Universal Cash Transfers and Credit Outcomes: Evidence from the Alaska Permanent Fund Dividend

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Abstract

Unconditional cash transfers are increasingly viewed as tools to enhance household financial resilience, yet their effects on credit outcomes remain poorly understood. We exploit the quasi-experimental setting of the Alaska Permanent Fund Dividend (PFD)—a nearly universal, unconditional annual cash transfer—to examine its impact on credit using anonymized Equifax data on 660,000 individuals from 2013 to 2019. Utilizing the staggered timing of Alaska-bound migration, we find that the PFD modestly improves short-run credit scores (by 1.94 points) and reduces mild-case delinquency rates by 1% to 2% immediately after payment and by 13% to 16% over the following years. These average effects mask substantial heterogeneity: among deep subprime borrowers, the PFD raises long-run credit scores by 15 points (2.8%), reduces delinquency by over 24%, and lowers bankruptcy rates by approximately 50%. In contrast, effects for prime and super-prime borrowers are minimal. These findings offer insights to the design of guaranteed income programs and sovereign wealth fund–based transfers.

1 Introduction

Access to affordable credit plays a central role in economic mobility in the United States (Braxton et al., 2024). An increase in credit score can reduce borrowing costs, enhance eligibility for loans, and expand access to housing or employment. Yet credit access remains deeply unequal: about one in five Americans have scores considered to be "subprime" (below 620), and many more face restricted credit due to thin credit histories or derogatory marks on their credit records (Brevoort et al., 2016; Driscoll et al., 2024). At the core of this inequality is a dynamic feedback loop: delinquencies reduce scores, elevate interest rates and the associated loan payments, and increase the likelihood of further missed payments (Dwyer, 2018). As a result, even small interventions that reduce payment delinquency may yield outsized gains in financial mobility, particularly for those at the lower end of the credit distribution. Large-scale cash transfer programs, such as universal basic income (UBI) and guaranteed income (GI), have emerged as one such intervention to reduce poverty and smooth income volatility (Manza, 2023), especially under changing labor market conditions shaped by AI-driven automation and the decline of stable wage work in the US (Acemoglu & Restrepo, 2018; Howell & Kalleberg, 2019). As the future of work grows more uncertain, so too does the need for policy tools that can buffer economic shocks without stigma or bureaucratic friction.

While the theoretical appeal of UBI and other GI programs is strong, empirical evidence on their effects–especially on credit behavior–remains mixed. A recent landmark randomized controlled trial by Bartik et al. (2024) finds modest increases in credit scores following monthly unconditional transfers of up to $1,000 to low-income households without affecting credit limits, delinquencies, and bankruptcies. Other cash transfer pilots suggest that recipients use funds to pay down debts (Balakrishnan et al., 2024), but lack access to administrative credit data needed to

verify delinquency changes. The U.S. Economic Impact Payments delivered during the COVID-19 pandemic provide quasi-experimental evidence of short run declines in revolving debt and late payments. Yet, these improvements proved transitory, with credit card balances rising again once the payments stopped (U.S. Government Accountability Office, 2023).

Most existing studies face three key limitations. First, they typically rely on self-reported financial outcomes or aggregated credit metrics, rather than high-frequency, individual-level credit bureau data that directly track delinquencies and repayment history. Second, their sample sizes are often too small to detect heterogeneity in treatment effects, especially across the credit score distribution, where financially vulnerable borrowers may respond very differently than prime borrowers. Third, existing GI pilot studies are exclusively targeted at low-income households, limiting external validity and making it difficult to assess how unconditional cash transfers affect credit outcomes across broader populations. These limitations constrain our understanding of how, for whom, and under what conditions direct cash impacts credit outcomes.

This paper addresses these gaps by leveraging a unique policy: the Alaska Permanent Fund Dividend (PFD). The PFD is an unconditional cash transfer delivered annually since 1982 to nearly every Alaska state resident, regardless of their age, income, or family structure. Funded by earnings from the state's sovereign wealth fund, the PFD provides each Alaskan with a lump-sum payment each fall. Payment amounts vary yearly, ranging from $1,072 to $2,184 (2019 dollars) between 2014 and 2019, with an average of about $1,600 per person.

While prior studies have examined the PFD's impact on consumption (Hsieh, 2003; Kueng, 2018) or labor supply (Jones & Marinescu, 2022), its effects on credit, especially its implications for economic inequality, remain underexplored (Hoynes & Rothstein, 2019). The dividend is predictable and not means-tested, offering a rare opportunity to study how a known, universal cash

transfer program affects credit outcomes, especially delinquency. Unlike most GI pilots, which are targeted to low-income populations and may suffer from stigma or selection, the PFD applies to all residents equally, enabling us to explore heterogeneous effects across the income spectrum.

In addition, monthly credit data allows us to capture both short-term and long-term impacts of the PFD on credit outcomes. While it is highly likely that the primary mechanism by which the PFD influences credit is through increased cash flow to households, research has also documented that recurring cash payments also have an anticipatory effect. For example, studies have shown that households change their consumption behaviors in the months prior to receiving tax refunds (Farrell et al., 2019; Morduch & Schneider, 2017), and that the anticipatory debt response to these refunds is a function of households' expectations around the size of the refund (Caldwell et al., 2023). As such, we examine the impact of both payment receipt itself, which captures the cash-in-hand effects, and payment eligibility, which captures both the cash-in-hand and anticipatory effects of the PFD.

Using anonymized Equifax credit bureau data for over 600,000 individuals, we implement quasi-experimental designs to estimate the short- and long-term effects of the PFD on three key credit outcomes: credit score, delinquency incidence, and bankruptcy. Specifically, we identify individuals who move into Alaska and become eligible for the PFD upon meeting the program's residency requirements and compare them to similar individuals who move to other Western states over the same period. Because PFD payment eligibility is tied to a full calendar year of state residency, we can estimate the short-term effects of the PFD by precisely comparing changes in credit scores and delinquency flags between treated and control movers before and after the October distribution date. We further estimate long-run effects using a triple-differences design across years, migrants, and states. We hypothesize that the PFD's main channel of influence is

delinquency reduction: recipients use the PFD to create buffer savings, catch up on late payments, or clear past-due accounts, thereby improving their credit standing. As debt payment history (i.e., making on-time payments) are the largest contributor to consumer credit scores, and because even one cured delinquency can shift a score substantially, especially in the subprime range, we expect the effect to be both statistically and economically significant for vulnerable borrowers.

2 Data, Outcome Measures, and Sample Construction

We utilized anonymized panel data from Equifax, Inc. (EQX), one of the three major credit bureaus in the United States, which tracks individuals' credit indicators each calendar month. This dataset offers comprehensive information on credit histories, including borrower geographic locations (by ZIP code), age, account balances, account utilization, payment behavior, delinquencies, and credit scores. For this study, we utilized data spanning January 2013 to December 2019. Our panel included (1) the complete credit histories of all individuals who EQX identified as living in Alaska at any time during the sample period and (2) a 10% random sample of the U.S. population.

Our primary outcome measure is an individual's VantageScore[1] credit score, ranging from 300 to 850, with higher scores indicating lower credit risk. This score incorporates factors such as payment history (e.g., delinquencies or defaults), types and number of credit accounts, debt levels, credit utilization, recent inquiries, and average account age. To complement the aggregate credit score, our second outcome category focuses on direct credit distress indicators, as credit scores may not fully reflect immediate financial changes. Specifically, we include three measures: (1) a flag for 30-day past due delinquencies within the past 6 months (minor payment issues); (2)

[1]VantageScore is one method of determining consumers' credit scores. It is utilized by all three main credit bureaus: Equifax, Experian, and TransUnion.

a flag for 60-day past due delinquencies within the past 6 months (more severe payment issues); and (3) a flag for bankruptcy within the past 24 months (most severe payment issues).

In order to compare the credit outcomes for those who do and do not receive the PFD, as well as for individuals who shift between those two statuses, we implement the following procedure to classify individuals as either “residents" or “migrants." An individual is classified as a resident if their reported borrower state in the EQX data remained unchanged throughout the sample period. Conversely, an individual is classified as a migrant if they meet the following criteria: (1) they resided in their home (origin) state for the entire previous calendar year, (2) their borrower state changed to a different state during the current year, and (3) they remained in the new (host/destination) state for at least one full calendar year, with a minimum stay of six calendar months in subsequent years. [2]

To evaluate the accuracy of our categorization, we compare the percentage of individuals relocating from each state to Alaska to official IRS tax data. The results align with the official records, confirming that the model accurately identifies Washington, California, and Texas as the modal states of origin for people moving to Alaska. See Figure 2 for more details on the tabulation of Alaska in-migrants.

