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From Payday Loans To Pawnshops: Fringe Banking, The Unbanked, And Health

DOI: 10.1377/hlthaff.2017.1219
HEALTH AFFAIRS 37,
NO. 3 (2018): 429–437
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The People-to-People Health
Foundation, Inc.

ABSTRACT The fringe banking industry, including payday lenders and check cashers, was nearly nonexistent three decades ago. Today it generates tens of billions of dollars in annual revenue. The industry's growth accelerated in the 1980s with financial deregulation and the working class's declining resources. With Current Population Survey data, we used propensity score matching to investigate the relationship between fringe loan use, unbanked status, and self-rated health, hypothesizing that the material and stress effects of exposure to these financial services would be harmful to health. We found that fringe loan use was associated with 38 percent higher prevalence of poor or fair health, while being unbanked (not having one's own bank account) was associated with 17 percent higher prevalence. Although a variety of policies could mitigate the health consequences of these exposures, expanding social welfare programs and labor protections would address the root causes of the use of fringe services and advance health equity.

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The fringe banking industry includes payday lenders, which give customers short-term loans pending their next paychecks; pawnbrokers, which buy customers' property and allow them to repurchase it later at a higher cost; car-title lenders, which hold customers' titles as collateral for short-term loans; and check cashers, which cash checks for a fee.¹ In the US, the industry has burgeoned in recent decades. The payday lending industry, which began in the early 1990s,² extended \$10 billion in credit in 2001 and \$48 billion in 2011.³ The check cashing industry, which was nearly nonexistent before the mid-1970s,⁴ had \$58 billion in transactions in 2010.³ Similar growth has occurred in the pawnbroker⁴ and car-title lending⁵ industries. This growth parallels the expansion of lending through credit cards, student loans, and mortgages.⁶ On the eve of the Great Recession in 2007, average US household debt peaked at 125 percent of annual disposable personal in-

come, up from 60 percent in 1980.⁷

Fringe borrowing is costly, and credit checks are generally not required.⁵ Short-term fringe loans can carry annual percentage interest rates (APRs) of 400–600 percent.⁵ Although the loans are marketed as one-time emergency loans, borrowers often take out multiple loans per year and rarely discharge the debts quickly.^{8,9} The average payday borrower is indebted for five months and pays \$520 in fees and interest for loans averaging \$375.⁸ One in five car-title borrowers have their vehicle seized due to default.⁹

Background

Growth in the fringe banking industry resulted from several factors.¹⁰ Beginning in the 1970s, political, economic, and regulatory forces put pressure on states to loosen interest-rate caps. Federal monetary policy to control inflation increased long-term commercial interest rates, and the high costs of funds made operating with-

in state interest-rate caps difficult for banks and other lenders. Many states altered their caps or granted exemptions for certain lenders. In addition, a 1978 Supreme Court decision weakened state control over lending by allowing federally chartered banks to charge customers in other states their home-state interest rates. Subsequently, state-chartered banks successfully lobbied Congress for the same export rights, and states weakened rate caps to attract business.

Throughout the 1980s and 1990s, other regulatory changes allowed banks to diversify their investment activities and expand across state lines, contributing to growth and consolidation in the financial sector.³ Historically, the banking and credit needs of the working poor had been met by local, commonly owned institutions such as credit unions and savings and loan associations.⁴ As local institutions merged with national banks, however, they reduced less profitable services, such as small loans, that catered to the needs of the working poor.¹¹ Moreover, banks' heightened needs for revenue contributed to rising fees on deposit accounts, which rendered the accounts prohibitive for many low-income consumers.¹² From 1977 to 1989, the prevalence of unbanked households (those without a bank account) increased from 9.5 percent to 13.5 percent.¹³ Among low-income households, the prevalence increased from 29.7 percent to 40.8 percent,¹³ and many unbanked households turned to fringe banks.¹⁴ Though the prevalence of unbanked households has decreased since the 1990s,¹⁵ cuts in social services,¹⁶ rising costs of necessities such as health care,¹⁷ stagnating wages,⁶ and concomitant declines in personal savings rates⁶ have left Americans increasingly dependent on fringe loans for survival.²

