Effect of Alaska Fiscal Options On Children and Families

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By
Matthew Berman and Random Reamey
Institute of Social and Economic Research
University of Alaska Anchorage
3211 Providence Drive
Anchorage, Alaska 99508

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Introduction

Alaska's state government faces an unprecedented challenge, with the need to close an estimated $3 billion gap between projected revenues and expenditures in fiscal year 2017. Total unrestricted state General Fund revenue in fiscal year 2016 (the 12 months ending June 30, 2016) was $1.3 billion, or about $1,800 per resident. That was barely more than the state dispenses annually to Alaska school districts, to support public education (Alaska Office of Management and Budget, Enacted Fiscal Summary). Despite low oil prices and declining production, petroleum revenues still accounted for 72 percent of these funds (Alaska Revenue Sources Book, Fall 2016, Alaska Department of Revenue, Tax Division). Alaska is the only state that does not have either state income or sales taxes. It is clear that Alaskans will soon have to accept some form of broad-based revenue measure to enable continued funding of basic public services.

A 2016 analysis by ISER researchers discussed the potential effects on Alaska's economy and households of various options to reduce expenditures and increase revenues.[1] That study examined how the effects of revenue measures varied for Alaska households with different levels of income. These same revenue measures and expenditure cuts are also likely to have a much bigger effect on some households than others, depending on the presence and number of children in the family. This study extends the previous analysis by specifically examining how different options would be likely to affect families and children.

Many large expenditures in the state budget can easily be identified as specifically benefiting children. These include state-funded programs such as the Alaska Public School Foundation program and the Division of Juvenile Justice and Office of Children's Services, for example, as well as joint federal-state programs such as Medicaid and Denali Kidcare. Less obvious are the effects on children of potential measures to fund these and other state expenditures.

This study focuses on describing and quantifying the effects of alternative state revenue options on Alaska families and children. In addition to considering how the revenue measures might affect families with children compared to households without children, we also consider how the burden of each measure might differ for rural and urban families.

[1] Gunnar Knapp, Matthew Berman, and Mouhcine Guettabi, *Short-run Economic Impacts of Alaska Fiscal Options*. Institute of Social and Economic Research, March 30, 2016 (http://www.iser.uaa.alaska.edu/Publications/2016_03_30-ShortrunEconomicImpactsOfAlaskaFiscalOptions.pdf)

Methods

Fiscal options considered

We considered eight proposed options to increase state revenues. These are generally the same options as ISER researchers considered in the 2016 study. They include a cut in Permanent Fund Dividends and five broad-based tax programs: two versions of a general sales tax, two versions of an individual income tax, and a state property tax. We also considered increases in excise taxes on gasoline and alcohol. The income tax and sales tax options were designed to raise $300-400 million annually, with some uncertainty surrounding the amount that non-residents would pay. The Permanent Fund Dividend reduction and the state property tax would raise about twice that much revenue, and the two excise tax options much less. Because the amounts of revenue for each option differ, we analyzed the effects on households and families per $100 million of revenue raised. The estimated revenues raised take into account the fact that non-residents would pay some of the tax revenues. We use the same assumptions about non-resident payments for the various tax proposals as ISER researchers used in the 2016 study.

Reduction in the Permanent Fund Dividend (PFD). The specific measure we considered was a reduction in the annual PFD from $2,000 to $1,000. This is very similar to what Governor Walker implemented with his 2016 budget veto of a portion of PFDs.

Sales tax. We considered two general sales tax measures. Option 1 would levy a 4 percent tax on goods and services, excluding food at home, shelter, education, and health care. Option 2 would have a broader base and lower rate: 3 percent on goods and services, including food at home and shelter, but excluding education and health care.

Income tax. We considered two income tax alternatives. Option 1 (surcharge) would create a state income tax equal to 10 percent of the federal personal income tax liability. Option 2 (flat tax) would levy an income tax equal to 2 percent of federal taxable income. Since state income taxes are potentially deductible from federal taxable income for taxpayers who itemize deductions, we define federal taxable income as what it would be, excluding deductions for state taxes.

Property tax. In addition to local property taxes, Alaska already has a state property tax of 20 mils (2 percent) on oil and gas production and transportation property. The proposed state property tax we analyzed was modeled after the existing state oil and gas property tax, and would extend it to include all real property. The state could also tax certain personal property such as mobile homes, motor vehicles, boats, and aircraft, as many local governments do, but we did not consider including personal property for this tax.

Expanding the state petroleum property tax to all real property in the state would for the first time include areas where no local taxes are currently being collected to support public schools. A state property tax could include an option to credit taxpayers who do pay local property taxes for the amount they already pay, so that total tax rates would be equalized across the state. This is how the current state petroleum property tax works.

A state property tax would be levied on commercial and industrial property as well as on residential property. In the 2016 analysis, ISER researchers assumed that businesses would pass on the cost of higher property taxes to their customers, and that the distribution of this increase in the cost of living would be similar to that of a general sales tax. This is a crude

assumption, necessitated by lack of data. We also lack information on expenditures at the level of geographic detail needed to determine how retail expenditures vary with property tax rates, if the option to credit taxpayers for local taxes is included. Consequently, we discuss only the direct effects of property taxes on households. The direct effects include the amounts that Alaska residents would pay on other residential property that they own as well as their homes. The direct effects that we consider also include an estimate of the amount that households who rent would pay in higher rent, assuming that landlords pass on the tax to renters. We estimate the increase in rent assuming that the taxable value of rental property attributable to each housing unit equals 10 times that annual rent.

Alcoholic beverage excise tax. Instead of increasing the current tax on the quantity of alcohol, which would be highly regressive, our proposal is to levy a 10 percent excise tax on the value of alcoholic beverages purchased, regardless of whether purchased by the drink or by the bottle. Another advantage of an excise tax on sales value rather than on alcohol content is that it would collect more revenue from tourists, who are more likely to purchase alcohol in restaurants and bars than at package stores. We estimate that this proposed tax would raise about $20 million annually.

Gasoline tax increase. The proposal would triple the current state gasoline tax of 8 cents per gallon to a tax of 24 cents per gallon. This would move Alaska gasoline taxes from the lowest in the nation to the middle range of the states, and would add an estimated $87 million in tax revenue annually. Governor Walker included this tax increase in his recent proposal to the legislature. Governor Walker's proposal also included tax increases on other motor fuels, but we considered only the effect on families of the gasoline tax increase.

Data Sources and Estimation Methods

American Community Survey Public Use Microdata Sample. Our main data source on the Alaska population was the American Community Survey (ACS). The ACS is a survey of the population of the United States, conducted annually by the U.S. Census Bureau. Although the ACS household data are confidential, the Census Bureau makes a subsample of the returns available for researchers, after making some modifications to ensure that individuals cannot be identified and responses are anonymous. Among the modifications are aggregating the geographic reporting to regions containing at least 100,000 residents, and rounding of reported earnings and income. This subsample, the ACS Public Use Microdata Sample (PUMS), includes about 2,700 Alaska households, representing 6,600 people, each year.

We combined ACS PUMS data from the two most recent years—2014 and 2015—to increase the sample size and reduce margins of error for our descriptions of the population. We also aggregated the five PUMS geographic areas in Alaska to three regions: Anchorage, other urban Alaska, and rural Alaska. The "other urban Alaska" region includes the remainder of the Railbelt region, Juneau, Haines, and Ketchikan Gateway Boroughs, and rural Alaska contains the remainder of the state.

The ACS includes information on income and detailed information on each person in the household. However, the information on household finances is not detailed enough to allow us to estimate household expenditures on items potentially subject to sales and excise taxes, or to estimate how much the household might have paid in income taxes. To estimate how much each household might pay under various tax regimes, we relied on three additional data sets.

Annual Social and Economic Supplement, Current Population Survey. The Census Bureau reports national poverty statistics using data from the Annual Social and Economic Supplement (ASEC) to the Current Population Survey (CPS). The CPS ASEC also has a PUMS, which we got access to through the University of Minnesota IPUMS project.[2] The Alaska sample for the CPS is relatively small—about 1,000 households per year—so household data derived from this source have a relatively high margin of error. However, the CPS ASEC has much more detailed questions about sources of income and certain household expenses. These questions include the amount of property taxes paid, as well as an estimate of federal taxable income and filing status for each member of the household. We used the CPS ASEC to estimate state income and property taxes.

Because of its small sample, the CPS ASEC PUMS has even more limited geography than the ACS PUMS, reporting only whether or not the residence is within the Anchorage Metropolitan Statistical Area (Anchorage plus Mat-Su Borough).

IRS Statistics of Income. The Internal Revenue Service (IRS) publishes data summarizing federal individual income tax returns at various geographic scales though its Statistics of Income (SOI) program. The IRS groups tax returns by income per return. The unit is therefore the tax return, rather than the household or family. We used tables published at the state level[3] to compare the number of returns by filing status, taxable income, and federal income tax payments estimated, to the respective figures estimated from the CPS ASEC sample. We also used the IRS SOI to estimate the percentage of taxpayers itemizing deductions at various income levels, to assess the potential offsets in federal taxes from imposing state sales or income taxes.

We used the CPS ASEC to estimate federal income taxes households with different income and family characteristics would pay under varying Permanent Fund Dividend amounts.