To assess heterogeneous effects on consumer credit, we use two complementary proxies for household financial health: credit score buckets and income quintiles. We categorize credit scores per the Consumer Financial Protection Bureau’s (CFPB) five-tier system: deep subprime (<580), subprime (580–619), near-prime (620–659), prime (660–719), and super-prime (720 or above). EQX data includes income information for only a subset of individuals, so we first impute missing log annualized income using a random forest model, before calculating each individual’s income

[2]For simplicity and clarity, our main sample includes only non-movers or one-time movers.

quintile. The random forest model includes pre-migration Vantage Score, ZIP Code Tabulation Area (ZCTA)-level average income, and year of migration as prediction features. Individuals are then grouped into income quintiles based on their predicted pre-migration income.[3]

3 Empirical Method

3.1 Leveraging Eligibility Criteria and the Timing of First Payment

The eligibility criteria for the PFD enable us to compare Alaskans who qualify for the dividend and those who do not, based on their duration of residency in the state. Alaska distributes PFD payments in the fall of each year (t), and eligibility is based on residency from the year prior to distribution (t-1). For example, in order to be eligible for the PFD distributed in the fall of 2019, an indvididual needs to be a resident of Alaska for the entirety of 2018. If they move to the state after January 1, 2018, they will not receive the PFD until fall of 2020. These requirements, combined with monthly EQX data on residency, allow us to identify the time period between migrants moving to Alaska and when they receive their first PFD payment.

Figure 1 illustrates four example timelines showing migration timing, eligibility for the PFD, and the corresponding payment periods. Panel A presents four example timelines showing how Alaska Migrants become eligible for the PFD and when they receive payments. Group 1 moves from another state to Alaska on December 31, 2012. After completing one full calendar year of residency in 2013, they become eligible to apply for the PFD in 2014, receiving their first payment in October 2014 and a second in October 2015. Group 2 migrates to Alaska in mid-2013. Because eligibility requires a full calendar year of residency, their first PFD payment is in October 2015.

[3] Appendix Figure A2 provides additional details on the random forest predictive modeling.

Group 3 migrates to Alaska in late 2013 and follows the same timeline as Group 2. Group 4 moves to Alaska in January 2014 and receives their first PFD payment in 2016. These examples highlight how PFD eligibility and payment timing are determined by the date of migration and the one-year residency requirement. Panel B shows two sample timelines for Other Migrants, illustrating their migration timing, assigned placebo eligibility dates, and placebo PFD payment dates. Panel C shows actual PFD payment timings for Alaska Residents, while Panel D presents placebo PFD payment timings for Other Residents.

To evaluate short-run responses around the timing of PFD payments, we primarily compare Alaska Migrants before and after receiving their first PFD payments (within-Panel A variation across time and cohorts). We supplement this with cross-sectional comparisons between Alaska Residents (Panel C) and Other Residents (Panel D) to assess credit dynamics around the PFD payment month. Similar responses across groups would support the interpretation that observed effects are driven by receipt of PFD payments.

To assess the long-run impacts of PFD eligibility, we continue using the Alaska Migrant sample, comparing it to a placebo group—individuals who migrated from the same origin state and in the same year but settled in a non-Alaska state (Panel B). This comparison helps isolate the effects of PFD eligibility from general migration-related credit changes. Unlike the short-run analysis, treatment is defined based on the year migrants become eligible for the PFD–the year after arrival–to capture potential anticipatory responses to future PFD payments.

3.2 Short Run Responses to PFD Payment

We employ fixed-effects models to investigate whether the Alaska PFD payments, distributed annually in the fall, influence borrowers' credit outcomes. Our main specification exploits within-

individual variation in PFD recipient status, focusing on individuals who migrate to Alaska, establish residency for a full calendar year, and become eligible to receive PFD payments.

$$y_{ist} = \alpha + \beta_1(PostOct_{it} \times PostTreat_{it}) + \beta_2 PostOct_{it} + \beta_3 PostTreat_{it} + \tau_t + \gamma_s + \epsilon_{ist} \quad (1)$$

y_{ist} is a set of credit outcomes, including Vantage score, delinquency, and bankruptcy, for individual i from origin state s at calendar year t. We define $PostOct_{it}$ as an indicator that is equal to 1 if a borrower i at year t is in months during or after PFD payment months (i.e., October, November, and December), and 0 if the borrower is observed in the months prior to the PFD payment month (i.e., August and September). $PostTreat_{it}$ is an indicator variable equal to 1 if borrower i receives a first PFD payment in year t, which requires that they have moved to Alaska by year $t-2$. τ_t captures calendar year fixed effects and γ_s captures state of origin fixed effects. Standard errors are clustered at the state level. The coefficient of interest β_1 captures the differential response in outcome between Alaskan and non-Alaskan residents before and after the PFD payment month. The identification of this model assumes that, in the absence of the PFD transfer, the credit outcome for migrants during this short time window should be comparable before and after migrating to Alaska.

To ensure the robustness of our results, we estimate a second fixed-effects model shown in Equation (2). This specification compares relative responses between Alaska residents (always-treated) and non-Alaska residents (never-treated). Here, $\mathbb{1}(s = AK)$ is a binary indicator that takes the value of 1 if individual i is an Alaska resident and 0 otherwise. We also exclude the state fixed effects, so that the variation from $\mathbb{1}(s = AK)$ is not absorbed by γ_s.

$$y_{ist} = \alpha + \beta_1(PostOct_{it} \times \mathbb{1}(s = AK)) + \beta_2 PostOct_{it} + \beta_3 \mathbb{1}(s = AK) + \tau_t + \epsilon_{ist} \tag{2}$$

The identification assumption in this context relies on the comparability of credit outcome trends between Alaskan residents (treated) and non-Alaskan residents (control) in the absence of the PFD transfer payments during the pre-treatment months (August and September). Panel A of Figure 3 illustrates these two comparisons in the context of evaluating Short Run (hypothetical) monthly credit score trends.

3.3 Long Run Impacts of PFD Eligibility

To assess the long-term impact of the Alaska PFD on borrowers' overall credit outcomes, we aggregate credit outcomes at the borrower-by-year level. We first use yearly borrower data from 2014 to 2019 to estimate difference-in-differences (event study) models separately for Alaska Migrants and Other Migrants, following the approach in Sun & Abraham (2021). Both models utilize the following empirical specification:

$$y_{ist} = \alpha + \sum_{e=-A}^{A} \beta_e V_{ist} \mathbb{1}[E_{ist} = e] + \theta \mathbf{X_{ist}} + \epsilon_{ist} \tag{3}$$

for coefficient, β_e, on each event-time indicator E_{ist} that captures the differences in credit outcome between PFD-eligible and not-yet-eligible migrants for A months before and after the menu change. Specifically, we set A equal to 5 and pool event months less than -5 and more than $+5$ into the boundary values.

One potential concern with the DiD setup is that the observed effect could be driven by migration in general rather than the specific impact of moving to Alaska and becoming eligible

for the PFD. To isolate the effect of migrating to Alaska relative to migrating to a non-Alaska state – thereby accounting for the general effect of migration – we estimate a triple difference-in-differences (DDD) model. This approach allows us to directly compare changes in credit outcomes based on migration destination. Specifically, we exploit the fact that not all migrants from the origin state relocated to Alaska, and only those who moved to Alaska became eligible for PFD payments after establishing residency for a full calendar year. Define $D_{is,t-1}$ as an indicator that is equal to 1 if a borrower i migrated from origin state o to destination state d at calendar year $t-1$. The indicator F_{ist} equals 1 if the migration is from a non-Alaska state to Alaska. We then estimate the following model:

$$y_{ist} = \alpha + \beta(D_{is,t-1} \cdot F_{ist}) + \theta \mathbf{X_{ist}} + \epsilon_{ist} \tag{4}$$

We implement the DDD estimator by incorporating three sets of two-way fixed effects in $\mathbf{X_{ist}}$. First, we include year by Alaska-destination fixed effects to account for Alaska and non-Alaskan migrants' specific changes over time. Second, we include state by Alaska-destination fixed effects, which controls for any time-invariant differences between origin-to-destination pairs, where origin is a list of non-Alaska states and destination is a dummy. Lastly, we control for average differences in outcomes by cohort and origin state using cohort-by-origin fixed effects.

Conceptually, β measures how gaining PFD eligibilty affects credit outcomes differently for Alaska migrants compared to other migrants. For example, if migration has a greater impact on credit scores for Alaska migrants than other migrants, then β will be positive. Standard errors are clustered at the state level.

Panel B of Figure 3 further illustrates these comparisons in the context of evaluating long-term (hypothetical) yearly credit score trends and shows how we apply a Triple Differences (DDD)

approach to isolate the effect of interest by removing the general impact of migration on credit dynamics.

4 Results

4.1 Short Run Responses to PFD Payment

Our analysis of short-term effects using the migration sample reveals that access to PFD payments is associated with a statistically significant increase in credit scores of 1.94 points within two months of the transfer. Alongside these credit score improvements, we observe a decline in short-term delinquency rates of 0.20 percentage points. These findings suggest that the PFD enhances financial stability and improves credit behavior in the immediate aftermath of receipt.