INEQUITIES IN FRINGE BORROWING AND THE UNBANKED Fringe borrowing is most common among people with low or volatile incomes,¹⁸ and borrowers use the proceeds primarily for recurring living expenses such as rent or an expected expenses such as medical bills.⁸ Mirroring patterns in income and wealth inequity, nationally representative data show that past-year fringe borrowing is more common among blacks (12.9 percent), Hispanics (9.7 percent), and "other" racial/ethnic groups (16.1 percent) than among whites (6.2 percent) and Asians (4.6 percent).¹⁸ It is also more common among families headed by females (14.5 percent) than those headed by males (9.7 percent) or married couples (6.2 percent), and more common among people with disabilities than others (14.6 percent versus 7.8 percent).¹⁸

Discriminatory practices have contributed to these inequities by preventing people of color and women from accumulating wealth and ac-

cessing certain financial programs, such as the cheap credit available to white men that fueled the post-World War II boom.¹⁹ For example, the Federal Housing Administration encouraged redlining, whereby banks refused to lend in communities of color.¹⁹ Moreover, lenders often required single, divorced, or widowed women to secure their mortgages with a man's signature.¹⁹ Although marginalized groups gained credit access in the 1960s and 1970s, today, under "reverse redlining," accessible loans are often high-cost and risky.²⁰ Indeed, people of color, particularly women, were disproportionately dispossessed of wealth during the 2007–08 subprime lending crisis.¹⁹ Fringe banks are frequently located in poor neighborhoods with few mainstream banks and large African American populations, thereby exploiting financial distress for profit.⁴

The 7 percent of US households that are unbanked are especially likely to use fringe services.¹⁸ These households go unbanked primarily because they lack enough money for an account, want privacy and distrust banks, or cannot afford fees.¹⁸ Overdraft fees, rare before deregulation in the 1980s,¹² generated \$32.5 billion for banks in 2015²¹—which often sequence withdrawals from largest to smallest to maximize revenue.³ Overdraft fees disproportionately burden low-income groups, and they do so at a high cost. If they were construed as loans to account holders, typical overdrafts would carry APRs of about 17,000 percent.²¹ The costs of being unbanked are also high, however. According to one estimate, the average unbanked family earning \$25,000 per year spends \$2,400 annually on check-cashing services, money orders, and bill-paying services—more than it spends on food.²²

FRINGE BORROWING, THE UNBANKED, AND HEALTH The costs of fringe banking may exacerbate the well-known deleterious effects of financial hardship on health.²³ However, while fringe lenders clearly charge onerous interest rates, the financial harms of fringe borrowing relative to the alternatives are controversial.²¹ Using fringe loans for recurring expenses can be especially harmful, leading to spiraling debt and bankruptcy.²⁴ Moreover, fringe lenders often provide misleading information about loan contract terms, causing borrowers to underestimate the true costs of the loan and overestimate their ability to repay the debt.¹⁰ Nonetheless, the poor often lack options,⁸ and for certain borrowers—particularly those borrowing sparingly in states with APR limits—fringe loans may be the least costly option.²⁴

The material consequences of fringe loans aside, borrowers' health may be harmed by the stress of excessive debt and accompanying finan-

Borrowers' health may be harmed by the stress of excessive debt and accompanying financial instability.