Consumer Expenditure Survey (CES). The CES is an annual survey conducted in all 50 states by the U.S. Bureau of Labor Statistics (http://www.bls.gov/cex/home.htm). The survey unit is a "consumer unit," which is basically a family. Residents of group quarters such as student housing, remote industrial work sites, and jails, are not included in the survey. The CES consists of two parts, an interview survey that asks respondents about expenditures over the previous three months, and a separate weekly diary survey for items such as food and household supplies that are typically purchased frequently in small quantities. We analyzed household expenditures for the CES Public Use Microdata conducted previously for the 2016 ISER study. That study estimated household expenditures in a variety of categories as a function of per-capita household income and household size. Readers are referred to that study for a detailed description and documentation. For this study, we re-estimated the expenditure equations to test whether the number of children in the household had a different effect on household expenditures than the number of adults in the household. The results showed no significant difference for the effect of children vs. adults for any of the expenditure

[2] Sarah Flood, Miriam King, Steven Ruggles, and J. Robert Warren. Integrated Public Use Microdata Series, Current Population Survey: Version 4.0. [Machine-readable database]. Minneapolis: University of Minnesota, 2015.
[3] https://www.irs.gov/uac/SOI-Tax-Stats-Historic-Table-2.

categories considered in this study. Consequently, we used the expenditure equations estimated for the 2016 study to project effects of sales and excise taxes.[4]

Defining population groups

To analyze effects of revenue measures on Alaska families and children, we started by analyzing basic demographic characteristics of the Alaska resident population as represented in the ACS PUMS, to determine the number of households with children, and the number of adults and children in households with children. To simplify the analysis, we defined children as those under age 18. Many households had adult children—and in some cases adult grandchildren—living at home, but we included everyone age 18 and older in the adult category.

Using the same ACS PUMS dataset, we calculated per-capita household income for each household. People living in group quarters were added to the household population represented as equivalent to one-person households. We described in a previous study how income reported in the ACS PUMS and other Census Bureau data sets substantially understates Alaska Permanent Fund Dividend income. [5] In that study, we used information on mobility in the ACS to recalculate household income to include an estimate of PFD income that Alaska households were likely to have received, rather than what was reported. We ranked the Alaska population by the calculated per-capita household income, and divided the resulting distribution into equal-sized quartiles. Each quartile therefore represented about 184,000 people.

[4] The one expenditure category that showed significant differences for children vs. adults was tobacco products. Presence of children in the household was associated with decreased tobacco expenditures. We did not consider changes in tobacco taxes in the 2016 study, because tobacco taxes are already high, and we determined that increasing tax rates would yield very little additional state revenue.
[5] Matthew Berman and Random Reamey, *Permanent Fund Dividends and Poverty in Alaska*, Institute of Social and Economic Research, UAA, November 2016.

Table 1. Income and population in per-capita household income quartiles, Alaska, 2014-15 average

(Income in thousands of 2015 dollars, population in thousands)

	Lowest 25 percent	25-50 percentile	50-75 percentile	Highest 25 percent	All
Lower income threshold	--	$14,496	$ 25,498	$ 44,401	
Upper income threshold	$14,495	$ 25,497	$ 44,400	--	
Mean income	$ 8,654	$ 19,981	$ 33,929	$ 76,464	$ 34,749
Median income	$ 8,945	$ 20,100	$ 33,440	$ 61,894	$ 25,497
Anchorage residents	65,208	73,131	75,675	85,414	299,427
Anchorage households	21,074	23,317	28,467	39,842	112,700
Other urban residents	74,220	82,466	87,313	80,175	324,173
Other urban households	25,063	27,791	30,242	39,849	122,943
Rural residents	44,802	28,790	21,425	18,291	113,307
Rural households	12,340	9,478	8,522	11,395	41,734
Alaska individuals	184,230	184,387	184,413	183,879	736,907
Alaska households	58,476	60,585	67,230	91,085	277,376

Source: American Community Survey Public Use Microdata Samples. 2014 incomes adjusted to 2015 prices before averaging, using the Anchorage Consumer Price Index.

Although each income quartile has the same total number of people, the distribution of children among the quartiles differs from that of adults. In particular, many more children live in relatively lower-income households, and more adults live in higher income households (Figure 1). This should not be surprising, since many adults are earning income from work. For example, the lowest income quartile contains only 20 percent of adults, but 39 percent of children. Only 8 percent of children are in the highest income quartile households, but these households contain 31 percent of adults.

Urban Alaska households are also on average more affluent than rural households. Twenty-two percent of Anchorage residents are in the lowest income quartile, vs. 40 percent of rural residents (Figure 2). On the other hand, 29 percent of Anchorage residents are in the highest income quartile, compared to 19 percent of rural Alaskans.

Figure 1.

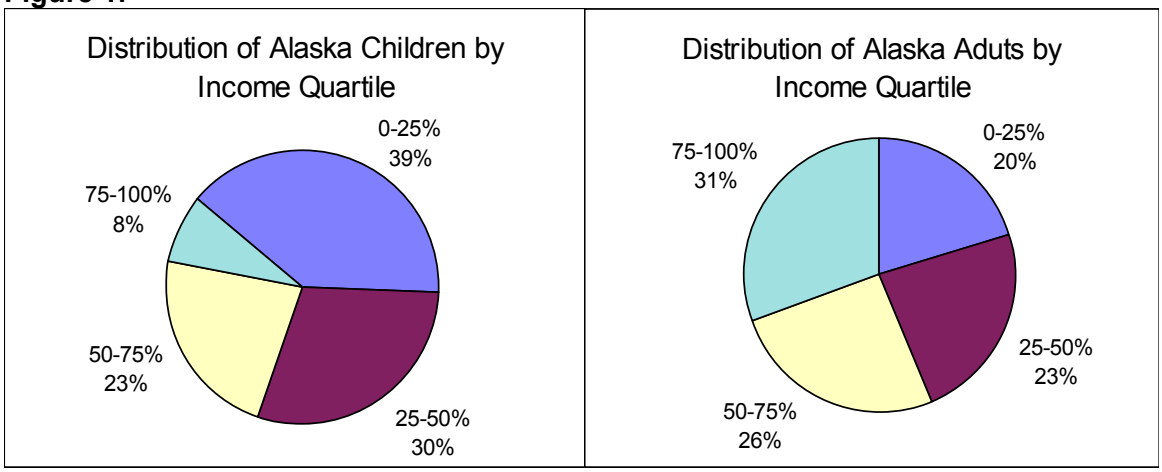
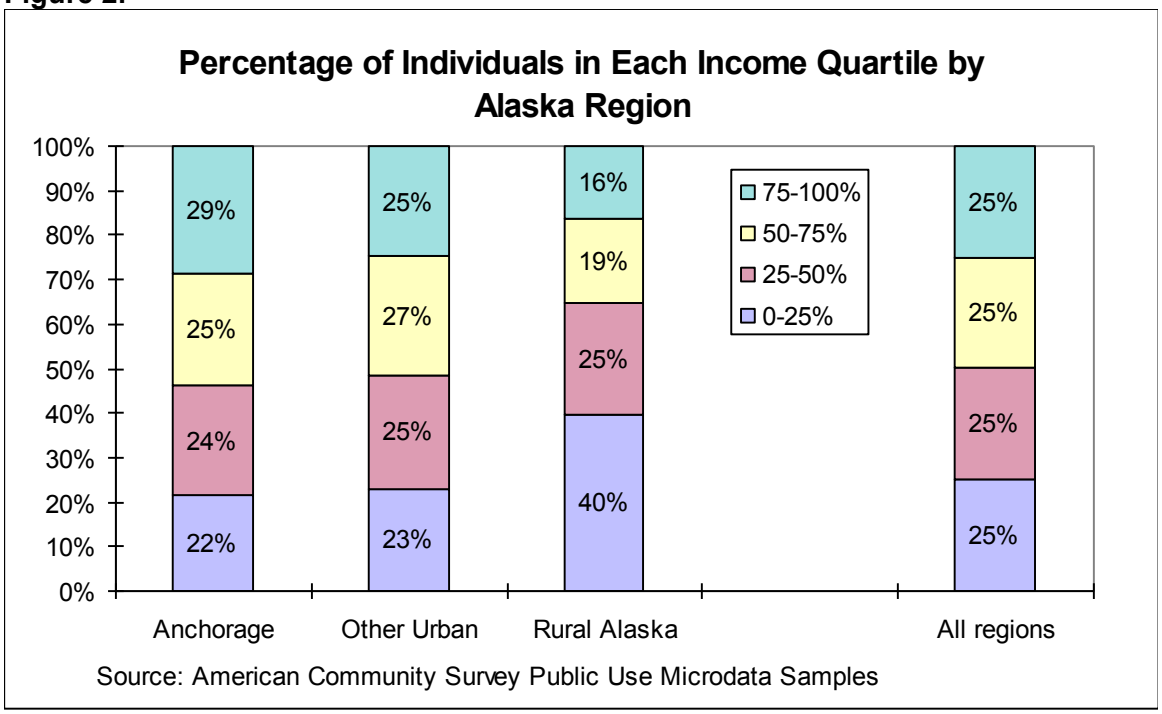


Figure 2.



After examining the data on the demographic characteristics of Alaska households, we decided that it was not possible to construct a small number of example families that would fairly represent the complexity and diversity of the population. Instead, we decided to group households into categories based whether or not children were present and on the number of adults in the household. This yielded the following four household types:

1. Households without children
2. Households with one adult and children
3. Households with two adults and children
4. Households with three or more adults and children

Figure 3 shows the distribution of Alaska households and population among the four household types. Childless households constitute about two-thirds of households. However, 53 percent of the population lives in households with children. Figure 4 shows the average number of adults and children in each of the four household types.