We first present some visual evidence of these impacts. To assess our identification strategy's credibility, we implement two complementary empirical approaches. First, we focus on individuals who migrated to Alaska by the end of the sample period, comparing those who have just become eligible for their first PFD payment with those who have not yet received it. Second, as a robustness check, we conduct cross-sectional comparisons between always-treated Alaska residents and never-treated individuals residing outside the state. As illustrated in Figures 4 and A1, event-study plots reveal that credit outcomes across groups follow nearly identical pre-treatment trends leading up to the October PFD disbursement. Following the transfer, however, we observe clear divergence: treated individuals experience increases in Vantage Scores and reductions in delinquency, while no such changes are evident among comparison groups. In contrast, short-term bankruptcy rates remain largely unchanged.

The regression results align with the patterns observed in the event-study plots. As shown

in Tables 4 and A1, receiving PFD payments is associated with an average increase of approximately 1.94 points in credit scores. In addition, the likelihood of being 30 days past due falls by 0.20 percentage points, and the probability of 60-day delinquency declines by a similar margin. These effects correspond to a 1% to 2% reduction in short-term delinquency relative to migrants' pre-migration means. By contrast, we detect no statistically significant short-term impact on bankruptcy likelihood.

To understand the heterogenous impact of the PFD payment on short run credit dynamics, we examined its effects across different borrower risk categories. For migrants, we categorized risk levels using their pre-migration VantageScores, while for residents, we used their 2015 VantageScores. Tables 5 and A2 detail these heterogeneous responses. Our analysis reveals that the positive impact on credit scores is concentrated among higher-risk borrowers, specifically those classified as Deep Subprime or Subprime. Although lower-risk individuals still experience some improvements, the magnitude of these effects attenuates with lower risk, becoming minimal for Super-Prime borrowers. We observed a similar pattern for delinquency reductions, with the most substantial gains occurring among borrowers with greater initial credit risk.

4.2 Long Run Responses to PFD Eligibility

Figure 5 displays event-study plots estimating the long-term impact of migrating to Alaska on credit outcomes, separately for Alaska migrants and other migrants. Using one year after migration as the treatment onset, the estimates are derived from Equation (3) and implement the methodology of Sun & Abraham (2021) to account for dynamic treatment bias. The plots show that both groups exhibit parallel credit trends prior to migration. After migration, however, Alaska migrants experience more substantial improvements—most notably, a sharper decline in

delinquency rates.

Table 6 reports the results from the triple-differences (DDD) estimation. These findings are consistent with the event-study results. Relative to similar migrants from the same origin states and migration cohorts, individuals who moved to Alaska experienced an average increase of 1.95 points in their VantageScore ($p > 0.1$), a 2.15 percentage point reduction in 30-day delinquency ($p < 0.001$), and a 1.81 percentage point decline in 60-day delinquency ($p < 0.001$). When benchmarked against Alaska migrants' pre-migration means, these effects represent a 13% decrease in 30-day delinquency and a 16% decrease in 60-day delinquency. Although the estimated effect on bankruptcy is a modest 0.24 percentage point decline, it is marginally significant ($p < 0.1$) and merits further exploration in subgroup analyses.

We next examine heterogeneity in long-run responses to PFD eligibility using an interacted triple differences specification. Figure 6 reports results by pre-migration borrower risk categories, and Appendix Figure A3 presents analogous estimates by predicted pre-migration log annualized income quintiles. The disaggregated results indicate that average long-run gains in credit scores among Alaska migrants are primarily driven by individuals who were the most credit-risky prior to migration. Among Deep Subprime borrowers, credit scores increase by over 15 points, which translates to an improvement of approximately 2.8% relative to their pre-migration average of 543.43. Delinquency rates in this group also decline by as much as 8 percentage points, representing a roughly 24% reduction from a baseline 30- and 60-day delinquency rate of 33%. While the overall effect on bankruptcy is negligible, we observe a significant decline in bankruptcy incidence among Deep Subprime borrowers: their 24-month bankruptcy likelihood falls by 0.09 percentage points, a reduction of nearly 50% relative to their baseline rate.

5 Discussion

Annual unconditional cash payments delivered to all residents of Alaska increase Alaskans' credit scores and reduce delinquencies in both the short and long term. In the short term, universal cash payments lead to slight increases in credit scores, on average, and these effects are concentrated among riskier borrowers. While the magnitude of the average credit score increase is relatively modest, it is also accompanied by significant decreases in the probability of both 30- and 60-day payment delinquencies, which can have substantial adverse impacts on credit scores, and those impacts can persist for years following the delinquency. This reduction in delinquency is again concentrated among deep subprime borrowers, demonstrating that these cash transfers have larger impacts on those with less financial security.

Over the long-run, effects are also concentrated among individuals with the highest-risk credit, deep subprime borrowers, who experience a nearly 3% increase in credit score on average in response to gaining eligibility for the annual payments. Cash payments also decrease the probability of 30- and 60-day payment delinquencies by 2 percentage points overall, and by as much as 8 percentage points for deep subprime borrowers. Overall, cash payments enable modest improvements to credit scores, which may improve Alaskans' access to affordable credit, particularly for the riskiest borrowers.

This study has several limitations. First, our analyses rely on individuals' residency information to determine whether they live or migrate to Alaska or other states, and therefore whether they are considered "treated" by the cash transfer payment. To identify residency, we leverage the ZIP code reported in the EQX credit data. Because it is possible that the ZIP code information for individuals is updated on a lag by the credit bureau, we might miscategorize the state of residency of some individuals and in turn not count some eligible Alaskans as treated. However, this

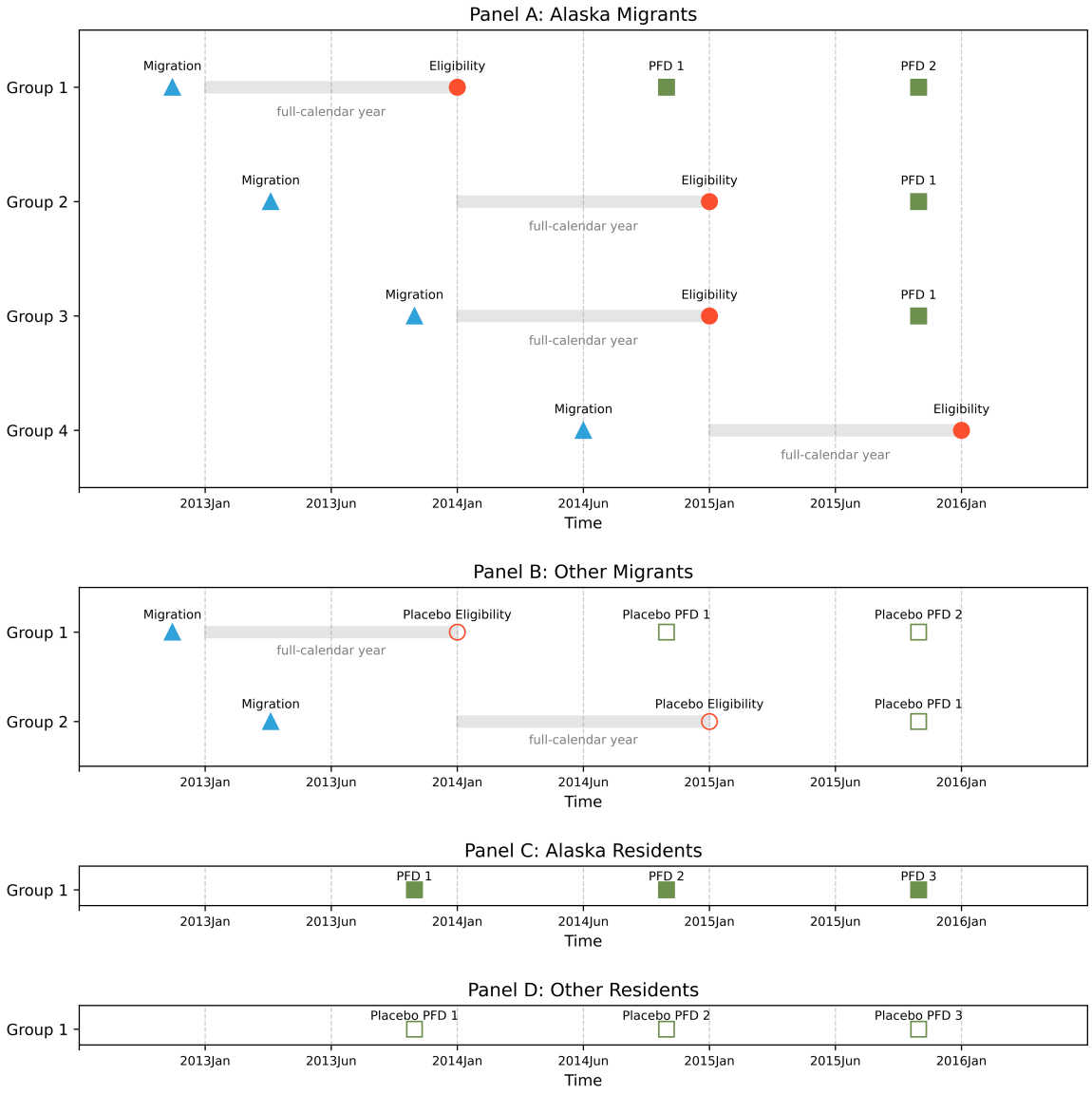
dynamic would likely attenuate our impact estimates as we would under-count eligible Alaskans.

