Economics Letters 216 (2022) 110540

Contents lists available at ScienceDirect

Economics Letters

journal homepage: www.elsevier.com/locate/ecolet

Can transportation subsidies reduce failures to appear in criminal court? Evidence from a pilot randomized controlled trial☆

Rebecca Brough [a], Matthew Freedman [b,*], Daniel E. Ho [c], David C. Phillips [d]

[a] University of California, Davis, United States of America
[b] University of California, Irvine, United States of America
[c] Stanford University, United States of America
[d] University of Notre Dame, United States of America

ARTICLE INFO

Article history:
Received 18 January 2022
Received in revised form 21 March 2022
Accepted 19 April 2022
Available online 26 April 2022

JEL classification:
K41
K42
R41
R48

Keywords:
Failure to appear
Criminal justice
Public defense
Transportation subsidies
Public transit

ABSTRACT

The failure to appear (FTA) for a scheduled court hearing can have serious consequences for a criminal defendant. Many have speculated that transportation is a material barrier to court appearance. We provide evidence from the first randomized controlled trial of transportation subsidies to reduce FTAs, conducted jointly with public defenders and the transportation authority in Seattle, Washington. The most intensive intervention was a transit card providing 2–3 months of free public transportation. While the experiment is underpowered due to COVID-19 disruptions, our pilot results allow us to bound the treatment effect and derive estimates of cost effectiveness under alternative assumptions. Our results suggest that transportation subsidies alone do not have large benefits for this aspect of criminal justice.

1. Introduction

Many individuals charged with crimes fail to appear for scheduled court appointments (Fishbane et al., 2020). Failures to appear (FTAs) are costly to the judicial system and can have detrimental effects on defendants. When defendants fail to appear, defense attorneys must devote time to locating their clients, and the court frequently must reschedule hearings. Defendants who fail to appear may be given a default judgment or an FTA violation, each of which can bring additional fines and potentially an arrest warrant. Fines and detention, in turn, can have substantial negative repercussions for defendants and their families (Dobbie et al., 2018; Slavinski and Spencer-Suarez, 2021).

In this paper, we present results from the first randomized controlled trial (RCT) testing whether providing transportation subsidies reduces the probability that defendants fail to appear in court. Limited transportation options are often cited as an impediment to attending court appointments (e.g., Mahoney et al., 2001). Yet to our knowledge, no studies have identified whether transportation assistance is effective in a criminal justice setting. Our RCT launched after over a year of extensive planning and negotiation with many stakeholders, but COVID-19 upended court hearings and hence the experiment midstream. Here, we report pilot results to help bound the treatment effect and determine the potential cost effectiveness of providing transportation subsidies to reduce FTAs. We hope our experimental design and results help inform future research on related interventions.

☆ This research was supported by Arnold Ventures and the University of Notre Dame's Wilson Sheehan Lab for Economic Opportunities (LEO). This study was pre-registered as "A Randomized-Controlled Trial of Transportation Subsidies to Reduce Failure to Appear for Pretrial Release" (AEARCTR-0005040). We thank Joshua Andrews, Katherine Hurley, and Stephen Weidlich at the King County Department of Public Defense; Carrie Cihak, Maria Jimenez-Zepeda, Mark Konecny, and Lori Mimms at King County Metro; and Darren Stewart at the King County Department of Adult and Juvenile Detention for their invaluable support and assistance with this study. We thank Anne McDonough, Charlie Hanzel, and Kit Fugate for research assistance. The views expressed here are those of the authors and do not necessarily represent the views of Arnold Ventures or King County. Any remaining errors are the responsibility of the authors.

* Corresponding author.
E-mail addresses: rjbrough@ucdavis.edu (R. Brough), matthew.freedman@uci.edu (M. Freedman), dho@law.stanford.edu (D.E. Ho), david.phillips.184@nd.edu (D.C. Phillips).

https://doi.org/10.1016/j.econlet.2022.110540

2. Context and experimental design

2.1. Context

We partnered with the King County Department of Public Defense (DPD), the King County Metro Transit Department (Metro), and the Seattle Municipal Court (SMC) to administer an RCT designed to study the effect of transit subsidies on court appearance. Enrollment in the study occurred at SMC, which is located in downtown Seattle and is accessible by bus and light rail. At the time of the study, SMC handled all misdemeanor crimes, civil infractions, and civil offenses in the City of Seattle.