Figure 3

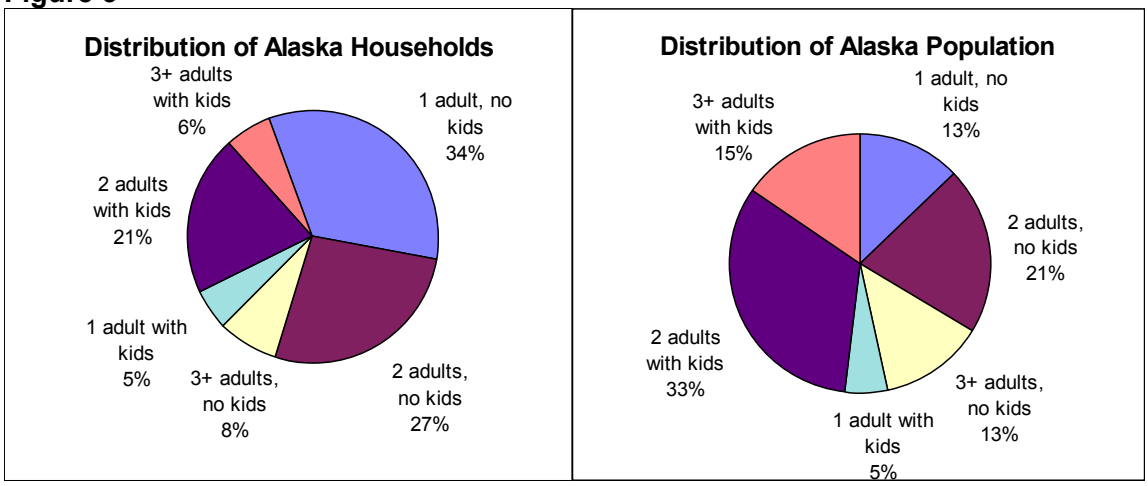
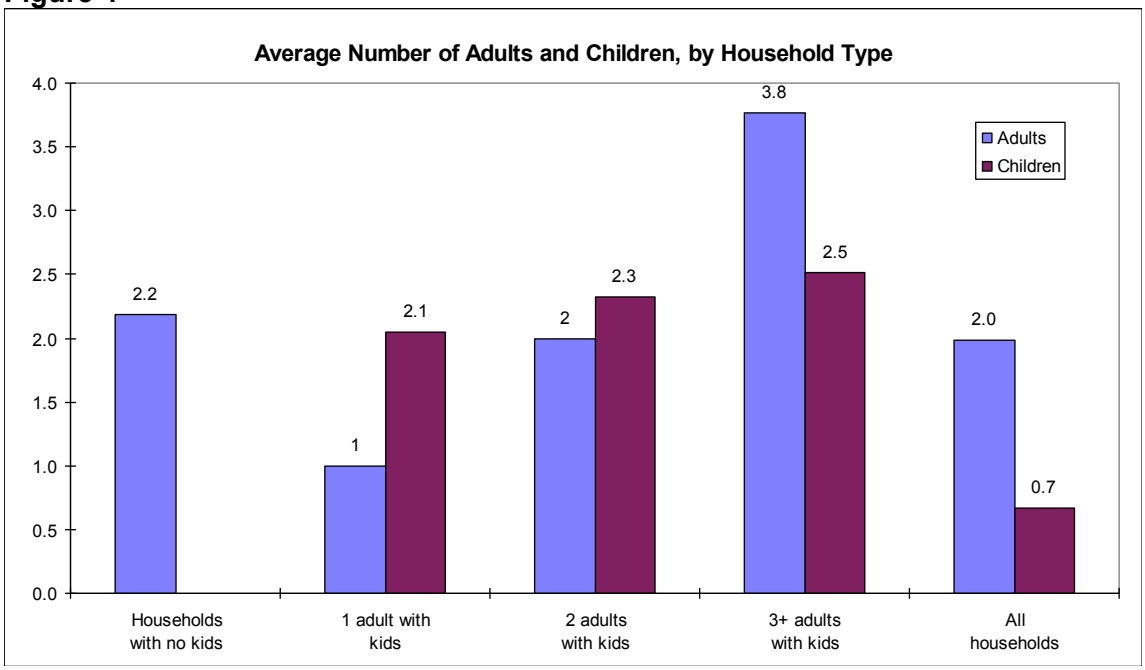


Figure 4



We analyzed effects of the different fiscal options for each of the four household types, broken down by per-capita income quartile. Table 2 shows the average and total numbers of adults and children in each of the sixteen household categories (four household types by four per-capita income categories). The data represent the average for the 2014 and 2015 years. The Alaska population was virtually constant over those two years at about 730,000.

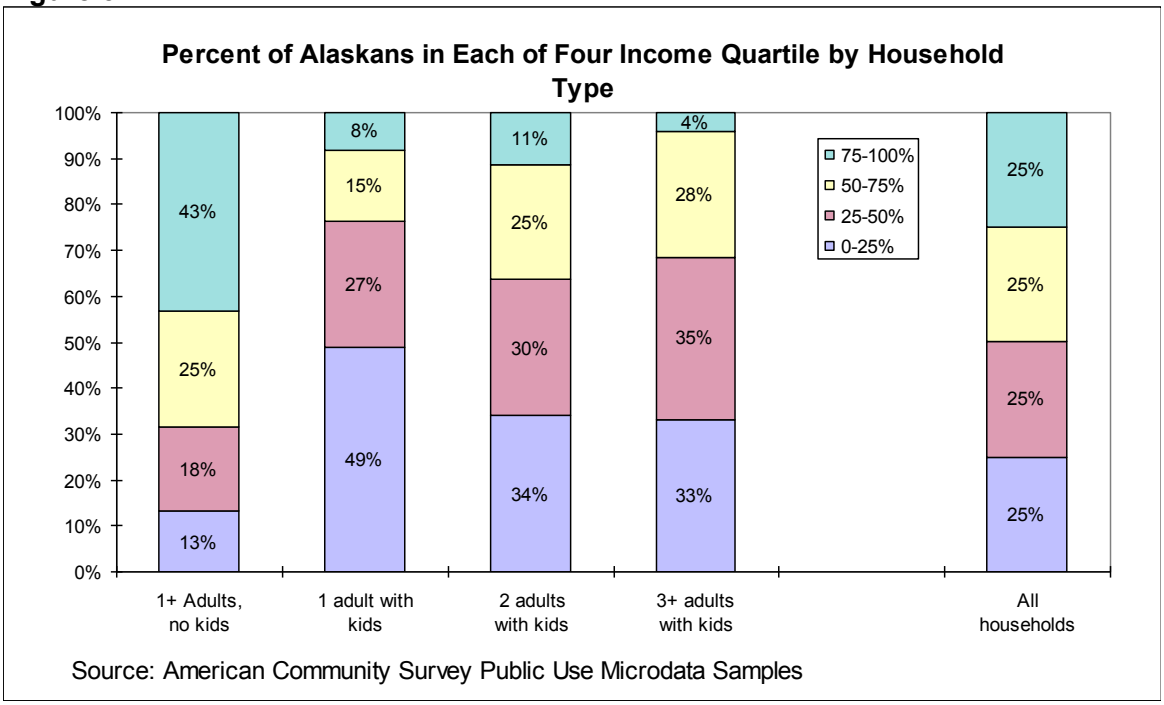
Table 2. Mean and median per-capita household income of Alaska adults and children in four different household types: 2014 and 2015 average.

Household type		Lowest 25 percent	25-50 percentile	50-75 percentile	Highest 25 percent	Total
1+ Adults, no children	persons	45,879	62,592	87,378	148,587	344,434
	% of HH type	13.3%	18.2%	25.4%	43.1%	100.0%
	mean	$ 8,067	$ 18,520	$ 30,983	$ 69,180	$ 42,144
	median	$ 8,973	$ 18,528	$ 30,721	$ 57,342	$ 37,093
One adult and children	persons	18,746	10,533	5,888	3,154	38,320
	% of HH type	48.9%	27.5%	15.4%	8.2%	100.0%
	mean	$ 6,837	$ 18,905	$ 29,620	$ 58,485	$ 17,905
	median	$ 7,181	$ 18,418	$ 29,324	$ 52,242	$ 17,380
Two adults and children	persons	81,957	71,213	59,804	27,418	240,391
	% of HH type	34.1%	29.6%	24.9%	11.4%	100.0%
	mean	$ 8,247	$ 18,161	$ 30,712	$ 54,062	$ 21,998
	median	$ 8,637	$ 17,692	$ 29,964	$ 50,422	21,391
3+ adults and children	persons	37,649	40,050	31,344	4,721	113,763
	% of HH type	33.1%	35.2%	27.6%	4.1%	100.0%
	mean	$ 9,294	$ 18,044	$ 29,771	$ 56,855	$ 19,990
	median	$ 9,480	$ 18,004	$ 29,604	$ 46,372	$ 19,557
All Households	persons	184,230	184,387	184,413	183,879	736,907
	% of HH type	25.0%	25.0%	25.0%	25.0%	100.0%
	mean	$ 8,654	$ 19,981	$ 33,929	$ 76,464	$ 34,749
	median	$ 8,945	$ 20,100	$ 33,440	$ 61,894	$ 25,497

Source: American Community Survey Public Use Microdata Samples,

As might be expected, households with fewer children per adult were generally more affluent. This skewed distribution is readily apparent in Figure 5. The figure shows that 43 percent of households without children are in the highest income quartile and only 13 percent are in the lowest quartile. Households with children and one adult are the most likely to be represented in households in the lowest income quartile (49 percent), while households with three or more adults and children are the least likely to be in the highest quartile (4 percent).

Figure 5



In addition to analyzing how the burden of revenue measures varied for the sixteen household and family types displayed in Table 2, we also considered how revenue burdens differed for households and families in the three Alaska regions and for Alaska Native and non-Native families. However, since the results were basically the same across all ethnicities and regions for households of a given type and income quartile, we report only the results by household type and quartile. Appendix A contains additional documentation of technical details of the methods.

Results

Appendix B contains tables documenting the full results of the average amount of per-capita disposable income that each of the household types in each income quartile would pay per $100 million of revenues raised, for each of the eight revenue measures considered. We report the results in Appendix B for households in the three regions, as well as the average for the state as a whole. Because regional and statewide figures are averages of non-linear functions of characteristics of individual household payments, the average for the households in the regions does not equal the average for the state as a whole. We summarize the main results here.