In addition, while our analyses are bolstered by the ability to capture the entire universe of Alaskan residents over the study window, and a large sample of non-Alaskan states, it by definition only includes individuals who have a credit history with the credit bureau. We cannot identify the PFD's impact on the financial well-being of those without a credit history with these data. People without credit histories tend to be younger, lower-income, and minorities (U.S. Government Accountability Office, 2022), and these groups are also likely the individuals who would be most bolstered by the cash transfer.

These findings have important implications for policymakers that want to improve individuals' financial well-being and economic mobility in the United States. When leveraging high-frequency, individual-level credit bureau data, we find that an unconditional cash payment modestly improves individuals' credit scores and decreases delinquency payment, in particular when we look at the time period immediately after gaining eligibility and receipt of the payment, as well as for borrowers with the lowest credit scores. Cash transfer payments should be viewed as a valuable tool for improving credit for borrowers, as it increases a household's liquidity and ability to pay off debts.

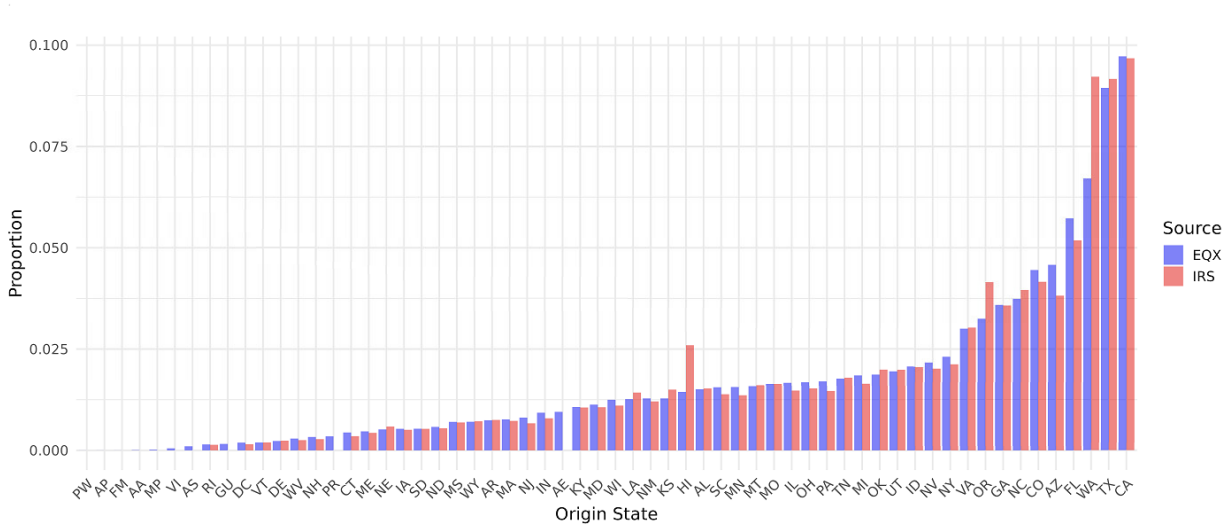
Figures and Tables

Figure 1: Illustration of Migration, PFD Eligibility and PFD Payment Timeline



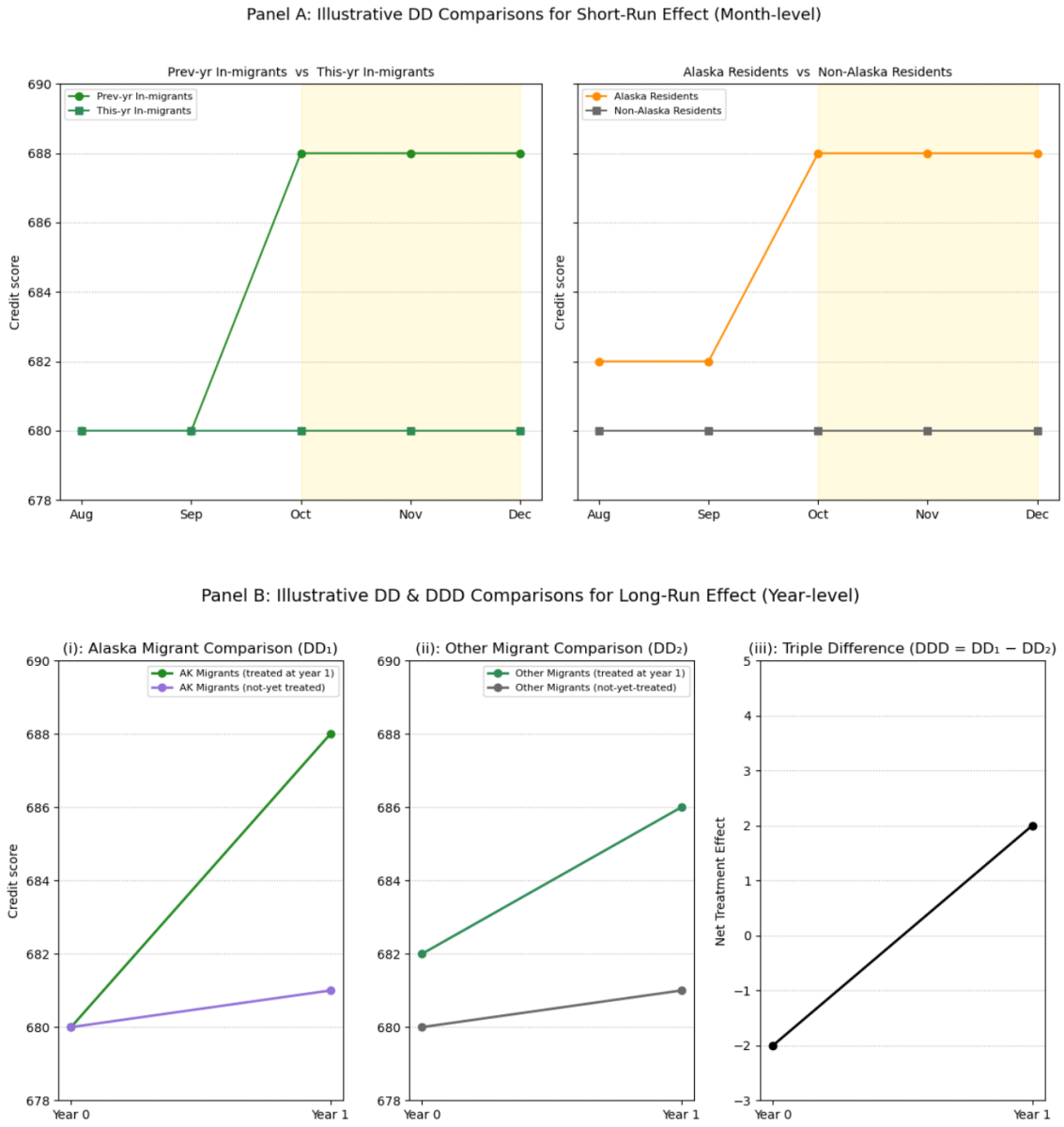
Notes: The figure depicts example (placebo) PFD payment timelines for four groups based on migration status during the sample period. Alaska Migrants relocated from their origin state to Alaska. Other Migrants moved from their origin state to a non-Alaska state. Alaska Residents remained in Alaska without moving, while Other Residents stayed in their original non-Alaska state. The timelines illustrate the timing of migration and residential stability across these groups.