2.2. Experimental design

In our study, DPD clients appearing at in-custody arraignment hearings at SMC were randomly selected to receive Metro transit cards with subsidized fares. Due to logistical constraints, randomization occurred at the day level. In making the design decision to randomize at the day level, we assessed balance using historical data; we show below that this randomization preserves covariate balance in our sample as well.

On treatment days, eligible defendants received transit cards when discharged from jail. Defendants were eligible if they were being arraigned on the in-custody courtroom calendar, were represented by a DPD public defender, and had an arraignment outcome that meant they would be released. On control days, no transit cards were distributed. However, based on the court calendar, we were able to identify defendants who would have been eligible on those days. Therefore, we were able to construct a comparison group for those who received transit cards on treatment days.

Metro provided two sets of subsidized transit cards for this intervention. The first batch included transit cards pre-loaded with $15 worth of public transit. Eligible individuals who appeared in court on a treatment day July 1–November 22, 2019 received the $15 card. However, due to the often rapid exhaustion of the $15 credit, we began distributing transit cards pre-loaded with passes that provided free public transit for two calendar months after the card was distributed. As nearly all (98%) of defendants' first scheduled pretrial hearings are scheduled within six weeks of the arraignment hearing, this ensured free public transit was an option when their hearing occurred. Eligible individuals who appeared in court on a treatment day between November 22, 2019 and the conclusion of the study received a transit card with the pass providing 2–3 months of free travel.

All transit cards distributed in the study were reduced-fare transit cards ("ORCA LIFT" cards) available to King County residents with income below 200% of the federal poverty line. These cards could be used for travel anywhere on King County's public transit system during the subsidy period as well as after (if the defendant loaded more money on the card). We observe all card usage regardless of whether the trips were free for the defendant.

Study enrollment ended on March 13, 2020 due to the fundamental disruption of in-person criminal hearings brought on by the COVID-19 pandemic. Ongoing pandemic disruptions and subsequent policy changes in Seattle precluded resuming the study. As a result, we have only 468 defendants in our sample. While this leaves us underpowered, our findings allow us to bound the treatment effect on court appearances.

2.3. Study sample and baseline balance

SMC records rich information on defendants and their cases on its public court portal. We use these court data to identify defendants who are eligible to be part of the study. Table 1 summarizes characteristics of the study population. Out of 24 baseline characteristics, only one is statistically different between the treatment and control groups at the 5% level, as would be expected by chance.

3. Results

3.1. Transit use

Using data on transit card "taps" on King County Metro's fleet of vehicles (including buses, ferries, and light rail lines), we tracked public transit boardings for all cards distributed in this study. To preserve the privacy of individuals, transit cards were not registered to individual names. Therefore, while we can explore transit usage relative to card distribution day, we cannot link transit records to specific demographic or case information at the defendant level.

Boardings using cards pre-loaded with $15 are shown in Panel (a) of Fig. 1 and summarized in the first column of Table 2. Over the 30-day period after distribution, defendants who received $15 transit cards averaged 0.29 boardings per day. As Fig. 1 makes clear, most of these boardings happened soon after card receipt; the $15 in transit funds were exhausted for 50% of defendants within 22 days. Given that pretrial hearings were scheduled 27 days after card distribution on average, many defendants who received transit cards pre-loaded with $15 did not have any subsidy remaining at the time of their pretrial hearings.

Panel (b) of Fig. 1 and the second column of Table 2 show boardings for the population who received transit cards with 2–3 months of free travel. Ridership for this group over the 30 days following card distribution averaged about three times greater than for the group who received the $15 card. Boardings were also distributed more evenly over time, including during the period in which their pretrial hearings were likely to have occurred.

