A rising tide that lifts all boats: Long-term effects of the Alaska Permanent Fund Dividend on poverty

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Research Article

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Abstract

Although not designed as a social program to redistribute income, the Alaska Permanent Fund Dividend (PFD) program has been reducing relative income inequality for the past 40 years by providing equal annual payments to nearly all state residents. We examine specifically the direct effects of the PFD on Alaska poverty rates over the past several decades, with a particular focus on vulnerable populations: children, elders, and Indigenous peoples. Since children of all ages may receive a PFD, accurate measurement of the effect of the PFD requires adjusting for the under-reporting of income of children in government surveys generating official poverty statistics. After adjusting individual incomes of US Census and American Community Survey Public Use Microdata Sample (PUMS) households, we find that the PFD reduced Alaska poverty rates from 2.1 to 4.2 percentage points from 1990 through 2019. The effect of the PFD on ameliorating poverty has been even larger for vulnerable Alaska populations. The PFD has reduced poverty rates of rural Indigenous Alaskans from 28 percent to less than 22 percent. The PFD has also played an important role in alleviating poverty among seniors and children. Aside from the special case of 2020, as much as 50 percent more Alaska children – 15 percent instead of 10 percent – would be living in poor families without PFD income. The poverty-ameliorating effects of the PFD have lessened somewhat since 2000, as the dividend amount adjusted for inflation has been falling.

1. Introduction

Absolute poverty in high income countries is a manifestation of income inequality. Conversely, any event or policy that increases income to all by an equal amount reduces inequality as it ameliorates poverty. The Alaska Permanent Fund Dividend (PFD) program has been playing such a role for the past 40 years, by providing equal annual payments to nearly all residents. The PFD is paid from earnings of the state sovereign wealth fund created from a portion of royalties and other mineral lease payments from state-owned lands. Its primary original purpose was to build public support for conservative management of the Permanent Fund (PF), by giving the citizen-owners a direct financial interest in its management (Groh 2019; Groh and Erickson 2012). The institutionalization in statute and regulation of the distribution of an equal annual dividend may be seen as an explicit recognition of collective ownership of the sovereign wealth fund by all citizens.

Although the PFD creates basic income, it was not intended as a cash transfer program to alleviate poverty. However, like any equal per-capita payment measure in an economy with unequal distribution of income, the PFD’s proportional effects on income are felt most strongly on the lower tail of the distribution. The paper examines how a program that was not intended to be explicitly redistributive has alleviated poverty nonetheless. We examine the direct effects of the Alaska PFD on poverty rates over the past several decades, with a particular focus on vulnerable populations, including children, elders, and Indigenous peoples: the state’s largest ethnic minority population. We assume implicitly, based on state spending patterns in years when state revenues were high, that had the PFD not been in place, PF earnings would have been spent largely on infrastructure and high-risk economic development programs,
We start by reviewing certain features of income inequality in Alaska, along with the origins and development of the PFD program. Next we describe methods for estimating the direct effects of the PFD on poverty rates. This exercise turns out to be less straightforward as it might seem, due the fact that the available data sources significantly under-count PFD receipts in household income. Then we describe estimates of poverty rates with and without inclusion of PFD income. We examine changes over time since 1990 for the population as a whole, and consider regional disparities, and effects for certain vulnerable populations. Finally, we consider consequences of the findings and their policy implications.

1.1. Alaska resource rents and the Permanent Fund Dividend program

The Alaska economy has been described as a “three-legged stool,” driven by petroleum production, federal government spending, and all other industries combined (Goldsmith 2008). Other basic industries are quite diversified, and include large fisheries and tourism sectors, and a growing mining industry (Knapp and Loeffler 2018). Over 60 percent of the land in Alaska is owned and managed by the federal government, including national parks, wildlife refuges, forests, and other public lands and offshore waters. The state plays a key role in national defense, and hosts a number of large military installations in Anchorage, Fairbanks, and several outlying areas. The contribution of petroleum production to the state economy includes the state and local government spending it enables, financed by taxes and lease payments. In recent years, declining current revenues from oil production have been somewhat offset by increased revenues from accumulated savings from prior oil production, primarily in the Alaska Permanent Fund.