Figure 2: Distribution of Migration Origins



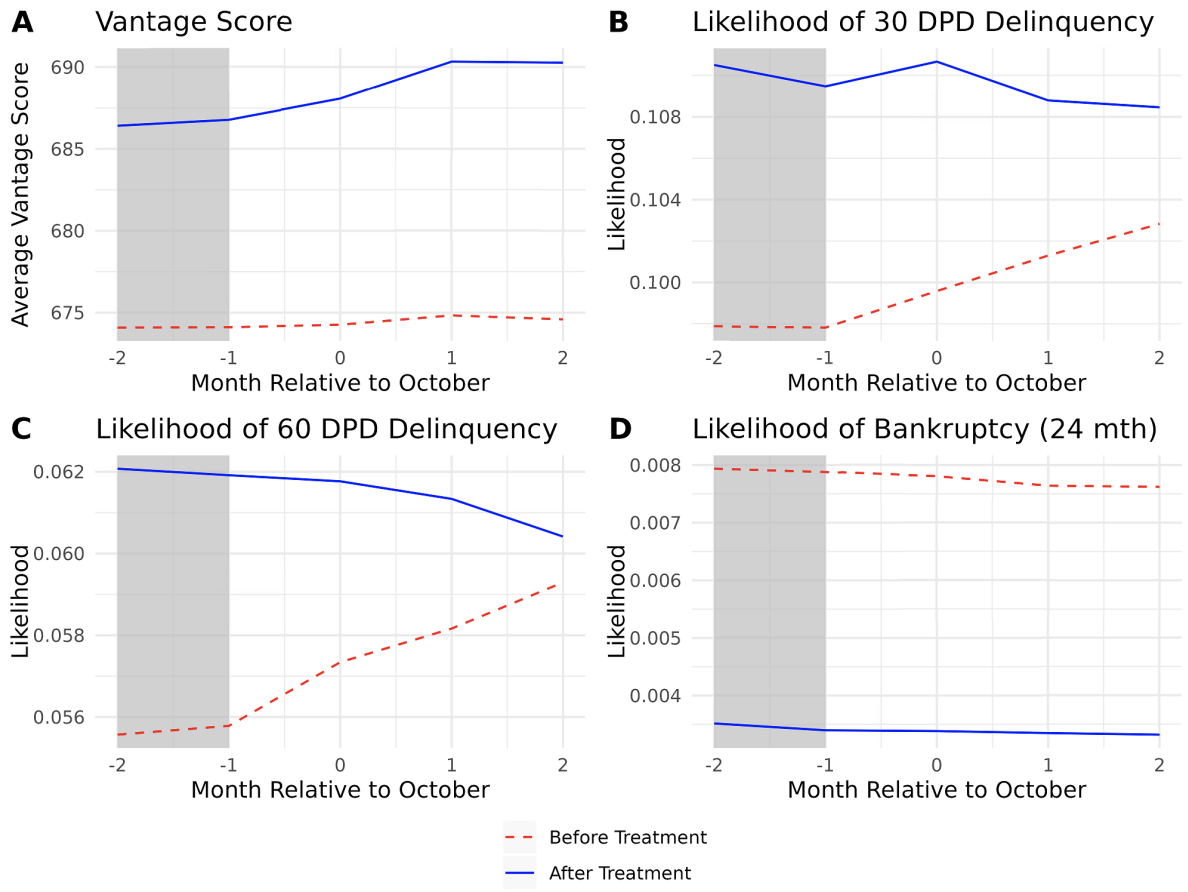
Notes: This figure shows the distribution of migration origins for individuals moving to Alaska. The blue bars represent proportions calculated from the Equifax dataset during our sample period, while the red bars indicate the average proportions from 2013 to 2019, based on the IRS migration data provided by Alaska's Department of Labor and Workforce Development.

Figure 3: Illustration of Comparison Groups for Estimating Short- and Long-Run Effect



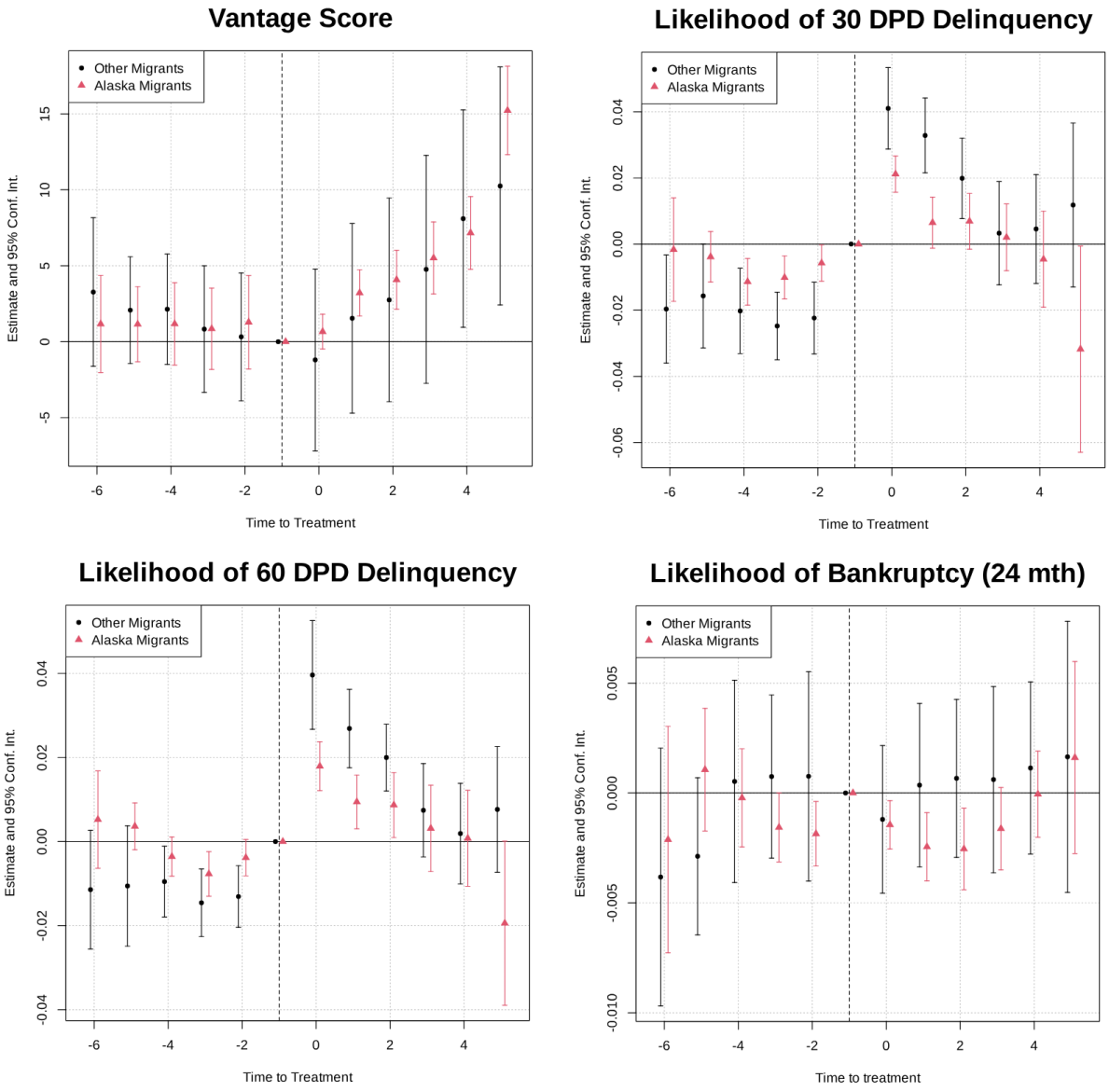
Notes: The figures depict the evaluation of hypothetical outcomes over time across various comparisons to estimate the effects of PFD payments (Panel A) and PFD eligibility (Panel B) on short- and long-term credit dynamics.

Figure 4: Monthly Credit Outcomes around the PFD Payment Month, by First Payment Timing



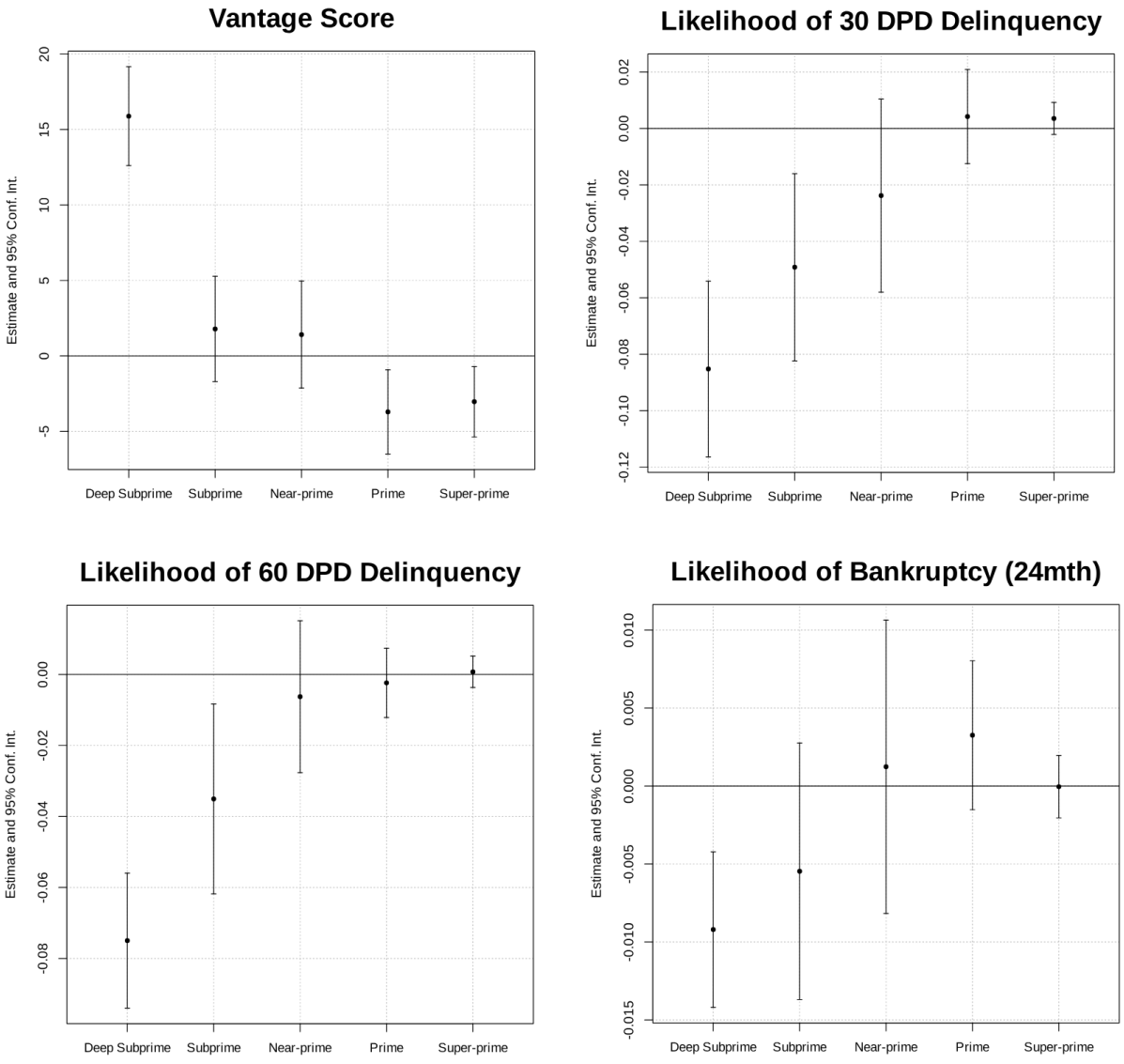
Notes: The figures present monthly trends in credit outcomes for Alaska migrants before and after their first PFD payment year, with a focus on the two months surrounding the Permanent Fund Dividend (PFD) payment, which occurs in October during our sample period of 2013 to 2019. The credit outcomes include Vantage Score; the likelihood of 30-day and 60-day past due (DPD) delinquencies within the past 6 months; and the likelihood of bankruptcy within the past 24 months.