We also have access to de-identified transit records for all individuals enrolled in ORCA LIFT. Comparing our study population's ridership to that of the universe of ORCA LIFT riders during our study period (columns (4) and (5) of Table 2), we find that when transit was free, defendants in the study used transit at a rate comparable to or higher than that of transit riders with low income enrolled in ORCA LIFT. This is notable given that, unlike ORCA LIFT cardholders, individuals in this study did not actively indicate a desire for transportation assistance. This suggests that the pretrial population may be disproportionately dependent on public transportation.

3.2. Court appearance

We use SMC's court portal to measure court appearance outcomes. We measure FTA at (i) the first scheduled pretrial hearing for a case, (ii) the first scheduled pretrial hearing resulting in the issuance of a warrant, (iii) any hearing over the course of a case, and (iv) any hearing resulting in the issuance of a warrant.

We find no evidence that transit subsidies had substantial effects on court appearance rates for defendants in our study. In Table 3, we show FTA rates for our control and treatment groups. In Panel A, we pool defendants who received the $15 credit and the 2–3 month pass. Overall, FTA rates for defendants assigned to receive transit subsidies are equal to or greater than those not receiving subsidies.

We measure the treatment effect as the difference between those two groups conditional on observed characteristics of the defendant and case. Specifically, we run the regression

$$FTA_i = \alpha + \beta T_i + \mathbf{X}_i\Omega + \varepsilon_i \quad (1)$$

Table 1
Covariate balance statistics.

	(1) Control		(2) Treatment		(3) Difference
	N	Mean	N	Mean	(Std. Error)
Age at hearing	203	37.84	265	37.00	−1.133 (0.955)
Female	203	0.24	265	0.20	−0.038 (0.042)
Black	203	0.29	265	0.33	0.046 (0.041)
White	203	0.57	265	0.51	−0.058 (0.043)
Asian	203	0.05	265	0.06	0.006 (0.022)
American Indian or Alaskan native	203	0.03	265	0.04	0.003 (0.016)
Unknown race	203	0.05	265	0.06	0.002 (0.021)
Seattle address on Court Docket	203	0.70	265	0.65	−0.047 (0.044)
Listed phone number on Court Docket	203	0.86	265	0.82	−0.038 (0.034)
Days until first scheduled pretrial hearing	203	25.32	265	28.00	2.261* (1.153)
Number of charges	203	1.35	265	1.40	0.073 (0.051)
Number of theft charges	203	0.28	265	0.31	0.032 (0.039)
Number of harassment charges	203	0.04	265	0.07	0.032 (0.021)
Number of assault charges	203	0.26	265	0.22	−0.046 (0.044)
Number of trespass charges	203	0.20	265	0.23	0.024 (0.044)
Number of property destruction charges	203	0.09	265	0.09	0.006 (0.027)
Number of other charges	203	0.48	265	0.50	0.024 (0.063)
Representing DPD agency: NDD	203	0.46	265	0.37	−0.092 (0.091)
Representing DPD agency: ACA	203	0.28	265	0.28	0.007 (0.057)
Representing DPD agency: TDA	203	0.07	265	0.06	−0.014 (0.036)
Release condition: Day reporting requirements	203	0.13	265	0.18	0.049 (0.037)
Release condition: Personal recognizance	203	0.68	265	0 .74	0.060 (0.053)
Release condition: Any bail	203	0.13	265	0.06	−0.071** (0.034)
Release condition: Bail amount if > 0	39	641.03	22	648.00	6.702 (189.562)

Notes: Data derived from Seattle Municipal Court Portal. Standard errors (in parentheses) are clustered by arraignment date. Statistical significance at the 10, 5, and 1 percent levels are denoted respectively by *, **, and ***.

where i indexes defendants, *FTA* is an indicator for failure to appear in court at a scheduled hearing, T is an indicator for being in the treatment group, and $\mathbf{X}$ is a set of defendant and case characteristics including defendant race, gender, age, age squared, public defense division, and release condition. Standard errors are clustered by arraignment date.