When Alaska gained status as a state in 1959, it was permitted to acquire 104 million acres (43 million hectares) of unreserved U.S. public lands (Public Law 85–508, 72 Stat. 339) as well as nearshore submerged lands granted to other coastal states.\(^1\) Fortuitous land selections and subsequent petroleum discoveries on state-owned lands provided the relatively small Alaska population an opportunity to realize resource rents matched by few jurisdictions worldwide. Citizens voted in 1976 to amend the state constitution to create the Alaska Permanent Fund as a state sovereign wealth fund, to save a portion of nonrenewable oil revenues for future public needs (Alaska Constitution, Article IX, Section 15). The constitutional amendment allocated at least one-fourth of royalties and other payments the state realized in its role as resource owner to the Permanent Fund. In addition, the Alaska Legislature appropriated additional revenues to the fund during years when high oil prices created large budget surpluses.

In 1980, the Alaska Legislature enacted the PFD program to distribute a portion of the Permanent Fund earnings to residents. In addition to satisfying populist demands for sharing the rewards of publicly owned wealth, the PFD program generated political support for conservative management of the fund, increasing the likelihood that the principal would be protected and grow over time. Annual contributions
from oil revenues, combined with reinvested earnings have enabled the Permanent Fund balance to grow to nearly $62 billion by May, 2021, nearly $90,000 per resident. Since 1982, a portion of earnings from the Fund’s investments has been distributed in annual PFD payments unconditionally and equally to all Alaskans who meet residency requirements.²

After an initial per-capita payment of $1,000 in 1982, legislative appropriation of the fund’s earnings for many years followed a formula that paid dividends based on an average of the previous five years’ Permanent Fund earnings. The 2009 stock market crash and declining current petroleum revenues motivated the legislature in 2018 to change the formula to one based on the Fund’s average market value over the previous five years (AS 37.13.140), split between paying dividends and funding state services. Figure 1 shows the annual PFD amount since the program’s inception in 1982, along with the percentage of per-capita personal income that it represented each year, as estimated by the US Bureau of Economic Analysis (BEA).

As the Permanent Fund and its associated earnings grew over time, the number of Alaska residents and their incomes increased as well. Recent PFD payments, although generally larger in nominal terms than those in earlier years, have lagged inflation, and therefore represent a smaller percentage of per-capita personal income than during much of the 1990s. The state has no income tax; however, the PFD is considered taxable income subject to the progressive federal income tax. In addition, the state adjusts PFD payments under a hold harmless provision that offsets reductions in federal low-income cash assistance programs (Alaska Department of Revenue 2021). These measures make the PFD absolutely progressive, as well as increasing its relative progressivity.

1.2. Income inequality and Alaska Indigenous peoples

Overall income inequality in Alaska is less than in most other US states. The Census Bureau American Community Survey shows a household income Gini Coefficient for Alaska of 0.42, which was the second lowest among U.S. States (Misachi 2017). These numbers were calculated from household income. Using perhaps a better measure, based on per-capita household income, we calculated a slightly higher number – 0.45 in 2019.³ The relatively lower inequality in Alaska derives from the scarcity of very high income earners rather than from the lack of low-income individuals. The state could be described as having a dual economy, with a portion of the state connected by road to Anchorage, Fairbanks, Juneau or Ketchikan, and a large remote rural area lacking road access to a larger population center. The remote rural area is defined geographically as U.S. Census Public Use Microdata Area (PUMA) 400 (Subsistence Alaska PUMA) (see Fig. 2).

Census data indicate that just over 159,000 American Indian and Alaska Native (AIAN) people – the official term for the U.S. Indigenous population – lived in Alaska in 2020, representing about one-sixth of the state population. About half of AIAN people, including 80 percent of the 33,441 reporting a mixed AIAN and other identity, lived in urbanized areas (2010 PUMAs 100 through 300), and are mostly integrated into the modern economy characteristic of high-income nations. About 60,000, however, remain in isolated small communities in rural areas of the Alaska that are not connected by road to larger
population centers (PUMA 400, alternately named “Subsistence Alaska PUMA”). Economic opportunities in this region are limited. Most of the available jobs are in public administration or in scattered resource extraction enclaves staffed with shift workers (Goldsmith 2007). Few AIAN residents possess the skills for these jobs, and many continue to practice mixed cash and subsistence fishing and hunting livelihoods (Wolfe and Walker 1987). Persistent economic and social disadvantage for rural AIAN people is manifest in a broad range of economic and social indicators.\(^4\)

1 The Submerged Lands Act of 1953 (43 U.S. Code § 1301-1356b) awarded all coastal U.S. states title including mineral rights to subsea lands offshore to three nautical miles (5.6 km).