Comparing Alaska households with children to households without children

Table 3 summarizes the average amount of per-capita disposable income—the amount of income left after taxes—that households in each of the four household types would lose under each of the eight revenue options. The estimated losses represent the amount per household for every $100 million revenues raised. The losses for the alternative revenue measures vary relatively little for households without children. Gasoline taxes represent the main exception. We assumed that all motor fuels would be taxed, meaning that a portion comes from industrial uses that we could not meaningfully assign to households. Although

the losses for households without children are not that different among the different options, the amounts paid by households with children vary markedly. In particular, Permanent Fund Dividend cuts are much more costly to families with children than any of the tax measures.

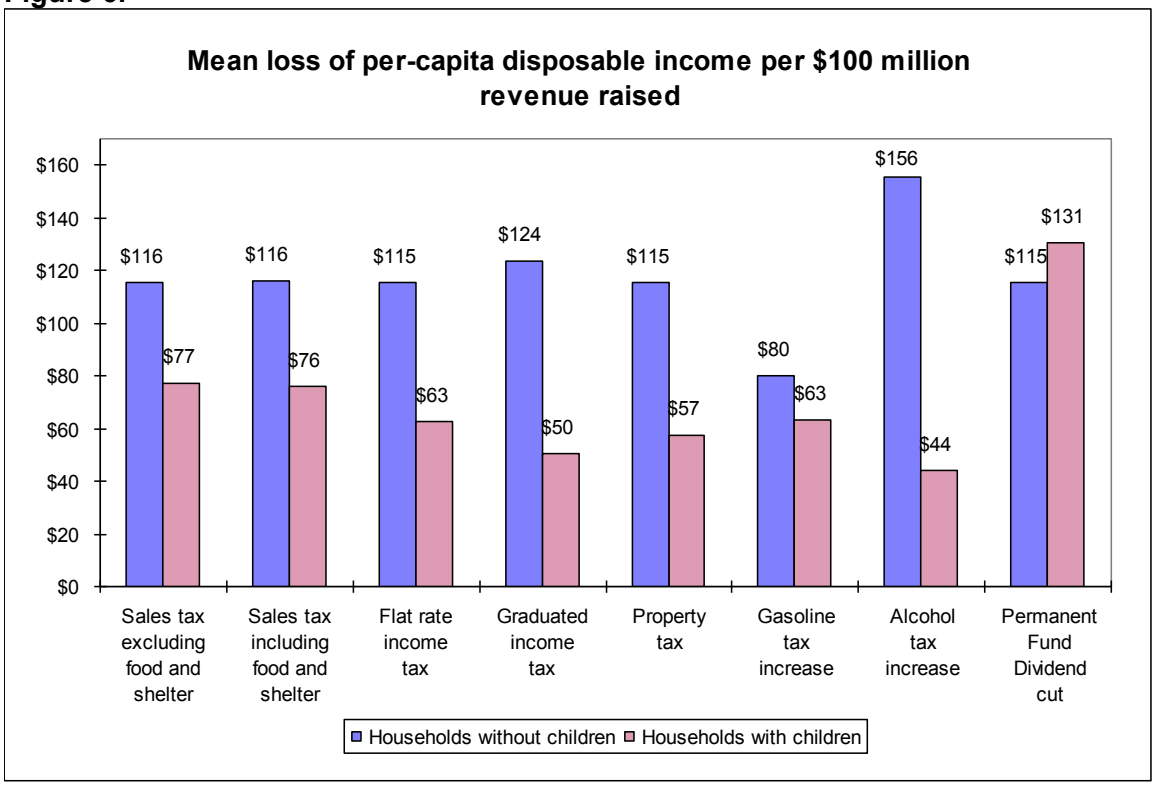
Table 3. Mean loss of per-capita disposable income per $100 million revenues raised for eight Alaska state revenue options

	Households without children	*One adult and children*	*Two adults and children*	*3+ adults and children*	*All households with children*	*All households*
Sales tax excluding food and shelter	$116	$64	$81	$73	$77	$95
Sales tax including food and shelter	$116	$77	$80	$69	$76	$95
Flat rate income tax	$115	$59	$74	$41	$63	$87
Graduated income tax	$124	$39	$61	$32	$50	$84
Property tax	$115	$66	$61	$47	$57	$84
Gasoline tax increase	$80	$33	$57	$85	$63	$71
Alcohol tax increase	$156	$21	$52	$35	$44	$96
Permanent Fund Dividend cut	$115	$135	$128	$134	$131	$123

Figure 6 illustrates the differences among the revenue measures by focusing on the relative effects on households with children and those without children (the first and fifth column of numbers in Table 3. The PFD cut takes a bigger bite out of per-person disposable income of households with children than from income of households without children, primarily because households with children generally have lower per-capita incomes than households without children. Lower incomes mean that on average, households with children pay a smaller share of PFD income in personal income taxes to the federal government. Consequently, when PFD earnings fall, there is a smaller rebate of federal taxes compared to what relatively wealthier households without children receive.

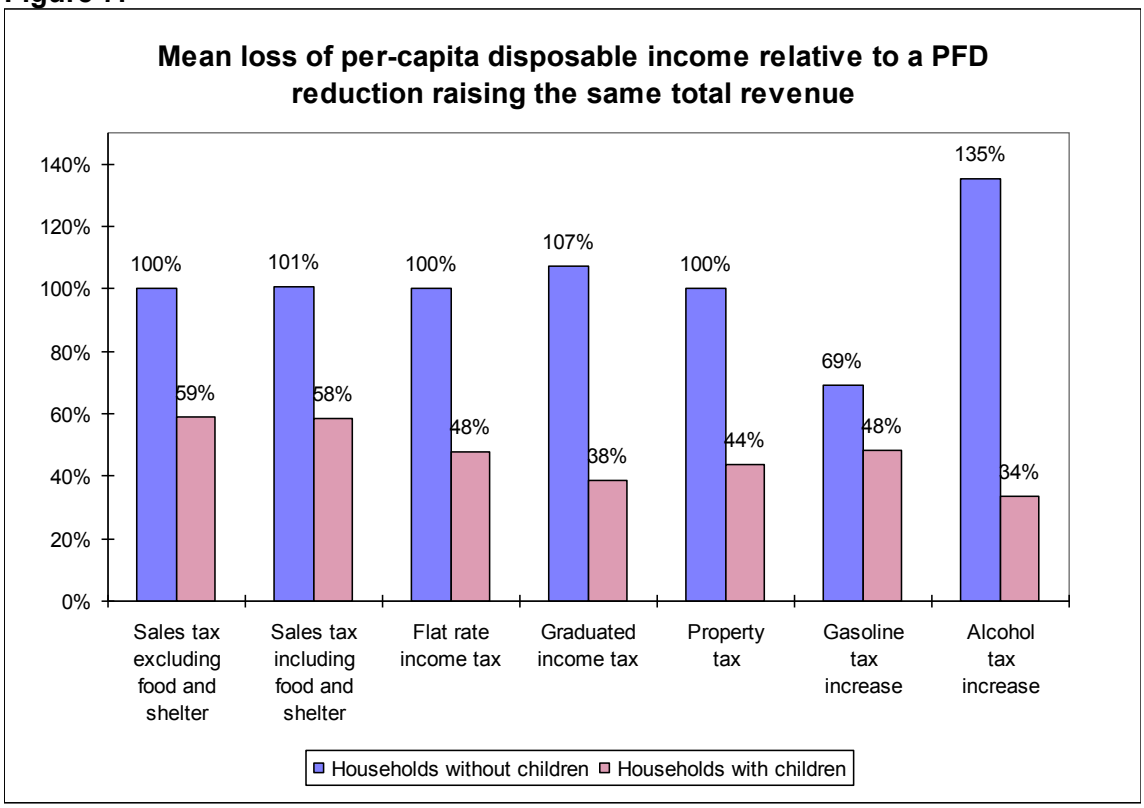
In contrast to the PFD cut, households with children pay a smaller dollar amount under all the tax measures than households without children. Alcohol taxes show the largest discrepancy ($156 compared to $44), and gasoline taxes the smallest ($80 compared to $63). Income and property taxes have a somewhat smaller differential contribution from households with children than alcohol taxes— a $60-$70 difference versus over $100—but much less than sales taxes (about $40 difference).

Figure 6.



Another way to examine the different revenue measures is to compare their effects on household incomes to the effects of a Permanent Fund Dividend cut. Figure 7 shows the average loss of disposable per-capita household income as a percentage of the loss from a PFD reduction for households with and without children. For households without children, alcohol taxes take more and gasoline taxes a bit less than the PFD, and the other measures take roughly the same amount. For households with children, a graduated income tax structured as a percentage of federal income taxes would cost less than two-fifths as much as a PFD cut that raised the same amount of state revenue. Both sales taxes would cost these households about 50 percent more than the graduated income tax, or nearly three-fifths what a PFD reduction would cost.

Figure 7.



For some of the revenue measures, there is relatively little difference for families with children, depending on whether there are one, two, or more than two adults living in the household. Figure 8 shows that the two sales tax alternatives, as well as the PFD reduction, cost about the same amount per person for households with children, regardless of the number of adults in the household. Income taxes—especially the graduated income tax option—collect more from two-adult households with children, mainly because these households have higher incomes on average, and more people filing tax returns. More adults are associated with higher gasoline tax revenues per person. This result is derived from analysis of expenditures that show much higher gasoline expenditures for larger households. Larger households, on the other hand, are able to economize on housing costs per person by sharing a single larger housing unit, so they would pay less per person in property taxes.

Figure 8.