Figure 5: Yearly Credit Outcomes, by Destination (Sun & Abraham, 2021)



Notes: The figures present the event study for the long-term impact of migration on credit outcomes, separately for nAK-AK migrants and nAK-nAK migrants. The estimates are based on the empirical specification in Equation (3) and follow the approach of Sun & Abraham (2021) to address dynamic treatment bias. The credit outcomes include Vantage Score; the likelihood of 30-day and 60-day past due (DPD) delinquencies within the past 6 months; and the likelihood of bankruptcy within the past 24 months.

Figure 6: DDD, Yearly Credit Outcomes, by Pre-Migration Borrower Risk



Notes: The figures present the heterogeneous effects of migration on credit outcomes using a triple-difference estimator that accounts for migrants' pre-migration borrower risk. Borrower risk is classified based on VantageScores from the year prior to migration, following the PB's definitions: Deep Subprime (below 580), Subprime (580–619), Near-Prime (620–659), Prime (660–719), and Super-Prime (720 and above). We interact with the "PostMig-by-DestAK" indicator with these five VantageScore categories to estimate differential effects by risk profile. To ensure comparisons are made within each risk category, we also include interactions with these categories in the Year-by-DestAK, State-by-DestAK, and Origin-by-Cohort fixed effects. The credit outcomes include Vantage Score; the likelihood of 30-day and 60-day past due (DPD) delinquencies within the past 6 months; and the likelihood of bankruptcy within the past 24 months.

Table 1: Summary of Credit Outcomes for Migrant Sample, Yearly Aggregated

	Mean	**SD**	**Median**	**Min**	**Max**	**Borrower-by-Year**
Vantage Score	673.22	100.51	682	304.42	850	491,875
Had 30 DPD Delinquency, 6mth	0.1819	0.3857	0	0	1	492,322
Had 60 DPD Delinquency, 6mth	0.1173	0.3218	0	0	1	492,322
Had Bankruptcy, 24mth	0.0116	0.1072	0	0	1	492,322

Notes: This table reports the summary statistics of key outcomes of interest, separately for the migrant sample. The credit outcomes include Vantage Score; the likelihood of 30-day and 60-day past due (DPD) delinquencies within the past 6 months; and the likelihood of bankruptcy within the past 24 months.

Table 2: Summary of Demographics and Credit Outcomes by Sub-Groups

	(1) Alaska Migrants (pre-migration)	**(2)** Other Migrants (pre-migration)	**(3)** Alaska Residents	**(4)** Other Residents
Panel A: Demographics, EQX				
Male (%)	51.6	48.9	50.5	46.8
Median age	34	39	52	50
Panel B: Demographics, ACS				
Male (%)	53.8	50.9	52.2	49.2
Median age	27	28	34	38
Panel C: Credit Outcomes, EQX				
Vantage Score	668.46	674.94	712.18	668.76
	[97.89]	[105.19]	[100.09]	[105.62]
Pr(30 DPD Delinq.)	0.17	0.17	0.09	0.09
	[0.38]	[0.37]	[0.28]	[0.29]
Pr(60 DPD Delinq.)	0.11	0.11	0.04	0.05
	[0.32]	[0.31]	[0.21]	[0.22]
Pr(Bankruptcy 24m)	0.01	0.01	0.00	0.01
	[0.11]	[0.12]	[0.08]	[0.08]
# Borrowers	54,214	22,760	346,282	237,654

Notes: This table presents summary statistics for key demographic and credit outcomes across four subgroups: Alaska migrants, non-Alaska migrants, Alaska residents, and non-Alaska residents. For the migrant groups, outcomes are measured in the year prior to migration. For the resident groups, outcomes reflect averages from 2017. Panel A reports demographics from Equifax, including the percentage of male individuals and median age. Panel B provides comparable demographic benchmarks using microdata from the harmonized American Community Survey (ACS, IPUMS-USA, Ruggles et al. 2020). Panel C reports credit outcomes, including the Vantage Score; the probability of having a 30-day or 60-day past-due delinquency (DPD) in the previous six months; and the probability of filing for bankruptcy within the past 24 months.

Table 3: Summary Statistics by Pre-Migration Borrower Risk

Destination	Borrower Risk	Vantage Score	Pr(30 DPD Delinq.)	Pr(60 DPD Delinq.)	Pr(Bankruptcy 24m)
Other	Deep Subprime	540.14	0.32	0.28	0.02
	Subprime	585.84	0.32	0.24	0.03
	Near-prime	615.40	0.26	0.17	0.03
	Prime	661.59	0.17	0.09	0.02
	Super-prime	757.40	0.07	0.02	0.01
Alaska	Deep Subprime	543.43	0.33	0.29	0.02
	Subprime	584.29	0.32	0.24	0.02
	Near-prime	615.58	0.27	0.17	0.02
	Prime	660.28	0.18	0.09	0.02
	Super-prime	748.92	0.06	0.02	0.00

Notes: This table reports the mean of key outcomes of interests separately for two groups: Alaska migrants and non-Alaska migrations. Within each subgroup, we further split the sample based on migrants' pre-migration credit risk following the CFPB's five-tier system: deep subprime (<580), subprime (580–619), near-prime (620–659), prime (660–719), and super-prime (720 or above). The credit outcomes include Vantage Score; the likelihood of 30-day and 60-day past due (DPD) delinquencies within the past 6 months; and the likelihood of bankruptcy within the past 24 months.

Table 4: Short Run Credit Response to PFD payments, Alaska Migrants

	(1) Vantage Score	(2) 30 DPD Delinq.	(3) 60 DPD Delinq.	(4) 24 mth. Bankruptcy
PostOct	0.4309***	0.0029***	0.0022***	-0.0002***
	[0.0682]	[0.0004]	[0.0003]	[0.0000]
PostTreat	1.0840	0.0021	-0.0014	-0.0014***
	[1.4760]	[0.0023]	[0.0016]	[0.0000]
PostOct x PostTreat	1.9400***	-0.0020***	-0.0020***	0.0002*
	[0.1961]	[0.0007]	[0.0004]	[0.0000]
AK Migrants (pre) Mean	668.46	0.17	0.11	0.01
Year FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
Obs.	2,471,913	2,474,277	2,474,277	2,474,277

Notes: This table presents results from the fixed-effects specification described in equation (1), estimated using a subsample of individuals who migrated from outside Alaska to Alaska. PostOct equals 1 for observations in October, November, and December, and 0 for August and September. PostTreat is an individual-by-time indicator equal to 1 for periods after the borrower has received their first PFD payment. The credit outcomes include Vantage Score; the likelihood of 30-day and 60-day past due (DPD) delinquencies within the past 6 months; and the likelihood of bankruptcy within the past 24 months. Significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 5: Short Run Credit Response to PFD payments, Alaska Migrants, by Borrower Risk