2 Generally, eligibility for the PFD requires one calendar year or more of legal residence, and no more than 180 days absence from the state during the previous calendar year (see https://pfd.alaska.gov/Eligibility/Requirements). Individuals convicted of serious crimes who are sentenced or incarcerated during the year are also ineligible for that year’s dividend.

3 Calculated from the American Community Survey one-year PUMS file, considering group quarters’ residents as a single-person household.

4 Barely half of working-age adults were employed in 2015, per capita income was only 52 percent of the national average (American Community Survey data, PUMA 400 region), with the cost of living much higher (Teel 2017). Many predominantly Alaska Native rural school districts show performance on standardized tests in the bottom 20 percent of schools nationally, and associated low high school graduation rates (ADEED no date). Mortality rates for Alaska Natives statewide are 40 percent higher than the state and national averages, driven by injury death rates 3-4 time the national average (Day et al. 2009). Suicide rates for rural Alaska Native young males are particularly high (Berman 2014).

2. Methods

The Census Bureau poverty status indicator is defined based on comparing income of a family living together in one household to one of 47 different poverty thresholds, depending on household size, number of adults and children in the household and age of the household head (Proctor et al. 2016). Unmarried partners and children living in the household who are not related to the household head are not considered as family members in poverty calculations. Other than adjust the poverty thresholds annually for changes in the national Consumer Price Index, there have been only minor changes in the poverty indicator since it was first defined in 1969.\(^5\)

Regional differences in the cost of living are ignored: the same poverty thresholds are applied to all areas of the United States. A widely used measure that compares living costs among US cities places Anchorage consistently more than 20 percent higher than the national average (ACCRA 2021). The cost of living in rural Alaska communities is typically much higher than in urban Alaska communities, although no systematic data are available. On the other hand, many rural Alaskans use local resources as
important food sources (Fischer and Wolfe 2003), and this in-kind income is also not considered in the poverty calculation. Despite its limitations, we use the official U.S. poverty definition, given its widespread use and persistence. Although the procedure to calculate poverty status follows a series of well-defined steps, measuring the effect of the PFD on poverty is not straightforward, due to the lack of reporting of income of children under 15, most of whom receive PFD payments in surveys administered by the US Census Bureau used to estimate poverty rates. To correct for the obvious bias resulting from the missing PFDs received by children, we use PFD eligibility criteria to adjust and reconstruct incomes where necessary of Alaska families included in the US Census and American Community Survey Public Use Microdata Samples (PUMS).

The methods for reconstructing incomes to measure the effects of the PFD on Alaska poverty rates build on those developed by Berman and Reamey (2016). Evaluating the effects of the Permanent Fund Dividend on poverty in Alaska involves first estimating what income would be if the PFD had not been paid, and then comparing it to the relevant poverty threshold value. The Census Bureau poverty status indicator is defined for a family living together in one household, and contains 47 different poverty thresholds differing by household size, number of adults and children in the household and age of the household head (Proctor et al. 2016). Unmarried partners and children living in the household who are not related to the household head are not considered as family members in poverty calculations.

2.1. Data sources

Household-level data for a representative sample of Alaskans that contain income and the detailed household characteristics needed to calculate poverty rates are extremely limited. The U.S. Census Bureau reports national poverty statistics using data from the Annual Social and Economic Supplement (ASEC) of the Current Population Survey (CPS). However, the Census Bureau uses results from the American Community Survey (ACS) to estimate poverty rates for states and smaller areas, as well as for sub-populations, whose poverty status cannot be reliably estimated from CPS ASEC data. The ACS, an annual household survey that replaced the Census Long Form Surveys after the 2000 Census, has a much larger sample than the CPS. For example, the Alaska sample for the CPS includes about 1,000 households annually, while the ACS sample includes about 8,000 Alaska households with a higher sampling fraction in rural Alaska. Consequently, poverty rates for the state, sub-areas, and populations derived from the CPS have a much higher margin of error.