cial instability. Indebtedness is often a source of shame,⁷ and fringe debt may be especially stigmatized.²⁵ Social isolation, looming default, and harassment from debt collectors also contribute to debt-induced anxiety, depression, and suicide.²³ Chronic stress puts people at risk for metabolic and cardiovascular diseases by dysregulating the systems that respond to stress, such as the hypothalamic-pituitary-adrenal axis and the immune and inflammatory systems, and by contributing to behaviors such as substance use.²⁶ People who use fringe services frequently face other chronic stressors, such as discrimination, that amplify the health effects of financial strain. The net stress from fringe debt, however, must be balanced against the stress of the alternatives, which may include forgoing necessities or defaulting on other loans.³ Meanwhile, being unbanked in a largely noncash economy generates its own stress. Bills must be paid in person, at certain locations, and within certain hours, irrespective of transportation costs, wait times, and conflicting obligations.²²

In this study we used data from the Current Population Survey (CPS) to test the relationship between fringe borrowing, unbanked status, and self-rated health. We hypothesized that fringe borrowing and being unbanked would be associated with worse self-rated health as a result of their material and stress effects.

Study Data And Methods

DATA The CPS is an annual survey conducted by the Census Bureau to collect workforce data. The Federal Deposit Insurance Corporation (FDIC) funds a biennial June supplement that focuses on fringe services and the unbanked. Questions on self-rated health are asked annually in the March Annual Social and Economic (ASEC) Supplement. Households sampled for the CPS are interviewed eight times: monthly for two four-month periods, separated by an eight-month

break. In this study we used an algorithm created by Brigitte Madrian²⁷ and Christopher Nekarda²⁸ to create a person-level identifier to merge data from the June 2011, 2013, and 2015 FDIC supplements with data from the March 2012, 2014, and 2016 ASEC Supplements. We conducted analyses on a data set consisting of respondents who were both nonproxy respondents and household financial decision makers, to avoid misclassification of self-rated health by proxy response and because we hypothesized that stress would be most pronounced among those who bore household financial responsibilities. Respondents in our sample were interviewed once for the ASEC Supplement and once for the FDIC supplement nine months later. We excluded respondents younger than age eighteen, the minimum fringe borrowing age in many states. We did not use survey weights, since merging data across supplements complicates weighting. The Census Bureau cleans CPS data and imputes missing values.

EXPOSURE AND OUTCOME VARIABLES We defined *fringe borrowing* as past-year use of a household payday, pawn, or car-title loan and *being unbanked* as living in a household without a bank account. Self-rated health was measured using a standard question (“Would you say your health in general is...?”) and dichotomized as poor/fair versus good/very good/excellent.

CONFOUNDERS For the relationship between fringe borrowing and self-rated health, we identified the following confounders: demographic and socioeconomic variables (age, income, education, gender, employment status, race/ethnicity, foreign-born status, veteran status, health insurance, and food stamp receipt), indicators of financial marginalization (unbanked status and past-year household use of check-cashing services, rent-to-own purchasing, and tax refund anticipation loans), and correlates of both fringe service access and health (metro/non-metro residence, state of residence, and year). For the relationship between unbanked status and self-rated health, we identified the same confounders except for use of check-cashing services, rent-to-own purchasing, and tax refund anticipation loans, which we hypothesized were mediators of the relationship. All covariates aside from health insurance and food stamp receipt were measured contemporaneously with the exposures. Variable specification is discussed in more detail below.

PRIMARY ANALYSES To disentangle the health effects of fringe borrowing and being unbanked from the health effects of confounding factors, such as having low socioeconomic status, we used a propensity score-matching approach.^{29,30} Matching subjects on the propensity score,

which is the probability of exposure (fringe borrowing or being unbanked), allows one to construct comparable groups for whom exposure is independent of observed confounders.³⁰ Because of the matching procedure, which matched unexposed respondents (for example, those in banked households) to exposed respondents (those in unbanked households) on the propensity score and discarded unmatched respondents, propensity score–matched analyses provide an estimate of the average treatment effect on the treated rather than the average treatment effect—assuming no unmeasured confounding.²⁹ Identifying the health effects of fringe borrowing or being unbanked on fringe borrowers or the unbanked (the “treated”) was prioritized over identifying the health effects of fringe borrowing or being unbanked on all respondents—some of whom had high or very low socioeconomic status and thus had a low probability of exposure.

