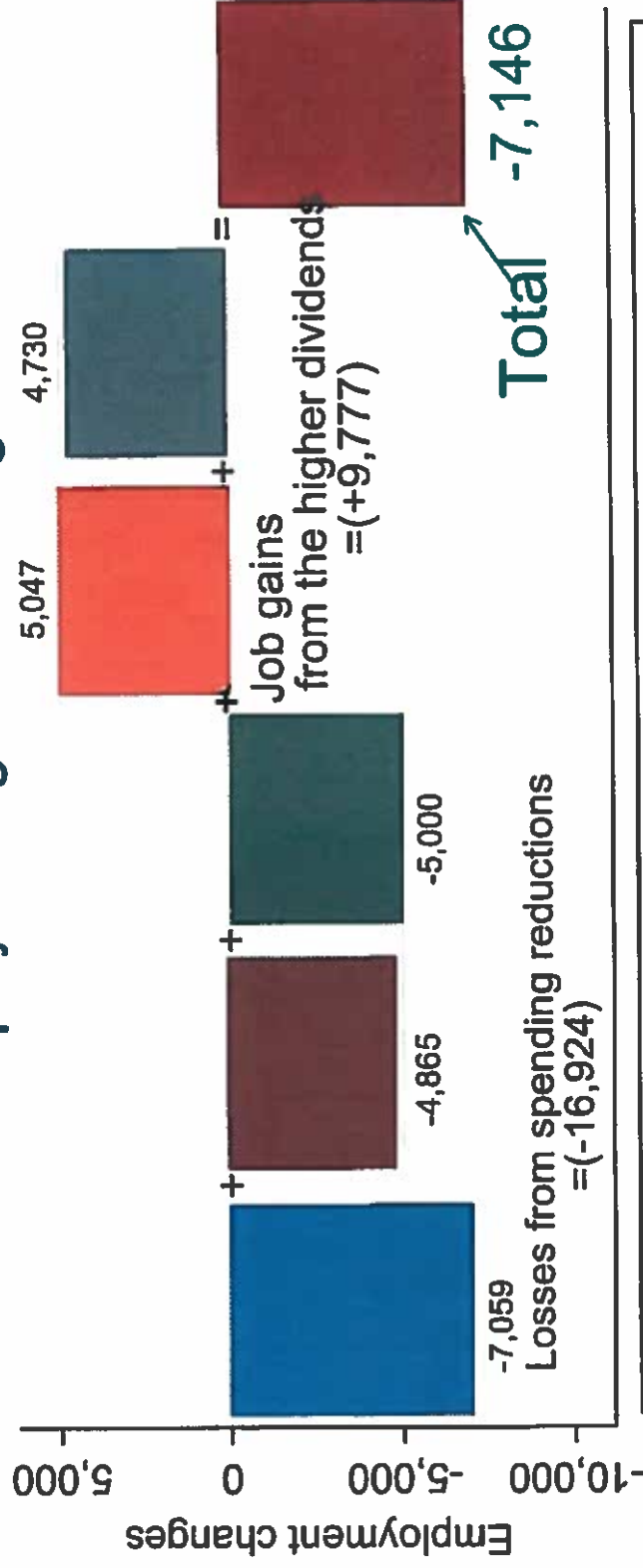


Table: Employment gains summary from higher PFDs

Category	Additions	Job gain per 100 million	Total job gains
Statutory instead of capped dividends	696.179	725	5047
Payback dividends	652.515	725	4,730
All gains	1.348	..	9,777

Let's put all numbers together

Employment changes from declines in state spending,
loss of local government revenues, federal revenues,
and employment gains from higher PFDs



Employment losses from 650 million in operating budget reductions	Employment losses from local government reductions
Employment losses from 500 million loss in federal dollars	Employment gains from using the statutory formula
Employment gains from 1,061 dollars in payback dividends	Total impact

A few notes about the comparison

- It is important to note that the jobs created from the stimulative effects of the PFDs may be different than the ones lost through government cuts.
- Additionally, the employment effects of the PFD may be short lived. Our recent (yet to be published) work shows that the employment effects are concentrated in the three months post distribution.
- There is also the question of how uncertainty may influence household spending patterns.
- On the spending reduction side, there is significant uncertainty about how communities will respond and if/how much federal spending the state will actually forgo.

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What is the current state of the economy?