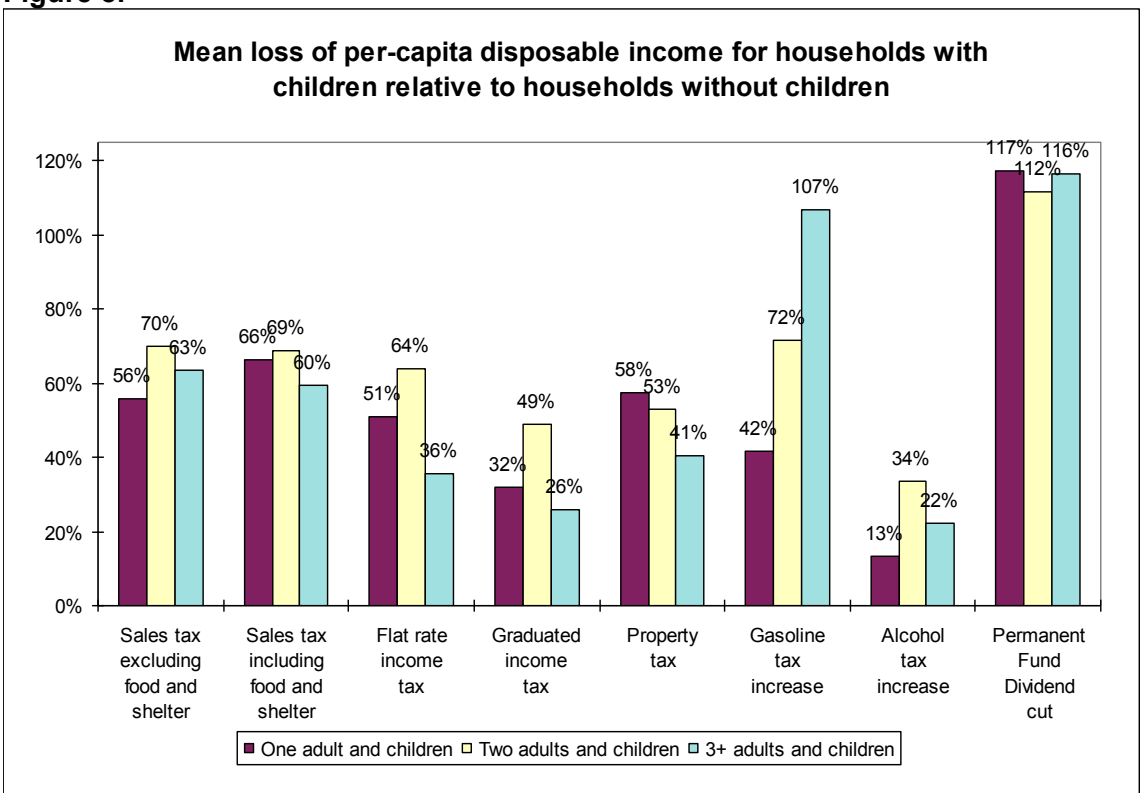


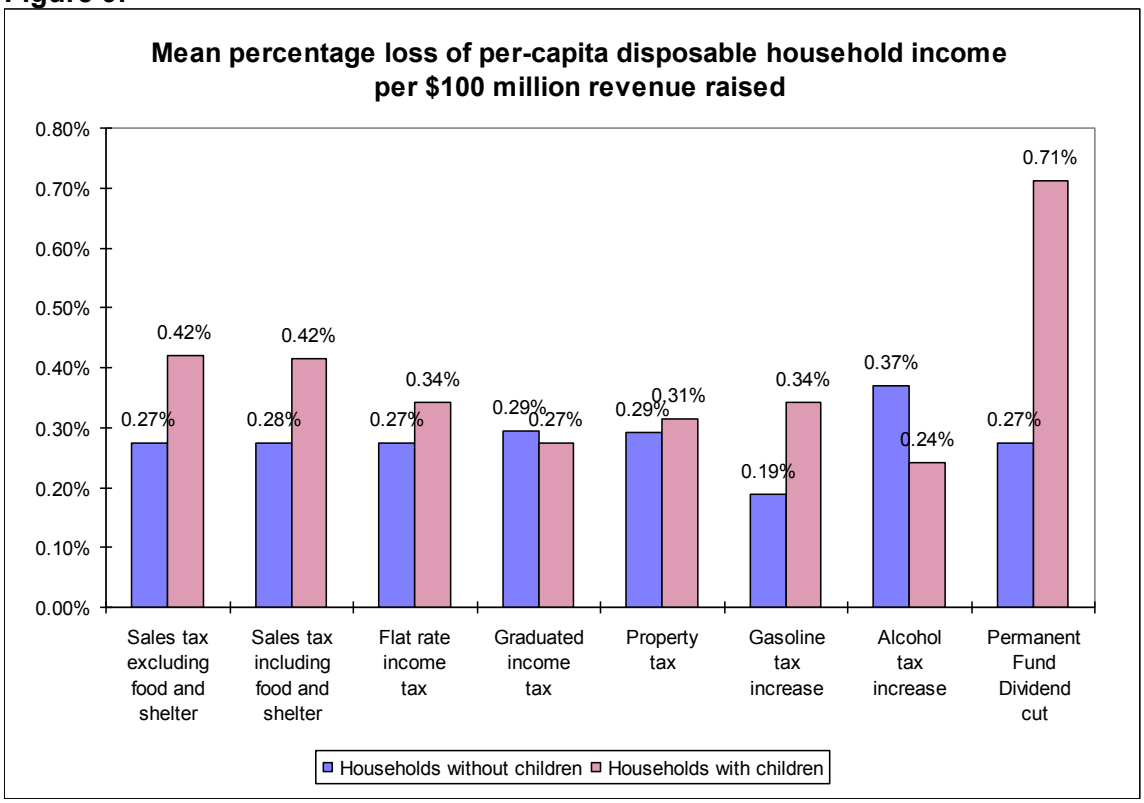
Table 4 shows the reduction in purchasing power from the different options as a percentage of per-capita disposable income instead of a total dollar amount income. This way of comparing the effect of the different revenue measures takes into account differences in the before-tax income of each household. The relative effects for different household types differ from those shown in Table 3 because the average incomes of households differ among the household types (Table 2 and Figure 5). The largest differences by this measure of impacts appear for single-parent families, the household type that has the lowest average incomes. The percentage reductions in per-capita disposable income per $100 increase in state revenues range from 0.12 percent for alcohol taxes to 0.72 percent for the PFD reduction for households with children and one adult. That is, the reduction in the PFD costs these households six times what increasing alcohol taxes would cost.

Table 4. Percentage reduction in per-capita disposable income per $100 million revenues raised for eight Alaska state revenue options

	Households without children	*One adult and children*	*Two adults and children*	*3+ adults and children*	*Households with children*	*All households*
Sales tax excluding food and shelter	0.27%	0.36%	0.45%	0.39%	0.42%	0.35%
Sales tax including food and shelter	0.28%	0.43%	0.44%	0.37%	0.42%	0.35%
Flat rate income tax	0.27%	0.33%	0.41%	0.22%	0.34%	0.31%
Graduated income tax	0.29%	0.22%	0.33%	0.17%	0.27%	0.28%
Property tax	0.29%	0.37%	0.34%	0.25%	0.31%	0.30%
Gasoline tax increase	0.19%	0.19%	0.31%	0.45%	0.34%	0.27%
Alcohol tax increase	0.37%	0.12%	0.29%	0.19%	0.24%	0.30%
Permanent Fund Dividend cut	0.27%	0.75%	0.71%	0.72%	0.71%	0.51%

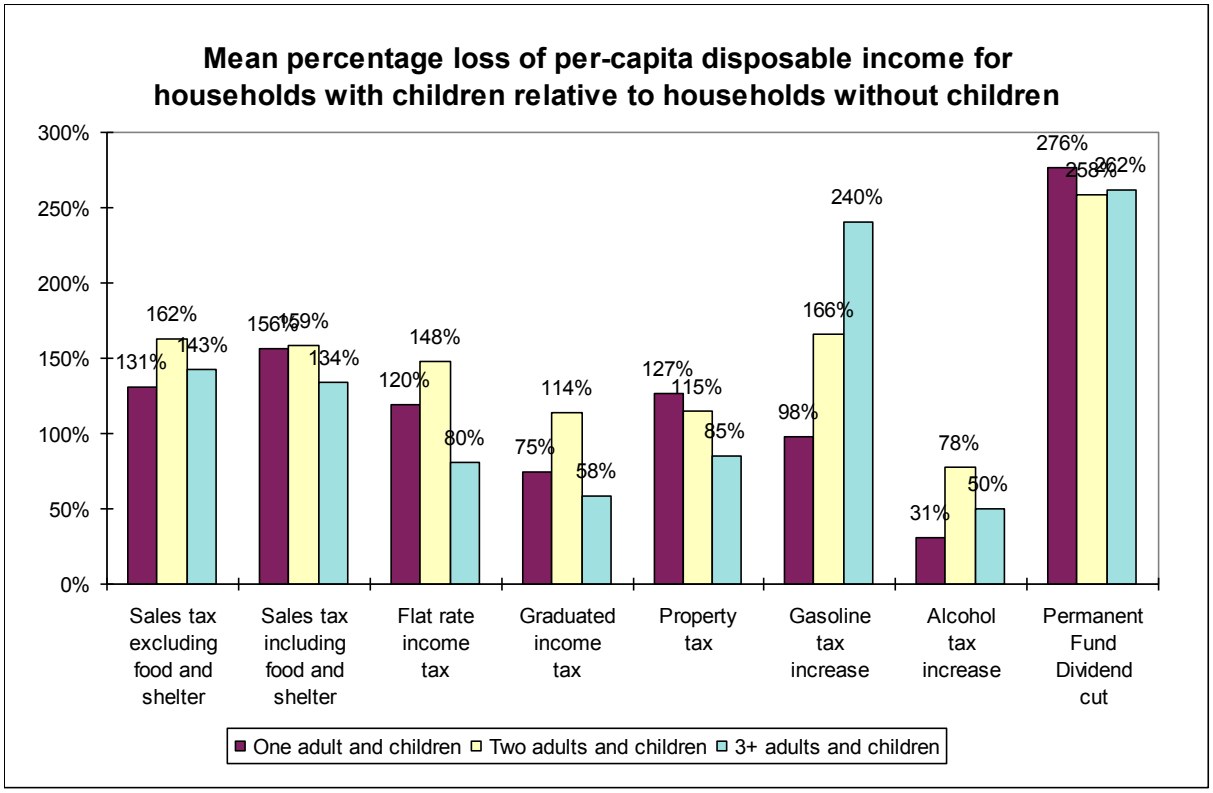
Figure 9 shows that for all households with children, the PFD reduction costs 2.6 times what a graduated income tax that raised the same amount of state revenue would cost these households (0.71% of income vs. 0.27% of income). The figure shows that a PFD cut would also take 2.6 times as large a percentage of per-capita income from households with children as the same PFD cut would take from households without children, when measured as a percentage of household income. When measured as a percentage of per-capita income, there is little difference between households with and without children for income taxes. The graduated income tax takes a slightly lower percentage of income and the flat tax somewhat more for households with children. The discrepancy is much larger for the two sales tax options, both of which take about a 50 percent greater percentage of per-capita income from households with children compared to households without children.