For the propensity score–matched analyses, we calculated each respondent’s propensity score by predicting fringe borrowing and unbanked status via logistic models that used the confounders, including squared age and income terms. Next, using the R MatchIt package, we performed nearest-neighbor matching without replacement to match each exposed respondent to up to two unexposed respondents within 0.05 propensity score standard deviations.³¹ To test the relationship between fringe borrowing or unbanked status and health in the matched samples, we calculated prevalence ratios for poor or fair health via Poisson regression.³² For each exposure, we calculated crude and, to address residual covariate imbalance, covariate-adjusted models.³¹ Because of concerns about model convergence and positivity, in the outcome model we adjusted only for the variables that we hypothesized were strong confounders and might be unbalanced after matching.³³ For fringe borrowing, that included income; education; race/ethnicity; unbanked status; and use of check-cashing services, rent-to-own purchasing, and tax refund anticipation loans. For unbanked status, that included income, education, and race/ethnicity (more details on variable specification are available below). To correctly estimate the variance resulting from propensity score estimation and matching, we calculated bootstrapped estimates of the coefficients and standard errors (normal approximation) by reestimating the matching and regression 1,000 times.^{29,30} We assessed postmatching covariate balance across exposure groups by calculating the median standardized mean difference³⁴ in each covariate over the 1,000 matched samples (see online appendix A1 for details).³⁵

The core of the fringe banking problem is financial instability and scarce resources.

SENSITIVITY ANALYSES To assess potential unmeasured confounding by factors such as wealth, other sources of debt, and baseline health, we implemented the same propensity score–matching procedure used in our primary analyses but replaced fringe borrowing with the use of check-cashing services and refund anticipation loans—which we treated as control exposures. These services are used by populations similar to those that use fringe loans but are transactional rather than debt-creating and thus, we hypothesized, not comparably harmful for health. If unmeasured confounding were minimal, we expected these exposures to have smaller health effects than fringe borrowing. We did not run sensitivity analyses for the use of rent-to-own purchasing because that service resembles fringe loans, requiring repeated costly payments.

Since consumers sometimes use fringe loans to cover fallout from illness, such as medical expenses or missed work, and since our exposure and outcome were measured only once, we were also concerned about reverse causation—that is, poor health precipitating fringe borrowing. Similarly, respondents may have become unbanked as a result of financial fallout from illness. To address reverse causation, we merged the March 2011, 2013, and 2015 ASEC Supplements, conducted three months prior to exposure ascertainment, with our primary data set and excluded respondents in the ASEC Supplements who reported poor or fair health. Alternatively, we excluded those who received disability benefit income or those who were uninsured, since fringe borrowing among these respondents may also have resulted from poor health. Not all respondents included in our main analyses were interviewed in the ASEC Supplements three months before baseline, and excluding those who reported poor or fair health, disability benefit income, or being uninsured further reduced the sample sizes. Thus, we conducted Poisson regression on the entire samples rather than on propensity score–matched samples to ensure adequate sample sizes. These models

were adjusted for the same confounders that we identified above, and confidence intervals were calculated with robust standard errors. If reverse causation were minimal, we expected the exclusions not to decrease the prevalence ratio estimates.

We also tested for reverse causation by conducting two-stage least squares analyses, predicting fringe borrowing with indicators of state-level regulations of payday loans, pawn loans, and check-cashing services.³⁶ See appendix A3 for details.³⁵

LIMITATIONS Our analyses had limitations. First, there may be unmeasured confounding by factors such as household wealth, other sources of debt, or baseline health. Moreover, self-rated health may be influenced by negative affect (which was unmeasured), particularly for respondents facing other hardships.³⁷ Nonetheless, we adjusted for a variety of household characteristics, including use of other fringe services, that may serve as proxies for the unmeasured confounders, and the sensitivity analyses provided evidence about unmeasured confounding.