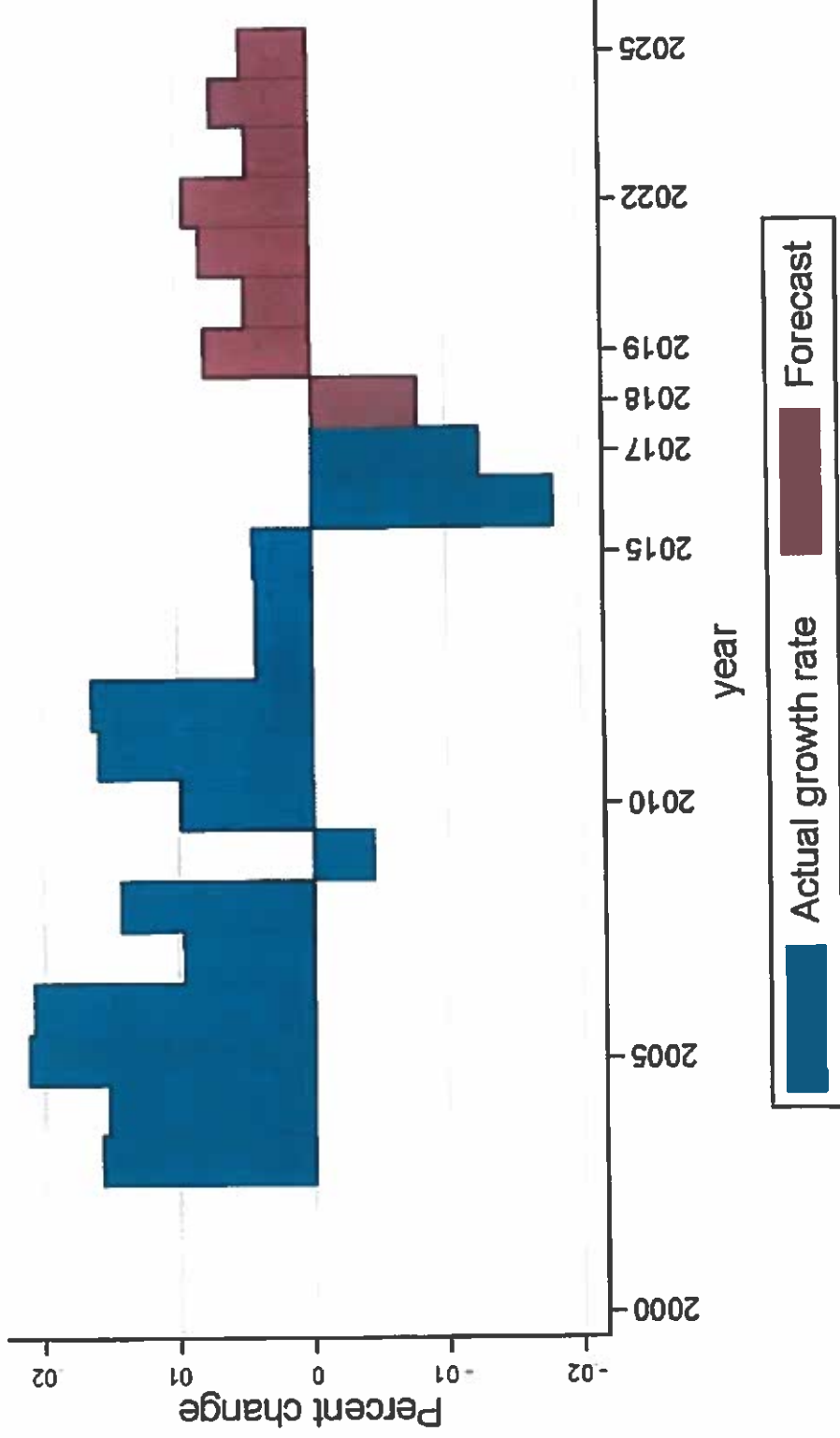
Is the recession over?

1980's recession

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Alaska employment outlook

Employment growth in Alaska
2002-2017 History, 2018-2025 Forecast



QCEW Data

What is the current state of the economy?

- Since the start of the recession, the state lost 1.82% of its jobs in 2016 and another 1.25% in 2017.
- While we only have preliminary data, we expect employment to decline by 0.8% in 2018. Before the announced cuts, our forecast for 2019 showed positive growth equaling close to 0.8%. Between 2019 and 2025, we anticipated employment growth to average 0.68% per year.

Short summary of employment losses

- The state lost between 12,500 and 13,000 jobs between 2015 and 2018.
- The projected job losses from the spending cuts, higher PFDs, loss of federal dollars, and loss of local government revenues would potentially result in an additional 7,000 jobs lost.
- If that happens, this recession-oil induced plus spending reductions-would potentially be Alaska's most pronounced one.