Figure 9.



Comparing the relative percentage differences for households with children relative to households without children (Figure 10) reveals a pattern that is very similar to that shown in Figure 8 for the absolute loss. However, the results show clearly that households with children would lose a smaller percentage of per-capita income for only a few of the options for some types of families. Two-adult households with children would pay a larger percentage share of per-capita income than households without children for all the revenue measures except for the alcohol tax increase. Single-parent families would also pay less under the graduated income tax option, and also a little less for a gas tax increase. Households with more than two adults and children would also pay less than households without children for both income tax options and a property tax.

Figure 10.



Regional differences

Table 5 summarizes the results by region—reported in Appendix B—by comparing households with and without children for the three geographic regions. The numbers in the table represent the average loss of per-capita income for the particular group of households expressed as a percentage of the loss of per-capita income experienced by Anchorage households without children. There is little difference among the regions for the Permanent Fund Dividend reduction. Regional differences—in some case quite large differences—appear for all the tax measures, however. Although households with children would pay less in sales and income taxes than households without children in all regions, rural families would pay less than urban families. Most of these regional differences arise because rural families are larger and have lower per-capita incomes on average. Rural and other urban families would pay more than Anchorage families for property taxes. A gasoline tax increase would affect other urban families the most. The other urban region includes the Matanuska-Susitna and Fairbanks North Star Boroughs, where many residents drive significant distances to work and shop.

Table 5. Mean loss of per-capita disposable income relative to Anchorage households without children (Anchorage households without children = 100%)

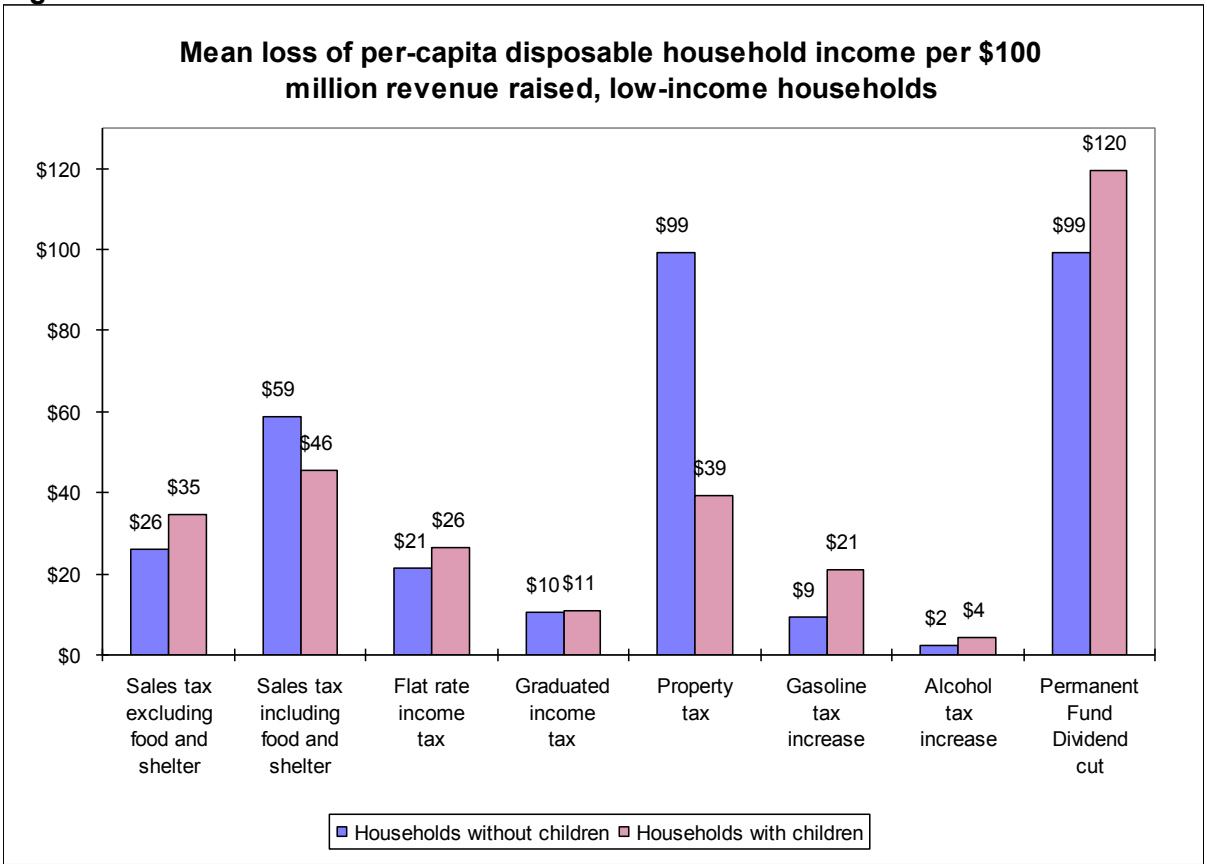
	Other urban households without children	*Rural households without children*	*Anchorage households with children*	*Other urban households with children*	*Rural households with children*
Sales tax excluding food and shelter	95%	101%	57%	55%	46%
Sales tax including food and shelter	92%	95%	55%	52%	46%
Flat rate income tax	88%	81%	57%	48%	37%
Graduated income tax	61%	80%	40%	33%	23%
Property tax	104%	145%	37%	44%	46%
Gasoline tax increase	104%	69%	66%	96%	69%
Alcohol tax increase	68%	61%	23%	17%	14%
Permanent Fund Dividend cut	103%	105%	99%	95%	105%

Effects for low-income households

To examine the effects of alternative revenue measures on families at different income levels, we focus on effects on per-capita disposable income for households in the lowest income quartile (Figure 11). For low-income households with children, the PFD reduction has by far the largest adverse effect of any option, taking more than two-and-a-half times as much as the second most costly option: the sales tax including food and shelter. For low-income households without children, a property tax has as large an effect as a PFD cut, associated with the high percentage of income spent on housing for this group.

Among broad-based taxes, the graduated income tax has the smallest impact on low-income households, with the effect differing little depending on whether or not children are present. A PFD reduction costs families with children in the lowest income quartile 11 times as much as the personal income tax for every dollar of revenue contributed to fund state government. Although there is little difference in impacts between the two sales tax options for all households, Figure 11 shows that excluding food and shelter does reduce the burden on low-income households significantly. The effect of excluding food is greater for low-income households without children than for those with children. The result occurs primarily because we included rent and utilities in the sales tax base for this option. As mentioned before, housing costs are high relative to income for low-income households without children.

Figure 11.



Discussion

The Permanent Fund Dividend reduction has a much greater effect on households with children than any of the tax measures per dollar of revenue raised, even though its effect is similar to those of the taxes for households without children. There are also significant differences among the tax measures for households with children. A number of factors drive these results. One factor is that non-residents contribute significantly to the taxes, reducing the amount of revenue that has to be raised from residents to achieve the same level of overall state revenue. Non-resident workers would pay state income taxes. Tourists as well as non-resident workers would pay sales taxes, and stay and shop at commercial enterprises that would pay property taxes.

Another important factor driving the differences in impacts arises from the effect of the federal personal income tax. If incomes fall because of a smaller PFD, federal income taxes fall as well, offsetting a portion of the loss. A state sales tax or a state income tax could also be deducted from federal taxable income, offsetting a portion of the cost of these taxes for those households whose taxpayers itemize deductions on the federal tax return. Not all taxpayers itemize deductions, however, so the federal offset is on average less for new taxes than it is for the PFD cut. For households without children, the federal tax offset from the PFD cut is sufficient to nullify the advantage that the taxes have in collecting revenue from nonresidents. The offset is not sufficient for households with children, however. The primary reason for the difference is that households with children have lower incomes on average.

Lower incomes reduce both the federal income tax rate and the advantage of itemizing deductions and therefore the percentage of taxpayers that do itemize. Both these federal tax consequences of lower incomes for households with children serve to reduce the federal tax offset and increase the disparity between the effects of PFD cuts and those of state taxes.

Family size as well as per-capita income also affects household expenditure patterns, driving differences between estimated sales, gasoline, alcohol, and property tax payments for households with children and those without children. On the other hand, children bring exemptions, credits, and lower tax rates to income taxes. For families, having children results in higher household expenditures, but creates savings on income taxes.

Sales tax proponents often point to the possibility of excluding food at home and shelter from the tax base as a way to ease the burden on families and people with low incomes. Indeed, sales taxes in many states do exclude those items. For Alaska households with children on average, we found little difference between a sales tax that includes food and shelter and one that excludes them. We did find a difference for low-income families, however, where excluding food at home would ease the tax burden somewhat. The main reason there is so little difference when one excludes food and shelter is that the sales tax rate has to be higher to obtain the same amount of revenue with a smaller tax base.