As shown in the final column of Table 3, the only statistically significant estimates suggest that transportation subsidies *increased* FTAs, which runs counter to the hypothesized effect. For the full sample, the estimated regression-adjusted difference in the rate of FTAs resulting in a warrant between treated and control groups ($\hat{\beta}$) is a statistically significant 10 percentage points. For other measures of FTAs, the estimated effects are also positive, but statistically indistinguishable from zero. Results are similar when we look at FTA rates broken down by the level of subsidy that defendants received (Panels B and C of Table 3).

These results suggest that transit subsidies do not cause large decreases in FTAs. However, our study is underpowered due to COVID-19 and related disruptions; as a result, we cannot reject meaningful declines in the FTA rate resulting from the treatment. For the full sample, the lower bound of the 95% confidence interval corresponds to a reduction in the pretrial FTA rate of 6 percentage points. Focusing on results from the population with the 2–3 month unlimited transit subsidy, the lower bound of the 95% confidence interval corresponds to a reduction in the FTA rate of 15 percentage points.[1]

3.3. Cost effectiveness

We estimate the cost of the intervention using the transit boarding data. The 2–3 month subsidy group boarded an average of 77 times in the first 60 days, and the $15 subsidy group

[1] With our originally planned study population of 4,000 study (split evenly between treatment and control), we would expect the standard errors to be about two-thirds smaller.

Table 2
Public transportation usage.

	(1) $15 Subsidy	(2) 2–3 Month Subsidy	(3) ORCA LIFT Participants	(4) Diff. (1)–(3) (Std. Error)	(5) Diff. (2)–(3) (Std. Error)
Panel A: Ridership					
Avg. usage over 8 days since card receipt	0.56	0.99	0.54	0.02	0.45***
				(0.04)	(0.04)
Avg. usage over 30 days since card receipt	0.29	0.91	0.55	−0.26***	0.36***
				(0.02)	(0.02)
Avg. usage over 60 days since card receipt	0.17	0.82	0.52	−0.35***	0.30***
				(0.02)	(0.02)
Panel B: Take up					
Share that used card within 60 days of receipt	0.82	0.63	0.70	0.12**	−0.07
				(0.04)	(0.04)
Panel C: Ridership conditional on using card within 60 days					
Avg. usage over 8 days since card receipt	0.66	1.54	0.74	−0.08	0.80***
				(0.05)	(0.06)
Avg. usage over 30 days since card receipt	0.34	1.42	0.75	−0.41***	0.67***
				(0.03)	(0.03)
Avg. usage over 60 days since card receipt	0.20	1.29	0.72	−0.51***	0.57***
				(0.02)	(0.02)

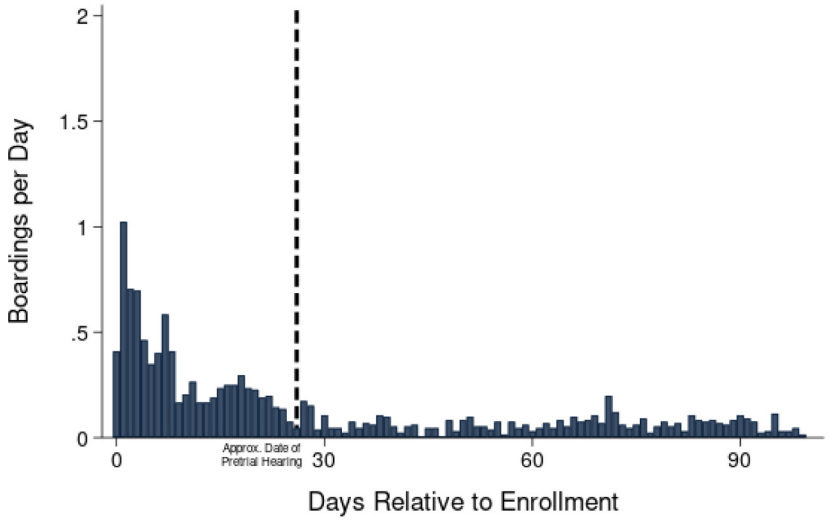
Notes: Data derived from King County Metro's ORCA LIFT boardings data. Columns (1)–(3) display information for defendants with the $15 transit card, for defendants with the 2–3 month subsidy, and for non-study ORCA LIFT participants. ORCA LIFT participants include those who enrolled Metro's low-income fares program between July 1, 2019 and February 7, 2020. Panel A reports the mean number of public transit boardings over different time intervals relative to card receipt. Panel B reports the share who used their transit card at least once within 60 days of receipt. Panel C reports the mean number of public transit boardings conditional on any card use within 60 days of receipt. Columns (4) and (5) show results of simple t-tests and report differences between columns (1) and (3) and between columns (2) and (3). Standard errors are parentheses. Statistical significance at the 10, 5, and 1 percent levels are denoted respectively by *, **, and ***.