What about the 1980's?

- The 2015-current recession has been longer but milder than Alaska's most severe recession which lasted from 1985 to 1987.
- That recession resulted in significant outmigration, and a severe collapse of the housing market.

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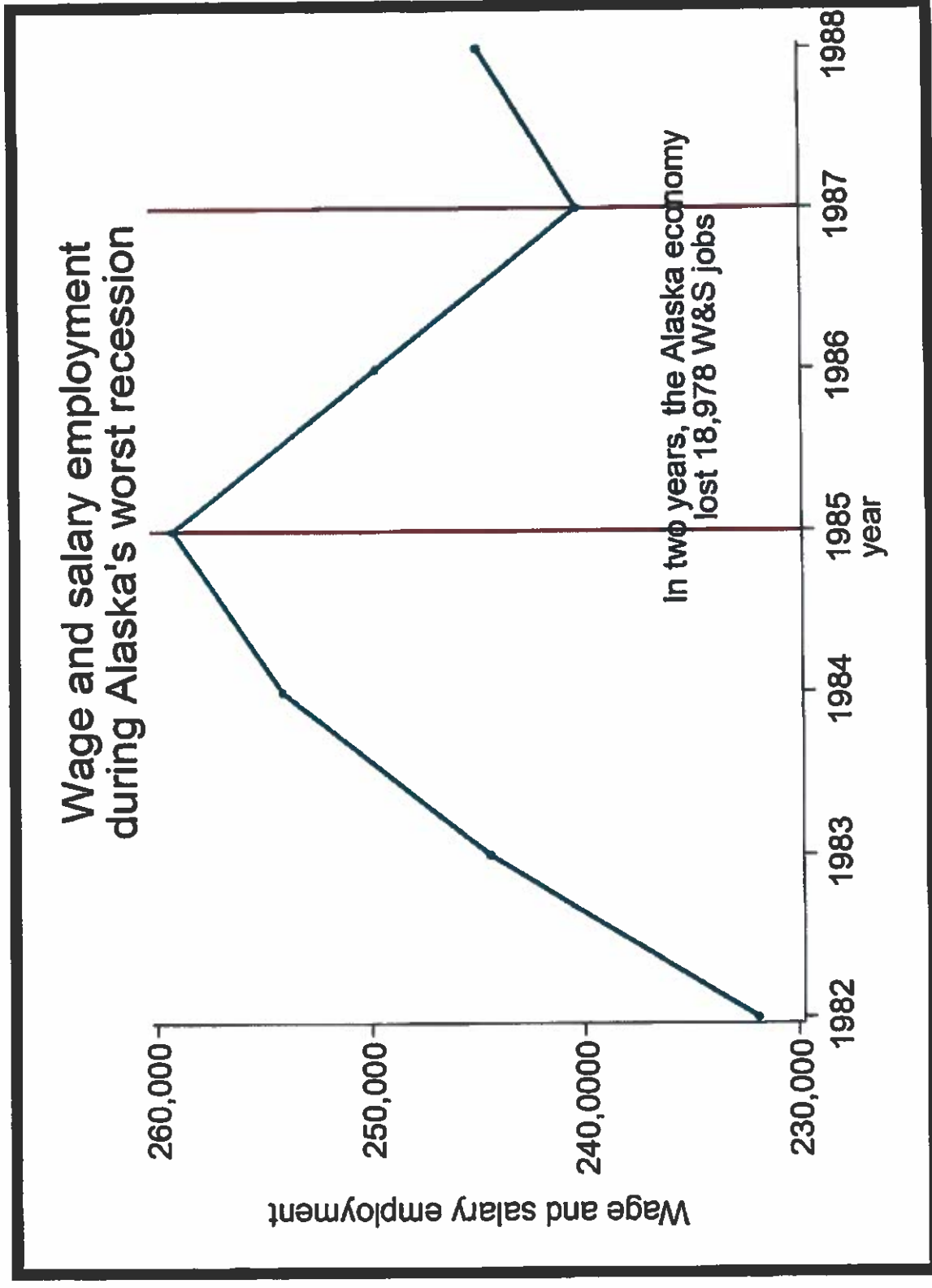
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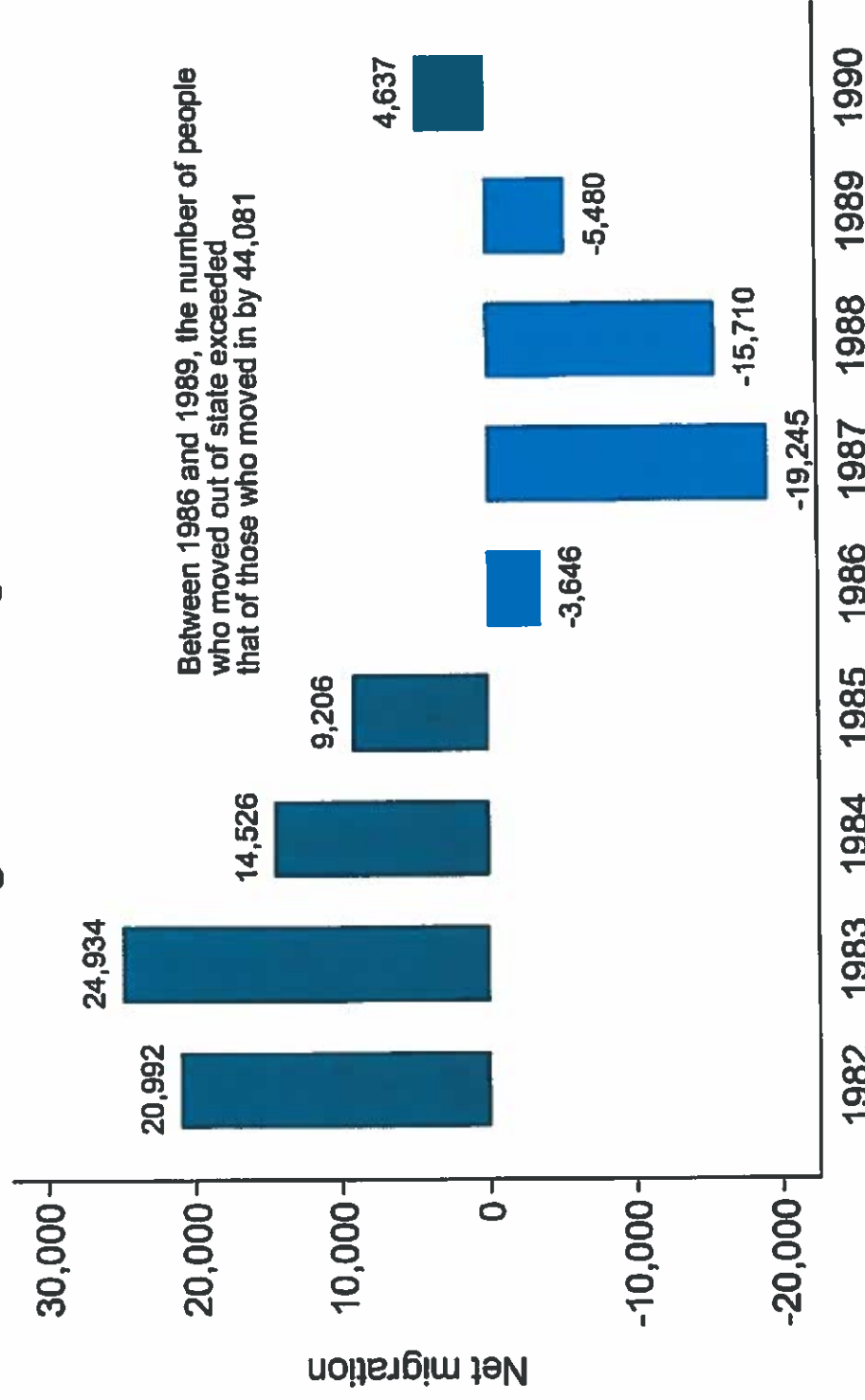
Employment



Migration

Net migration between 1982 and 1990 in Alaska

Net migration=Immigration-Outmigration



Housing

- The Alaska housing market experienced a long downturn with a significant number of vacancies and foreclosures. According to an ISER analysis from 1988 , there were 14,000 vacant housing units in Anchorage alone.
- The Alaska department of labor has also summarized the housing experience in the 1980's stating that "Over 40 percent of Alaska banks failed, and Alaska led the nation in bank failure rates for the decade. Foreclosures peaked in 1988 at 6,821, and by the end of the decade, more than 30,000 foreclosures"

More questions than answers

- It is important to reiterate that all options to close the budget gaps will result in short term negative consequences. Therefore, it is important to think about the cost of the alternatives.
- The economy is still in a fragile state as it has experienced employment decline for 39 straight months.
- There is still considerable uncertainty on which changes will actually take place.
- While understanding the recessionary effects is necessary, the long run implications are far more important.
- Many of these decisions are about priorities and values.

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Thank You

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