	(1) Deep Subprime	(2) Subprime	(3) Near-prime	(4) Prime	(5) Super-prime
Vantage Score	3.1200***	1.9660***	1.3100***	0.6477***	-0.5815***
	[0.2643]	[0.3036]	[0.3076]	[0.1348]	[0.1118]
Pr(30 DPD Delinq.)	-0.0067***	-0.0024	-0.0042	0.0010	0.0000
	[0.0013]	[0.0026]	[0.0028]	[0.0011]	[0.0005]
Pr(60 DPD Delinq.)	-0.0058***	-0.0044*	-0.0054**	0.0014*	0.0003
	[0.0022]	[0.0024]	[0.0022]	[0.0008]	[0.0003]
Pr(Bankrupcty 24m)	0.0004	-0.0007	0.0006	0.0008***	0.0001***
	[0.0004]	[0.0007]	[0.0004]	[0.0003]	[0.0000]
Year FE	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes
PostMig FE	Yes	Yes	Yes	Yes	Yes
PostOct FE	Yes	Yes	Yes	Yes	Yes
Obs.	263,941	145,624	179,002	330,574	564,328

Notes: The credit outcomes include Vantage Score; the likelihood of 30-day and 60-day past due (DPD) delinquencies within the past 6 months; and the likelihood of bankruptcy within the past 24 months. Significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 6: Long-Term Credit Response to PFD payments, DDD

	(1) Vantage Score	(2) 30 DPD Delinq.	(3) 60 DPD Delinq.	(4) 24 mth. Bankruptcy
PostTreat	2.0300	0.0334***	0.0229***	0.0008
	[2.6510]	[0.0070]	[0.0047]	[0.0012]
PostTreat x DestAK	1.9580	-0.0215***	-0.0181***	-0.0024*
	[2.2850]	[0.070]	[0.0052]	[0.0013]
AK Migrants (pre) Mean	668.46	0.17	0.11	0.01
Other Migrants (pre) Mean	674.94	0.17	0.11	0.01
Year-by-DestAK FE	Yes	Yes	Yes	Yes
State-by-DestAK FE	Yes	Yes	Yes	Yes
Origin-by-Cohort FE	Yes	Yes	Yes	Yes
Obs.	491,875	492,322	492,322	492,322

Notes: The credit outcomes include Vantage Score; the likelihood of 30-day and 60-day past due (DPD) delinquencies within the past 6 months; and the likelihood of bankruptcy within the past 24 months. Significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

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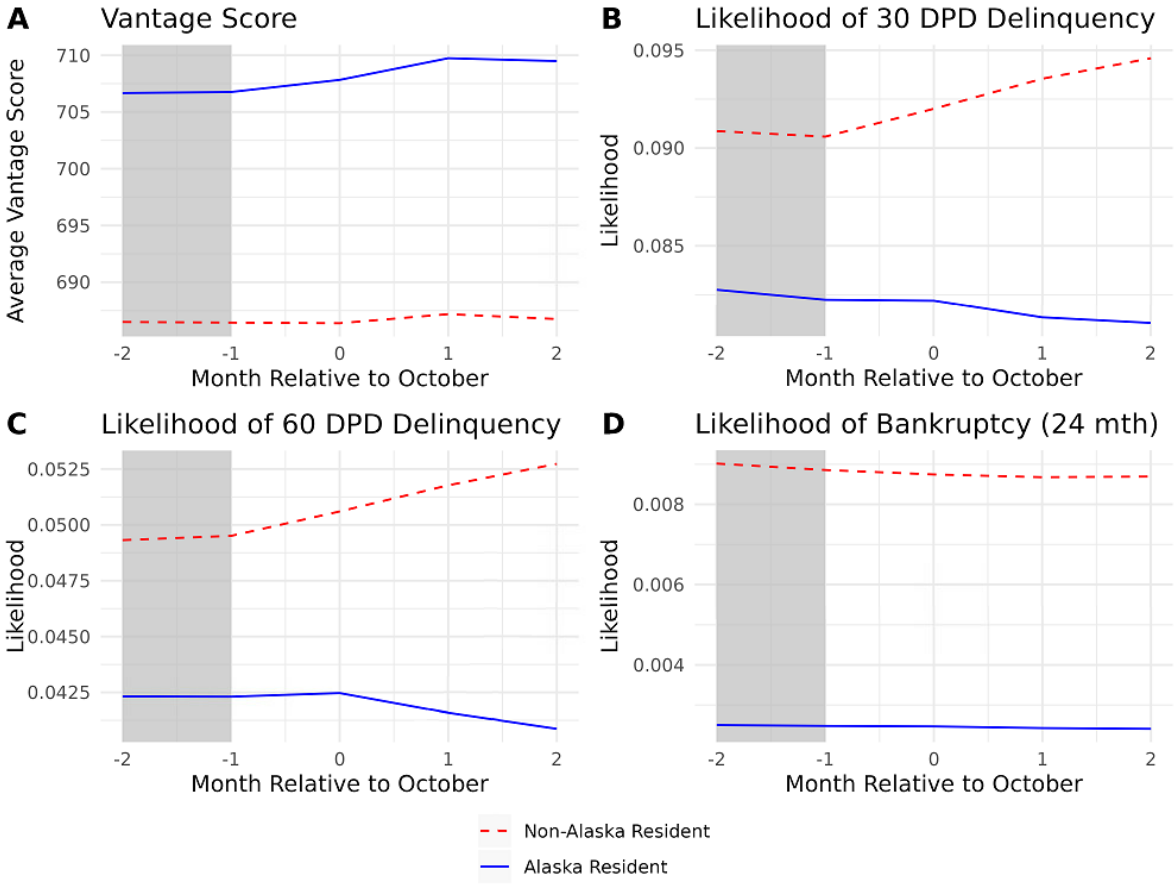
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Internet Appendix for "Universal Cash Transfers and Credit Outcomes: Evidence from the Alaska Permanent Fund Dividend"

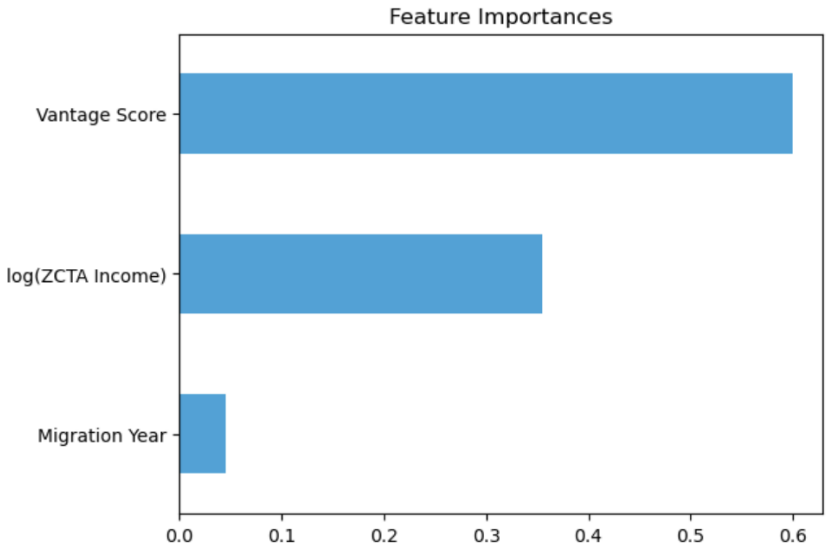
Appendix A Additional Tables and Figures

Figure A1: Monthly Credit Outcomes around the PFD Payment Month, by Resident Type