We used Census Long Form Survey and ACS data, which provide household and individual data on race, family relationships, income, and place of residence for a large sample of the population, to estimate the effects of the PFD on poverty rates. The Census Bureau provides Public Use Microdata Samples (PUMS) for the Census Long Form Survey and ACS data sets that provide the ability to replicate published poverty rates, identify how much PFD income was reported and missing. We obtained Alaska PUMS data sets directly from the Census Bureau for the 1990 and 2000 U.S. Census Long-Form Surveys, as well as for the ACS for all years from through 2020. ACS PUMS data were available from 2005 through 2020.6 Due to the effects of the SARS-Covid-19 pandemic on overall response rates and presumed unbalanced
response rates of certain demographic groups for the 2020 ACS, the Census Bureau constructed a modified set of weights for that year, which they labeled, “experimental.”\textsuperscript{7} The 2020 results, therefore, should be treated with caution. The Census Long Form PUMS data represent a five percent sample of the population: 14,000 Alaska households in 2000 and 10,300 households in 1990. The ACS PUMS data sets represent much smaller sample sizes, ranging from 2,200 to 2,700 households per year. However, the combined ACS samples over a five-year period are similar in size to the Census Long Form data sets.

To preserve anonymity of respondents, all these data sets report place of residence in highly aggregated geography. Census PUMS microdata areas (PUMAs) must have at least 100,000 residents as of the previous decennial census. The ACS currently has five PUMAs in Alaska, with two of the five representing the Municipality of Anchorage. The rural Alaska region (PUMA 400) changed slightly as a result of the 2010 Census. To maintain consistency over time, we aggregated the PUMAs into three areas: Anchorage, other urban Alaska, and rural Alaska. The other urban Alaska region includes the Fairbanks North Star, Mat-Su, Kenai Peninsula, Juneau, and Ketchikan Gateway Boroughs. The remainder of Alaska is included in the rural region.

In addition to the PUMS data sets, we obtained the annual poverty thresholds from the Census Bureau. We obtained annual PFD data, including the number of applications, number of dividends received, and the dividend amount, from the Alaska Permanent Fund Dividend Division.

2.2. Reporting of Alaska Permanent Fund Dividend income in Census Bureau data

As discussed in Berman and Reamey (2016), Census data have some limitations for evaluating the effects of the PFD on poverty. Beyond simply not asking specifically about PFD income, the questionnaire neither requests nor records information about income for children under age 15, although children are eligible to receive dividends. The same issue is also present in other household surveys conducted by the Census Bureau, such as the CPS. Alaskans responding to the ACS reported the PFD receipts as one of two categories of unearned income: either as interest, rent and dividends; or as “other income,” a category for reporting all income that was not reported elsewhere. Analysis of individual PUMS records described in the previous report demonstrated that most respondents who reported PFD receipts reported them as “other income.” However, only about half of Alaska households responding to the ACS reported receiving any “other income.” A relatively small percentage of households that did not report the PFD as “other income” appear to have reported PFD receipts in the “interest, rent, and dividends” category. Still, the analysis of Alaska ACS confirmed that the results substantially under-report PFD income received, with PFD income received by household children under age 15 almost entirely absent in the data.\textsuperscript{8}

2.3. Analysis steps

It is possible to determine whether individuals, including children, were likely eligible to receive the PFD, based on age, relationship, and mobility information among households in the ACS.\textsuperscript{9} Alaska Department of Revenue data on the number of dividends paid out annually suggest that nearly all eligible Alaska residents apply for and receive dividends, as verified below. We therefore used the information in the
PUMS data to estimate PFD receipts and associated poverty rates with and without the dividend by following a series of sequential steps, following the procedure used in Berman and Reamey (2016). We summarize the steps here, referring the reader to Berman and Reamey (2016) for details.

The first step was to calculate the ratio of family income to the poverty threshold for each individual in the ACS PUMS and the 1990 and 2000 Census Long-Form Surveys and compare it to the ratio reported in the data. This step was simply to test whether we had correctly identified the family composition and income so that we could reconstruct it with and without PFD income. We were able to replicate the reported ratio of income to poverty for each person within a small round-off error.10

The second step was to determine for which individuals PFD income had been reported, and then remove that income to estimate income without the PFD. To determine if PFD income had been reported, we checked whether either “other income” or interest, rent, and dividends was less than the current or previous year’s PFD amount, whichever was smaller, rounded down to the nearest $100. If neither category of unearned income achieved this threshold, we assumed that reported income did not include the PFD, and used reported income to estimate income without the PFD. If either “other income” or interest, rent, and dividends were equal to or greater than the PFD threshold amount, we assumed that PFD income might have been reported, and checked the reported state of residence one year ago to determine if the individual would qualify to receive the PFD. The PFD is typically received in October, so ACS interviews conducted during the latter part of the year might include the current year’s rather than the prior year’s dividend.