Table 3
Failure to appear (FTA) at court.

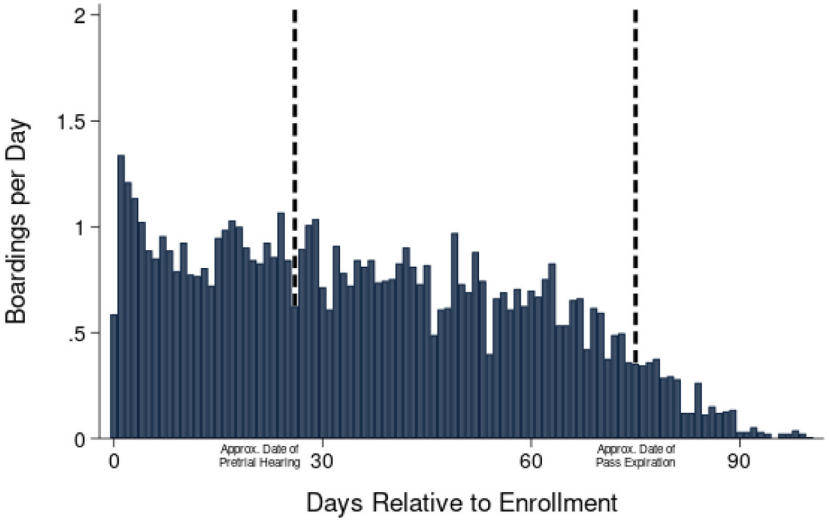
	(1) Control		(2) Treatment		(3) Regression-Adj. Diff
	N	Mean	N	Mean	(Std. Error)
Panel A: Any transit subsidy					
Pretrial FTA	203	0.42	265	0.47	0.035
					(0.047)
Pretrial FTA resulting in warrant	203	0.26	265	0.31	0.035
					(0.041)
Any FTA	203	0.73	265	0.80	0.05
					(0.042)
Any FTA resulting in warrant	203	0.40	265	0.51	0.101**
					(0.048)
Panel B: $15 transit subsidy					
Pretrial FTA	119	0.38	132	0.45	0.059
					(0.057)
Pretrial FTA resulting in warrant	119	0.24	132	0.30	0.035
					(0.055)
Any FTA	119	0.72	132	0.85	0.101*
					(0.056)
Any FTA resulting in warrant	119	0.39	132	0.52	0.084
					(0.058)
Panel C: 2–3 month transit subsidy					
Pretrial FTA	84	0.49	133	0.49	−0.005
					(0.077)
Pretrial FTA resulting in warrant	84	0.29	133	0.32	0.025
					(0.06)
Any FTA	84	0.75	133	0.74	−0.022
					(0.06)
Any FTA resulting in warrant	84	0.40	133	0.51	0.092
					(0.071)

Notes: Data derived from Seattle Municipal Court Portal. Differences displayed in column (3) are the result of OLS regressions controlling for race, gender, age, representing public defender division, and release condition. Standard errors (in parentheses) are clustered by arraignment date. Statistical significance at the 10, 5, and 1 percent levels are denoted respectively by *, **, and ***.