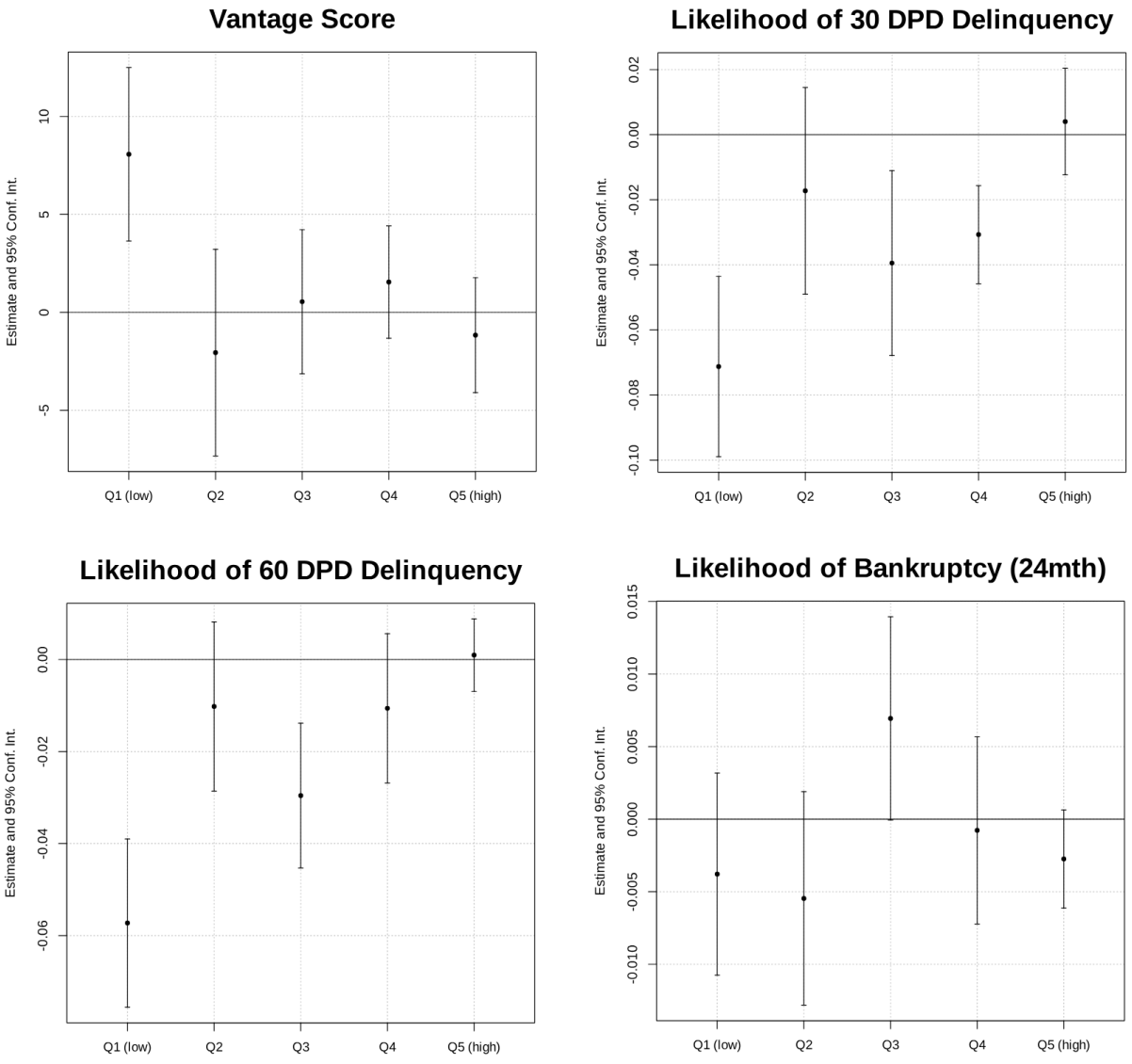
Notes: The figures show monthly trends in credit outcomes for Alaska and non-Alaska residents, focusing on the two months surrounding the Permanent Fund Dividend (PFD) payment, which occurs in October during our 2013–2019 sample period. We further restrict the sample to individuals who remained in the same state throughout the period. The credit outcomes include Vantage Score; the likelihood of 30-day and 60-day past due (DPD) delinquencies within the past 6 months; and the likelihood of bankruptcy within the past 24 months.

Figure A2: Predict Income using Random Forest, Feature Importance



Notes: This figure displays the feature importance derived from a random forest model used to predict the log of annualized income. Predictor variables include the Vantage Score, ZCTA-level average income, and year of migration. The sample is split into 80% training and 20% testing sets. Model performance indicates that 77% of predictions fall within 10% of the observed income values.

Figure A3: DDD, Yearly Credit Outcomes, by Pre-Migration Predicted Income Quintiles



Notes: The figures present the heterogeneous effects of migration on credit outcomes using a triple-difference estimator that accounts for migrants' pre-migration predicted income. We interact with the "PostMig-by-DestAK" indicator with these five income quintiles to estimate differential effects by risk profile. To ensure comparisons are made within each predicted income quintile, we also include interactions with these categories in the Year-by-DestAK, State-by-DestAK, and Origin-by-Cohort fixed effects. The credit outcomes include Vantage Score; the likelihood of 30-day and 60-day past due (DPD) delinquencies within the past 6 months; and the likelihood of bankruptcy within the past 24 months.

Table A1: Short Run Credit Response to PFD payments, Residents

	(1) Vantage Score	(2) 30 DPD Delinq.	(3) 60 DPD Delinq.	(4) 24 mth. Bankruptcy
PostOct	0.4689	0.0031***	0.0025***	-0.0003*
	[0.3055]	[0.0004]	[0.0004]	[0.0001]
AKRes	22.2900***	-0.0093***	-0.0076***	-0.0055***
	[0.4299]	[0.0016]	[0.0179]	[0.0006]
PostOct x AKRes	1.8490***	-0.0039***	-0.0032***	0.0003*
	[0.3043	[0.0005]	[0.0003]	[0.0001]
AK Residence Mean	712.18	0.09	0.04	0.00
Year FE	Yes	Yes	Yes	Yes
State FE	No	No	No	No
Obs.	12,580,158	12,580,158	12,580,158	12,580,158

Notes: This table reports results from the fixed-effects specification outlined in equation (2), estimated using a subsample of Alaska residents and non-Alaska residents who never moved out of their home state. The variable PostOct equals 1 for October, November, and December, and 0 for August and September. AKRes is an individual-level indicator equal to 1 if the person resided in Alaska throughout the entire sample period. The credit outcomes include Vantage Score; the likelihood of 30-day and 60-day past due (DPD) delinquencies within the past 6 months; and the likelihood of bankruptcy within the past 24 months. Significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A2: Short Run Credit Response to PFD payments, Compare AK and nAK Residents, by Borrower Risk

	(1) Deep Subprime	(2) Subprime	(3) Near-prime	(4) Prime	(5) Super-prime
Vantage Score	1.7330**	2.4560***	2.1630***	1.9340***	0.7787**
	[0.4595]	[0.4993]	[0.3851]	[0.3124]	[0.1830]
Pr(30 DPD Delinq.)	-0.0102***	-0.0086***	-0.0058***	-0.0032***	-0.0008
	[0.0014]	[0.0016]	[0.0013]	[0.0006]	[0.0004]
Pr(60 DPD Delinq.)	-0.0084***	-0.0078**	-0.0054***	-0.0020**	-0.0002
	[0.0010]	[0.0026]	[0.0011]	[0.0007]	[0.0001]
Pr(Bankrupcty 24m)	0.0006***	0.0005	0.0006	0.0001	-0.0000
	[0.0000]	[0.0004]	[0.0005]	[0.0002]	[0.0000]
Year FE	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes
AKRes FE	Yes	Yes	Yes	Yes	Yes
PostOct FE	Yes	Yes	Yes	Yes	Yes
Obs.	1,967,973	994,956	1,125,920	2,074,735	5,909,873

Notes: The credit outcomes include Vantage Score; the likelihood of 30-day and 60-day past due (DPD) delinquencies within the past 6 months; and the likelihood of bankruptcy within the past 24 months. Significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A3: Summary Statistics by Pre-Migration Predicted Income Quintiles

Destination	Income Quintile	Vantage Score	Pr(30 DPD Delinq.)	Pr(60 DPD Delinq.)	Pr(Bankruptcy 24m)
Other	Q1 (Lowest)	569.54	0.25	0.20	0.01
	Q2	622.59	0.24	0.16	0.02
	Q3	677.86	0.16	0.09	0.02
	Q4	724.87	0.11	0.05	0.01
	Q5 (Highest)	775.22	0.07	0.03	0.00
Alaska	Q1 (Lowest)	578.05	0.27	0.22	0.01
	Q2	614.46	0.24	0.17	0.02
	Q3	667.22	0.18	0.10	0.02
	Q4	715.05	0.12	0.05	0.01
	Q5 (Highest)	764.54	0.07	0.03	0.00

Notes: This table reports the mean of key outcomes of interests separately for two groups: Alaska migrants and non-Alaska migrations. Within each subgroup, we further split the sample based on migrants' predicted pre-migration log Income Quintiles. The credit outcomes include Vantage Score; the likelihood of 30-day and 60-day past due (DPD) delinquencies within the past 6 months; and the likelihood of bankruptcy within the past 24 months.

Table A4: Short Run Credit Response to PFD payments, Alaska Migrants, by Pre-Migration Predicted Income Quintiles

	(1) Q1 (low)	(2) Q2	(3) Q3	(4) Q4	(5) Q5 (high)
Vantage Score	3.2140***	3.0580***	1.8880***	1.0100***	0.3612
	[0.6652]	[0.6882]	[0.2538]	[0.3426]	[0.3515]
Pr(30 DPD Delinq.)	-0.0088***	-0.0064***	-0.0021	0.0021**	0.0000
	[0.0027]	[0.0014]	[0.0019]	[0.0010]	[0.0007]
Pr(60 DPD Delinq.)	-0.0114***	-0.0043***	-0.0009	-0.0001	0.0016***
	[0.0023]	[0.0012]	[0.0017]	[0.0005]	[0.0004]
Pr(Bankrupcty 24m)	0.0000	0.0002	0.0002	-0.0002	0.0001
	[0.0002]	[0.0002]	[0.0003]	[0.0001]	[0.0001]
Year FE	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes
PostTreat FE	Yes	Yes	Yes	Yes	Yes
PostOct FE	Yes	Yes	Yes	Yes	Yes
Obs.	263,941	145,624	179,002	330,574	564,328

Notes: The credit outcomes include Vantage Score; the likelihood of 30-day and 60-day past due (DPD) delinquencies within the past 6 months; and the likelihood of bankruptcy within the past 24 months. Significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.