The third step in the analysis was to estimate individual income with the PFD. For all those individuals whose response to the previous place of residence indicated that they likely would have qualified to receive the PFD, we added the current year’s PFD to the calculated income without PFD income. The calculated income with the PFD therefore differed from reported income for nearly all individuals, because it included the amount of the current year’s PFD, which few respondents had yet received, rather than the previous year’s amount.

One may evaluate the overall reliability of the procedure used here to estimate the number of PFDs received by comparing the estimated number to the official number of PFDs paid that year. Applicants who are denied dividends have the right to appeal the denial, and the comparison of estimated receipts to actual payments is complicated by the time delays in resolving these appeals. Between one and two percent of all applications are appealed after being initially denied, generally due to absence from the state for unauthorized reasons. Appeals successfully overturn initial denials about half the time, but in most cases the PFDs are not paid until subsequent years. Most of these payments are made in the following year, but formal appeals may not be resolved for many years. Before 2010, the estimated number of PFDs received matches the number paid closely. Since then, the PFD Division has become more aggressive in denying dividends, with a corresponding increase in the number of appeals. Over the entire analysis period, our estimated number of PFDs received overstated the total number paid in the
current year by an average of four percent annually. This compares to as much as 50 percent underestimate in the reported income.

For a supplemental analysis, we also compared estimated family income with and without PFD income to the poverty threshold for a definition of family that included unmarried partners as well as married individuals. To determine the poverty threshold applicable to this “social family” definition, we included the unmarried partner’s children living in the household as family members, who would not be included as related children if they were stepchildren of the respondent. Including unmarried partners and their children as family members could affect poverty status either way, depending on the amount of income partners earned relative to the number of their children from previous relationships currently living with them.\footnote{11}

The official definition of the poverty threshold in the United States was developed by the Social Security Administration to represent a proportion of the family income required to purchase a survey-based economy food plan. For more information, see Fisher (1992).\footnote{5}

Experimental ACS surveys were conducted in some states before 2005, but no results are published for Alaska.\footnote{6}

See https://www2.census.gov/programs-surveys/acs/experimental/2020/documentation/pums/ACS2020_PUMS_README.pdf.\footnote{7}

See Berman and Reamey (2016), Tables 2 and 3.\footnote{8}

Some Alaska residents responding to the ACS may have reported living in Alaska the previous year, but were nevertheless out of state for more than 180 days during the previous year and therefore ineligible.\footnote{9}

Income and the poverty ratio in the PUMS are both rounded to protect anonymity of respondents. The PUMS reports a value of 501 when family income exceeds 500 percent of the poverty threshold.\footnote{10}

The Census Bureau added a new relationship type to the ACS questionnaire in 2008 for “stepson or stepdaughter.” Children in this new category were considered “related” for the definition of family for poverty calculations. Although it is not possible to determine how individual respondents reacted to this change, and the number of survey households in this category is relatively small, it appears that after the option of stepchild became available more children in unmarried partner households were being reported as stepchildren instead of unrelated children. Since the unmarried partner’s income was not considered in the poverty threshold either before or after the change in options for reporting children, the additions of the stepchild category might have caused official poverty rates to increase slightly after 2007. The calculated “social family” poverty rate would not be affected by the change in reporting, however.\footnote{11}

3. Results

3.1. Effects of the PFD on Alaska poverty rates

After applying the official criteria for estimating poverty thresholds for families with different characteristics, we find that only about half the ameliorative effect of the PFD on poverty is actually
included in officially reported poverty rates. When PFD income is more accurately taken into account, the PFD reduced Alaska poverty rates from 2.1 to as much as 4.2 percentage points between 1990 through 2019 (Fig. 3). Incomes of about 25 percent more Alaska residents would have fallen below the poverty threshold without the PFD. Figure 3 does not show standard errors, which are quite small for the five-year cohorts, about 0.03%. The relatively large effect on poverty rates contrasts to the modest effect on income distribution as a whole. The Gini coefficient of 0.45 for reported income in 2019 falls to 0.44 with PFD income more accurately counted, and would have risen to 0.46 if no PFD income had been received. The degree that under-reporting of PFD income in census data biases poverty rates depends on the distribution of income as well as the size of the PFD. In 2000, the PFD reduced the number of people in poverty by 40 percent. Although the PFD represented a somewhat larger share of per-capita income in 2000, more people were living close to the poverty threshold then as well, so a relatively small increment in income had a large effect on poverty rates.