boarded an average 12 times over the same time interval. This averages to 45 boardings for the full sample. If we assume that riders in King County would have taken half of these rides paying the $1.50 ORCA LIFT fare, then Metro forgoes $34 of revenue per card distributed to a defendant. Administrative costs consist of loading the subsidy on the card, screening for eligibility, and delivering the card to the person's property. We estimate these costs at $10-20. Thus, the overall cost is close to $50 per defendant. At the most optimistic end of the 95% confidence interval for the treatment effect on FTAs, we would conclude that it costs at least



(a) Ridership on Cards with $15 Worth of Transit



(b) Ridership on Cards with Unlimited Transit for 2-3 Months

Fig. 1. Ridership on transit cards distributed in the study.
Notes: Panel (a) shows boardings per day using transit cards with $15 credit (N = 132). Panel (b) shows boardings per day using transit cards with 2–3 months of free rides (N = 133). Data derived from King County Metro's ORCA LIFT boardings data and include zeroes (those who never used their cards).

$900 to eliminate one FTA with transit subsidies. For the 2–3 month pass alone, a similar calculation yields an average program cost near $75 per card and at least $500 per FTA averted.

These bounds are informative for policy. They exclude the possibility that transit subsidies are as cost effective as text message reminders, which are lower cost and reduced FTAs by 8 percentage points in Fishbane et al. (2020). Also, Fishbane et al. (2020) estimate that an FTA costs the court $454 in staff time. Though costs to defendants may be high, our estimates suggest transit subsidies do not likely pay for themselves within the court. From a Bayesian perspective, the data allow decision-makers who are either uninformed – and particularly ones who are optimistic ex-ante – to update beliefs meaningfully (see Appendix D).

4. Conclusion

We provide evidence from the first RCT of transportation subsidies to reduce FTAs. While our study should be considered a pilot due to the pandemic interruption, our results help to bound such subsidies' possible effects and assess their potential cost effectiveness. Other studies show that transit subsidies can affect travel behavior and facilitate job search (Phillips, 2014; Franklin, 2018; Bull et al., 2021; Brough et al., 2022). Similarly, individuals in our study traveled extensively using the subsidies, implying that the subsidies have other benefits. However, our results suggest that transportation subsidies alone do not generate large improvements in FTA rates.

Appendix A. Supplementary data

Supplementary material related to this article can be found online at https://doi.org/10.1016/j.econlet.2022.110540.

References

Brough, Rebecca, Freedman, Matthew, Phillips, David C., 2022. Experimental Evidence on the Effects of Means-Tested Public Transportation Subsidies on

Travel Behavior. Wilson Sheehan Lab for Economic Opportunities Working Paper, University of Notre Dame.
Bull, Owen, Muñoz, Juan Carlos, Silva, Hugo E., 2021. The impact of fare-free public transport on travel behavior: Evidence from a randomized controlled trial. Reg. Sci. Urban Econ. 86, 103616.
Dobbie, Will, Goldin, Jacob, Yang, Crystal, 2018. The effects of pretrial detention on conviction, future crime, and employment: Evidence from randomly assigned judges. Am. Econ. Rev. 108 (2), 201–240.
Fishbane, Alissa, Ouss, Aurelie, Shah., Anuj K, 2020. Behavioral nudges reduce failure to appear for court. Science 370 (6517).
Franklin, Simon, 2018. Location, search costs and youth unemployment: Experimental evidence from transport subsidies. Econ. J. 128, 2353–2379.
Mahoney, Barry, Beaudin, Bruce, Carver, John, Ryan, Daniel, Hoffman, Richard, 2001. Pretrial Services Programs: Responsibilities and Potential. National Institute of Justice.
Phillips, David C., 2014. Getting to work: Experimental evidence on job search and transportation costs. Labour Econ. 29, 72–82.
Slavinski, Ilya, Spencer-Suarez, Kimberly, 2021. The price of poverty: Policy implications of the unequal effects of monetary sanctions on the poor. J. Contemp. Crim. Justice 37, 45–65.