Conclusion

The size of the Alaska state budget shortfall ensures that balancing the state budget will be costly no matter what measures are taken. Closing the budget gap will require significant new revenue measures as well as additional expenditure reductions. Reducing expenditures and adding new taxes will cost jobs, affecting all Alaska households, including families with children. Reductions in a few state programs—such as support for public schools and Medicaid (Denali Kid Care)—will directly affect children. Other state programs, such as the Office of Children's Services and the Juvenile Justice Division, are easily identified as primarily benefitting children. Families with children benefit along with all Alaskans from many other state programs, from public safety and public health to transportation and state parks. It is difficult if not impossible to compare how children and families with children benefit more or less from most of these programs than households without children.

Instead, this report focused on analyzing effects of alternative revenue measures on families with children. Among the broad-based measures, the reduction in Permanent Fund Dividends stands out as by far the most costly alternative for families. The PFD cut is much more costly to families both when measured as an absolute or as a percentage loss of per-capita disposable household income. It is just as costly for urban as it is for rural families, and has by far the largest impact on low-income families. Although the PFD reduction has the largest adverse effect across the board, we also found quite large differences for the various tax measures. Among the broad-based tax options, a graduated income tax had the least adverse effect on families per dollar of revenue raised. Income taxes contain tax credits and exemptions for children, and tax rates are lower for single-parent families. Sales taxes cost families with children over 50 percent more per person than the graduated income tax per dollar of revenue raised. Excluding food and shelter from the sales tax base does not ameliorate its effects on families, except for those in the lowest income quartile.

We did not find evidence that gasoline taxes hit low income families harder, and an alcohol excise tax structured as a percentage of the cost of the drink or bottle appeared to affect

households with children less than it would those without children. However, neither of these two excise taxes could raise enough revenue to avoid the need for one or more of the broad-based measures.

Appendix A. Technical Notes

Gasoline tax

We assumed that the average price of gasoline was $2.50 per gallon. In this case, an increase of 16 cents per gallon represents a price increase of 6.4 percent.

Property tax

For ACS PUMS respondents who owned their homes and either reported property tax payments or reported that property taxes were not included in the mortgage, the effective rate for the state tax was estimated as the difference between 20 mils and what ACS respondents reported they actually paid. For homeowners who reported that property taxes were included in the mortgage, we estimated local property taxes as the weighted average by Public Use Microdata Area, the smallest geographic unit available in the ACS PUMS, of the ratio of property taxes paid to property value, weighted by property value, for homeowners for whom we had property tax information.

To estimate the corresponding amount for renters and mobile home occupants, who might be renting trailer space, we had to estimate the property value of the rental unit. We approximated the rental unit value using the simple formula:

property value = (12* monthly rent)/(0.1-tax rate).

That is, if there is no property tax, the denominator of the equation is 0.1, and 12 monthly rental payments would add to 10 percent of the property value. If the local property tax were 20 mils, then the denominator is 0.1 - 0.02 = 0.8, and the monthly rental payments would add to 12.5 percent of the property value. For example, if monthly rent is $500, and the local tax rate is 10 mils (1%), then we estimate the value of the rental unit as $6,000/0.09 = $66,667. The state in this case would receive 10 mils, or $667 per year from that property, which we assume gets will be passed on to the renter in the form of an increase in the rent of about $55 per month. If there is no local property tax, the estimated property value is higher,. because the rent observed doesn't include any property taxes: $6,000/.08 = $75,000, with the state collecting a property tax of $1,500 annually, and the monthly rent rising to $625.

Effect of fiscal options on federal income taxes

All the fiscal options except the alcohol and gasoline tax increases are potentially deductible from federal personal income taxes. That means that when the state collects more money from households, some people will get money back from the federal government. We made the following assumptions about changes in federal income taxes.

PFD reduction. We reduced taxable income by the full amount of the PFD for all household members receiving a dividend. We assumed that dividends for spouses and household members who were tagged in the CPS ASEC as non-tax-filers (generally children) were all included in the household head's taxable income. PFD dividends for children were taxed according to the IRS rules for taxing unearned income of children included on the parent’s tax return (form 8814). For households including more than one married couple (for example, families living together with grandparents), we reduced income for the taxpayer with the largest taxable income.

Federal tax offsets for state sales, income, and property taxes. After calculating the state tax, we reduced federal taxable income by the product of the amount of the state tax and the average percentage of taxpayers at each taxable income level who itemized deductions. We estimated those percentages from the IRS SOI summary for the 2014 tax year.

Appendix B. Detailed Results: Effects of Alternative Revenue Measures by Household Type and Per-capita Income Quartile

Table B.1. Sales Tax: 4% on Goods and Services Excluding Food and Shelter

Loss of per-capita disposable household income per $100 million raised

	Alaska		Anchorage		Matsu, Kenai, Fairbanks		Rural Alaska	
Household Type	Mean Income Loss	Median Income Loss	Mean Income Loss	Median Income Loss	Mean Income Loss	Median Income Loss	Mean Income Loss	Median Income Loss
1 or More Adults No Children	**$ 116**	**$ 102**	**$ 139**	**$ 119**	**$ 132**	**$ 120**	**$ 141**	**$ 125**
0-25% Inc Percentile	26	24	35	33	34	31	37	31
25-50% Inc Percentile	57	41	67	47	71	51	71	54
50-75% Inc Percentile	93	93	112	108	106	109	113	84
75% or Greater	181	158	218	183	203	182	219	209
1 Adult with Children	**64**	**60**	**62**	**61**	**80**	**73**	**56**	**56**
0-25% Inc Percentile	28	29	32	38	37	36	34	35
25-50% Inc Percentile	72	62	71	61	86	79	70	67
50-75% Inc Percentile	110	101	100	92	107	87	115	128
75% or Greater	171	162	198	178	160	146	117	118
2 Adults with Children	**81**	**75**	**87**	**81**	**80**	**75**	**75**	**70**
0-25% Inc Percentile	37	35	39	38	38	36	37	33
25-50% Inc Percentile	72	69	73	69	75	71	76	76
50-75% Inc Percentile	107	103	112	111	105	101	113	107
75% or Greater	180	152	190	160	158	141	167	155
3 Adults with More Children	**73**	**68**	**70**	**64**	**64**	**62**	**55**	**51**
0-25% Inc Percentile	33	29	35	32	27	23	36	32
25-50% Inc Percentile	70	67	60	55	59	59	66	62
50-75% Inc Percentile	108	101	89	83	91	89	95	91
75% or Greater	191	182	172	157	116	119	177	175

Table B.2. Sales Tax: 3% on Goods and Services Including Food and Shelter

Loss of per-capita disposable household income per $100 million raised

	Alaska		Anchorage		Matsu, Kenai, Fairbanks		Rural Alaska	
Household Type	Mean Income Loss	Median Income Loss	Mean Income Loss	Median Income Loss	Mean Income Loss	Median Income Loss	Mean Income Loss	Median Income Loss
1 or More Adults No Children	**$ 116**	**$ 107**	**$ 144**	**$ 131**	**$ 132**	**$ 124**	**$ 136**	**$ 124**
0-25% Inc Percentile	59	56	81	77	78	76	78	71
25-50% Inc Percentile	78	64	91	73	95	77	103	88
50-75% Inc Percentile	101	103	121	120	115	119	126	102
75% or Greater	158	145	187	167	180	166	201	195
1 Adult with Children	**77**	**72**	**78**	**74**	**93**	**86**	**74**	**73**
0-25% Inc Percentile	48	46	55	56	60	57	58	57
25-50% Inc Percentile	86	77	87	80	101	94	83	82
50-75% Inc Percentile	114	107	103	97	111	97	120	131
75% or Greater	155	148	175	161	147	138	114	115
2 Adults with Children	**80**	**76**	**86**	**81**	**78**	**75**	**76**	**73**
0-25% Inc Percentile	49	46	53	50	50	47	49	45
25-50% Inc Percentile	75	72	77	73	76	75	79	80
50-75% Inc Percentile	98	96	104	104	96	92	104	100
75% or Greater	146	128	152	131	130	118	139	131
3 Adults with More Children	**69**	**65**	**65**	**61**	**60**	**58**	**56**	**53**
0-25% Inc Percentile	39	35	43	40	33	28	43	41
25-50% Inc Percentile	68	66	58	54	58	57	63	59
50-75% Inc Percentile	94	89	78	74	79	77	84	79
75% or Greater	149	143	131	122	94	96	143	142

Table B.3. Income Tax: 2 Percent of Federal Taxable Income

Loss of per-capita disposable household income per $100 million raised

	Alaska		Anchorage		Matsu, Kenai, Fairbanks		Rural Alaska	
Household Type	Mean Income Loss	Median Income Loss	Mean Income Loss	Median Income Loss	Mean Income Loss	Median Income Loss	Mean Income Loss	Median Income Loss
1 or More Adults No Children	**$115**	**$98**	**$131**	**$105**	**$115**	**$116**	**$106**	**$86**
0-25% Inc Percentile	21	14	25	38	21	14	18	14
25-50% Inc Percentile	41	38	31	21	57	59	37	30
50-75% Inc Percentile	76	64	77	62	115	118	78	71
75% or Greater	196	166	211	168	171	173	219	173
1 Adult with Children	**59**	**56**	**57**	**65**	**84**	**82**	**52**	**49**
0-25% Inc Percentile	27	25	38	38	57	57	27	25
25-50% Inc Percentile	70	68	66	71	79	79	78	73
50-75% Inc Percentile	115	107	84	135	115	107	120	115
75% or Greater	199	195	176	176	199	195	200	192
2 Adults with Children	**74**	**74**	**89**	**84**	**68**	**64**	**65**	**65**
0-25% Inc Percentile	29	29	44	45	5	5	28	30
25-50% Inc Percentile	64	59	66	60	57	48	57	51
50-75% Inc Percentile	99	108	122	107	113	109	97	107
75% or Greater	204	204	215	208	226	226	219	204
3 Adults with More Children	**41**	**38**	**49**	**46**	**42**	**37**	**31**	**28**
0-25% Inc Percentile	21	19	38	38	21	19	19	19
25-50% Inc Percentile	38	32	43	33	64	79	37	38
50-75% Inc Percentile	66	72	66	72	45	22	57	36
75% or Greater	150	81	122	89	63	30	138	80