Since 2000, PFD has been less able to ameliorate poverty than in the earlier years. The dividend amount has been falling somewhat adjusted for the effects of inflation at the same time as poverty rates excluding PFD income were rising. In 2020, the relatively small PFD had a relatively minor effect on poverty rates, reducing the statewide rate by only 1.2 percentage points. However, the effect on poverty of the reduced PFD was more than offset by income enhancements from a variety of federal Covid-19 relief programs.

### 3.2. Regional disparities

Figure 4 shows that PFD payments reduce poverty rates in Anchorage (PUMA 101 and 102) and other urban and road-connected areas (PUMA 200 and 300) by a similar percentage, although poverty rates there are consistently lower than the state averages shown in Fig. 3. A large rise in the estimated poverty rate without PFD income took place during the first decade of the 21st century. Although the poverty rate in urban areas fell slightly on average between 2005-09 and 2010-14, this decline is due entirely to the effect of the PFD. Immigration appears to be an important cause of the pattern in Anchorage. ACS data show that Anchorage and Fairbanks welcomed about 2,000 foreign immigrants annually between 2005 and 2020. Between 2005 and 2009, 45% of these immigrants were poor, and of course not eligible to receive the PFD until the year after they arrived. Those who remained poor now qualify for the PFD, and the more recent immigrants appear to have arrived better off than those that came earlier. On the other hand, poverty rates among within-state migrants – mainly Alaska Native individuals moving from rural to urban areas – rose after 2014, but these in-migrants were eligible to receive PFDs.

### 3.3. Effects of PFD for Indigenous populations

Poverty rates for Alaska Indigenous peoples remain substantially higher than for non-Indigenous Alaskans, especially in rural areas of the state, where Alaska Natives constitute a majority of the population (see Berman 2018). Statewide, official poverty rates for Alaska Natives have remained about 2.5 times those reported for non-Native Alaskans. The disparity does not appear to be diminishing over time. Without the PFD, Alaska Native poverty rates in rural Alaska would be especially high. On average
over the past eleven years, 28 percent of rural Alaska Native people would have been below the poverty threshold without the PFD (Fig. 5). Even 2020 Covid relief funds do not appear to have reduced that figure substantially. This is probably because relatively few rural Alaska Natives held jobs that would have qualified them for unemployment compensation when they disappeared in 2020.

The PFD has substantially mitigated poverty among rural Alaska Indigenous peoples, ranging from 5 to 12 percentage points. However, the ability of the PFD to mitigate poverty for Alaska Native people living outside Anchorage has been declining, resulting in a basically constant estimated poverty rate. One reason for the reduced effectiveness of the PFD in cutting poverty among rural Alaska Natives appears to be the increase in the number of unmarried partner households with children. The Census Bureau does not include unmarried partners (or their income) as family members for poverty calculations, even though in many cases the partner is a parent of the respondent’s children.

If unmarried partners and their children were considered family members, the effect of the PFD on poverty would still be substantial for Alaska Native families, and poverty rates would not show as much of an increasing trend. The beneficial effect of including unmarried partners as family members is especially strong for Alaska Native people living outside Anchorage—a reduction of four to five percentage points—where poverty rates are higher. Unmarried partners reduce poverty rates for non-Native Alaskans, too, but the effect is stronger for Alaska Native families. The unusual situation of 2020 illustrates how dependent unmarried partner households may be on partner income. When partner income disappears, as was apparently the case in 2020, including unmarried partners as family members in calculations of poverty rates would actually have increased poverty rates.