Table B.4. Income Tax: 10 Percent of Federal Personal Income Tax

Loss of per-capita disposable household income per $100 million raised

	Alaska		Anchorage		Matsu, Kenai, Fairbanks		Rural Alaska	
Household Type	Mean Income Loss	Median Income Loss	Mean Income Loss	Median Income Loss	Mean Income Loss	Median Income Loss	Mean Income Loss	Median Income Loss
1 or More Adults No Children	**$124**	**$90**	**$151**	**$104**	**$93**	**$86**	**$121**	**$81**
0-25% Inc Percentile	10	8	10	12	10	8	10	8
25-50% Inc Percentile	26	22	25	14	27	27	25	21
50-75% Inc Percentile	57	51	60	45	82	84	58	53
75% or Greater	235	165	268	182	156	140	286	178
1 Adult with Children	**39**	**37**	**34**	**41**	**60**	**58**	**29**	**26**
0-25% Inc Percentile	9	9	15	15	27	27	8	9
25-50% Inc Percentile	40	38	37	38	45	45	46	40
50-75% Inc Percentile	96	79	70	116	96	79	102	79
75% or Greater	209	210	175	175	209	210	206	185
2 Adults with Children	**61**	**57**	**76**	**66**	**59**	**54**	**53**	**47**
0-25% Inc Percentile	12	10	17	17	3	3	12	10
25-50% Inc Percentile	40	35	45	40	32	25	34	26
50-75% Inc Percentile	82	81	101	80	95	87	82	82
75% or Greater	248	233	267	233	275	275	271	236
3 Adults with More Children	**32**	**21**	**37**	**26**	**26**	**24**	**20**	**14**
0-25% Inc Percentile	9	9	17	17	9	9	9	7
25-50% Inc Percentile	23	16	28	17	41	51	23	20
50-75% Inc Percentile	58	41	58	41	33	18	50	21
75% or Greater	225	63	143	103	29	22	174	102

Table B.5. Alcohol Excise Tax: 10% on Alcohol Sales

Loss of per-capita disposable household income per $100 million raised

	Alaska		Anchorage		Matsu, Kenai, Fairbanks		Rural Alaska	
Household Type	Mean Income Loss	Median Income Loss	Mean Income Loss	Median Income Loss	Mean Income Loss	Median Income Loss	Mean Income Loss	Median Income Loss
1 or More Adults No Children	**$ 156**	**$ 74**	**$ 229**	**$ 92**	**$ 156**	**$ 84**	**$ 141**	**$ 84**
0-25% Inc Percentile	2	2	3	3	3	2	4	3
25-50% Inc Percentile	13	9	15	10	16	10	14	10
50-75% Inc Percentile	42	32	52	37	48	41	47	36
75% or Greater	325	146	464	176	313	159	304	177
1 Adult with Children	**21**	**18**	**25**	**20**	**24**	**20**	**17**	**16**
0-25% Inc Percentile	3	3	3	3	4	3	3	2
25-50% Inc Percentile	17	14	16	12	23	21	15	14
50-75% Inc Percentile	48	42	44	39	47	30	43	46
75% or Greater	151	133	206	154	126	107	71	72
2 Adults with Children	**52**	**34**	**64**	**38**	**45**	**34**	**40**	**36**
0-25% Inc Percentile	5	4	5	4	5	5	5	4
25-50% Inc Percentile	22	19	20	17	24	19	22	21
50-75% Inc Percentile	58	54	60	56	58	53	63	57
75% or Greater	296	142	364	162	208	131	179	160
3 Adults with More Children	**35**	**28**	**38**	**29**	**27**	**25**	**27**	**24**
0-25% Inc Percentile	5	4	5	5	4	3	5	4
25-50% Inc Percentile	23	21	20	17	19	19	22	20
50-75% Inc Percentile	66	55	55	45	57	53	55	47
75% or Greater	304	223	370	224	133	122	179	167

Table B.6. Gasoline Tax Increase: $0.16 Increase per Gallon

Loss of per-capita disposable household income per $100 million raised

	Alaska		Anchorage		Matsu, Kenai, Fairbanks		Rural Alaska	
Household Type	Mean Income Loss	Median Income Loss	Mean Income Loss	Median Income Loss	Mean Income Loss	Median Income Loss	Mean Income Loss	Median Income Loss
1 or More Adults No Children	**$ 80**	**$ 57**	**$ 82**	**$ 65**	**$ 85**	**$ 56**	**$ 56**	**$ 37**
0-25% Inc Percentile	9	6	9	6	9	6	11	7
25-50% Inc Percentile	27	14	27	14	28	15	21	12
50-75% Inc Percentile	52	48	53	47	53	51	45	25
75% or Greater	138	94	127	101	156	94	111	78
1 Adult with Children	**33**	**26**	**33**	**26**	**37**	**30**	**27**	**26**
0-25% Inc Percentile	13	11	13	13	13	12	12	11
25-50% Inc Percentile	38	29	34	26	41	34	42	39
50-75% Inc Percentile	64	55	64	55	65	46	65	76
75% or Greater	147	101	220	106	108	91	77	78
2 Adults with Children	**57**	**50**	**53**	**48**	**63**	**52**	**52**	**45**
0-25% Inc Percentile	21	18	19	16	22	19	25	19
25-50% Inc Percentile	51	45	45	40	57	51	49	49
50-75% Inc Percentile	83	77	80	77	86	77	81	70
75% or Greater	148	114	126	111	178	108	148	122
3 Adults with More Children	**85**	**46**	**66**	**49**	**131**	**48**	**49**	**40**
0-25% Inc Percentile	23	17	22	16	24	16	23	20
25-50% Inc Percentile	61	50	56	45	56	50	76	59
50-75% Inc Percentile	190	81	116	83	291	84	85	80
75% or Greater	350	100	177	100	499	88	124	100

Table B.7. Property Tax: 20 Mills With Credit for Local Tax Payments

Loss of per-capita disposable household income per $100 million raised

	Alaska		Anchorage		Matsu, Kenai, Fairbanks		Rural Alaska	
Household Type	Mean Income Loss	Median Income Loss	Mean Income Loss	Median Income Loss	Mean Income Loss	Median Income Loss	Mean Income Loss	Median Income Loss
1 or More Adults No Children	**$ 123**	**$ 92**	**$ 138**	**$ 97**	**$ 143**	**$ 114**	**$ 201**	**$ 159**
0-25% Inc Percentile	94	71	119	72	123	97	147	134
25-50% Inc Percentile	104	78	115	74	124	96	166	132
50-75% Inc Percentile	115	85	119	87	136	113	200	169
75% or Greater	145	108	160	115	164	129	257	184
1 Adult with Children	**66**	**60**	**54**	**51**	**85**	**76**	**97**	**72**
0-25% Inc Percentile	45	42	42	46	57	53	89	53
25-50% Inc Percentile	79	79	73	50	93	96	88	80
50-75% Inc Percentile	85	57	46	46	111	63	186	155
75% or Greater	116	112	119	125	116	110	91	57
2 Adults with Children	**61**	**53**	**56**	**54**	**64**	**53**	**78**	**74**
0-25% Inc Percentile	43	35	40	38	52	39	42	40
25-50% Inc Percentile	57	46	52	45	58	45	84	93
50-75% Inc Percentile	72	65	65	67	68	64	131	102
75% or Greater	103	94	87	88	116	101	119	122
3 Adults with More Children	**47**	**38**	**36**	**26**	**44**	**44**	**44**	**39**
0-25% Inc Percentile	29	23	21	0	29	27	34	25
25-50% Inc Percentile	47	41	36	34	40	35	50	49
50-75% Inc Percentile	62	49	43	28	57	60	64	65
75% or Greater	82	62	44	39	63	86	127	128

Table B.8. PFD Reduction of $1,000

Loss of per-capita disposable household income per $100 million raised

	Alaska		Anchorage		Matsu, Kenai, Fairbanks		Rural Alaska	
Household Type	Mean Income Loss	Median Income Loss	Mean Income Loss	Median Income Loss	Mean Income Loss	Median Income Loss	Mean Income Loss	Median Income Loss
1 or More Adults No Children	**$ 115**	**$ 123**	**$ 119**	**$ 125**	**$ 123**	**$ 129**	**$ 126**	**$ 90**
0-25% Inc Percentile	99	77	128	102	126	98	124	92
25-50% Inc Percentile	107	71	111	75	123	77	131	93
50-75% Inc Percentile	118	139	126	146	120	140	128	82
75% or Greater	122	150	117	138	120	145	123	93
1 Adult with Children	**135**	**130**	**135**	**128**	**139**	**113**	**132**	**147**
0-25% Inc Percentile	127	131	147	140	130	100	132	150
25-50% Inc Percentile	140	121	118	116	144	123	140	149
50-75% Inc Percentile	156	135	121	107	136	116	157	185
75% or Greater	157	147	139	133	132	122	110	110
2 Adults with Children	**128**	**122**	**119**	**108**	**112**	**125**	**128**	**119**
0-25% Inc Percentile	115	99	113	104	100	121	133	113
25-50% Inc Percentile	134	148	121	107	121	128	130	140
50-75% Inc Percentile	140	121	129	113	119	133	120	112
75% or Greater	138	132	111	107	104	103	133	111
3 Adults with More Children	**134**	**134**	**109**	**103**	**107**	**109**	**123**	**116**
0-25% Inc Percentile	127	124	118	107	96	96	136	124
25-50% Inc Percentile	134	136	101	108	107	110	120	110
50-75% Inc Percentile	145	151	108	90	110	114	123	126
75% or Greater	146	140	95	95	92	88	154	167