3.4. Effects on seniors and children

One interesting pattern that emerges from examining poverty rates over time in Alaska is the disparity between trends in poverty rates for seniors and children. Poverty rates for Alaskans age 65 and older declined steadily from 1990 through 2014, but then trended higher in more recent years (Fig. 6). When PFD income is more accurately counted, poverty rates for Alaskans age 65 and older declined by about one third between 1990 and 2005. They remained at about 5 percent between 2005 and 2014, but then rose to nearly 7 percent in 2020 during the pandemic. Without the PFD, poverty rates for Alaskans age 65 and older would have increased by one-third throughout the period, however. Many of the seniors who would fall into poverty if the PFD were eliminated are Indigenous rural Alaskans. Census data show that the population of seniors in Alaska has increased more than threefold since 1990. Since poverty rates excluding PFD income fell over this period, we presume that many Alaska residents who stayed after retirement presumably had pensions as well as Social Security that kept them above the poverty threshold.

Poverty rates for Alaska children under 18 show exactly the opposite trends (Fig. 7). Including more accurately estimated PFD income, poverty rates for children under 18 increased by 85 percent since 1990, excluding the unusual situation of 2020. Without PFD income, poverty rates for Alaska children under age 18 would have increased by 50 percent since 1990, not including 2020. Between 1990 and 2000, the PFD
mitigated the rise quite effectively. Since then, however, the PFD has been increasingly ineffective. The 11.3 percent average rate estimated for 2010-14 and the 10.4 percent rate estimated for 2015-19 are nevertheless more than three percentage points lower that the official rate based on PFD income reported to the Census Bureau. So while child poverty rates were indeed rising, the true rates are substantially lower than the officially reported rate. On the other hand, the reduced PFD amount in 2020 made a relatively small contribution to the large decline in child poverty observed in 2020, and may result in a long-term increase in poverty in the longer term after the cessation of Covid relief programs.

4. Conclusion

Estimating poverty rates that accurately incorporate PFD income demonstrate that the Alaska Permanent Fund Dividend has lifted 15,000 to 25,000 Alaskans out of poverty annually, depending on the size of the dividend and the state of the economy that year. The PFD has been especially important in mitigating poverty among vulnerable populations, including rural Indigenous peoples, seniors, and children. Without the PFD, as many as one-third more AIAN people would have seen their income drop below the poverty threshold. Based on average rates over the past five years, we estimated that eliminating the PFD would increase the number of children living below the poverty threshold by as much as 50 percent.

Despite the ameliorating effects of the PFD, poverty rates have not declined, and have even been rising, especially for seniors. To address structural budget deficits, the Alaska Legislature has been considering instituting new broad-based taxes. The most likely alternatives appear to be a state sales tax and reductions in the PFD. A sales tax would be a regressive measure, but not nearly as regressive as reducing or eliminating the PFD (see Knapp et al. 2016). Reductions in the PFD to address state budget deficits would significantly increase the number of Alaskans living below the poverty threshold. However, until the Census Bureau changes its survey methods for collecting data on income to include the PFD, official poverty rates will show a much smaller increase in poverty rates than will actually occur.

Declarations

Ethical Approval

All data used in the study are publicly accessible, and did not require ethical review and approval.

Competing interests

No competing interests

Authors' contributions

Not applicable (sole author)

Funding
Financial support was provided by the New York University Cash Transfer Lab

**Availability of data and materials**

Datasets are available for free download from the U.S. Census Bureau ([https://www.census.gov/programs-surveys/acs/microdata.html](https://www.census.gov/programs-surveys/acs/microdata.html)). Stata code developed for the analysis is available from the author on request.

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**References**


Figures
Figure 1

Legend not included with this version.
Figure 2

Alaska regions defined by 2010 Census Public Use Microdata Areas (PUMAs): Anchorage (101, 102), Other urban and road system (200, 300), Remote rural (Subsistence Alaska) (400).
Figure 3

Source: Constructed from U.S. Census and American Community Survey 1-year Public Use Microdata Sample data.
Figure 4

Source: Constructed from U.S. Census and American Community Survey 1-year Public Use Microdata Sample data.
Figure 5

Source: Constructed from U.S. Census and American Community Survey 1-year Public Use Microdata Sample data.
Figure 6

Source: Constructed from U.S. Census and American Community Survey 1-year Public Use Microdata Sample data.
Figure 7

Source: Constructed from U.S. Census and American Community Survey 1-year Public Use Microdata Sample data.