Second, in our primary analyses, the exposures and outcome were measured only once, making reverse causation possible. However, the sensitivity analyses addressed potential reverse causation.

Third, although self-rated health is predictive of morbidity and mortality, it is less predictive among blacks and Hispanics and people of low socioeconomic status.^{37,38} However, dichotomizing self-rated health improves reliability.³⁸

Fourth, we did not have data on fringe borrowing frequency or amounts, only that respondents had any past-year borrowing—which prevented us from analyzing whether more frequent borrowing or larger loans were more harmful than less frequent borrowing or smaller loans. To our knowledge, no data sets contain more detailed information about fringe services and health.

Finally, we did not use survey weights. This limited our ability to obtain estimates that were representative of the US population and did not account for the survey design, which affected the standard errors of our estimates. Our use of bootstrapped and robust standard errors might mitigate concern about this.

Study Results

The fringe borrowing data set included information about 14,473 respondents, among whom 589 (4.1 percent) reported past-year fringe borrowing, while the unbanked data set included 15,039 respondents, among whom 603 (4.0 percent) reported being unbanked.³⁹ Both fringe borrowers and the unbanked tended to have

lower socioeconomic status than nonfringe borrowers and the banked, reporting lower incomes, education, and probability of health insurance and employment. Fringe borrowers and the unbanked were also more likely to report a race/ethnicity other than non-Hispanic white. The unbanked tended to have lower socioeconomic status than fringe borrowers.

The matching procedure created matched data sets with a median of 1,472 respondents for fringe borrowing and 1,437 for unbanked status. Descriptive statistics for a matched data set are shown in exhibit 1. After matching, all covariates aside from rent-to-own purchasing use in the fringe borrowing analysis had median standardized mean differences less than 0.10 (see appendix A1),³⁵ which indicates that the procedure successfully matched exposed respondents to unexposed respondents who were comparable on observed confounders.

In adjusted propensity score–matched analyses, past-year fringe borrowing was associated with 38 percent higher prevalence of poor or fair health, while being unbanked was associated with 17 percent higher prevalence (exhibit 2). Sensitivity analyses supported these findings. Past-year use of check-cashing services and tax refund anticipation loans had negligible health effects (exhibit 3). Given minimal unmeasured confounding, this is what we hypothesized, since check cashing services and tax refund anticipation loans are transactional rather than debt creating and thus unlikely to substantially harm health. Excluding respondents who reported poor or fair health before baseline did not change the fringe borrowing prevalence ratio and increased the unbanked status prevalence ratio, though both estimates had poor precision. Excluding respondents who reported disability income or being uninsured before baseline did not change the prevalence ratios (appendix A2).³⁵ Finally, two-stage least squares analyses also suggested that fringe borrowing was associated with higher prevalence of poor or fair self-rated health (appendix A3).³⁵

Discussion

In this study we found that fringe borrowing and being unbanked were associated with worse self-rated health. Our analyses had several strengths. First, to our knowledge, this is the first empirical analysis of the association between fringe borrowing, unbanked status, and health. Second, few public health studies have leveraged the CPS's panel structure to follow respondents longitudinally. Third, we matched on an array of confounding factors, and after matching, all covariates were well balanced across exposure

EXHIBIT 1

Descriptive statistics for a propensity score-matched sample stratified by household fringe borrowing and unbanked status

	Fringe borrowing					Unbanked status				
	No		Yes		SMD	No		Yes		SMD
	N	%	N	%		N	%	N	%	
N	1,006	65.6	526	34.4		986	64.6	540	35.4	
Education					0.02					0.02
At least a bachelor's degree	164	16.3	87	16.5		36	3.7	19	3.5	
Some college	333	33.1	171	32.5		201	20.4	110	20.4	
High school	361	35.9	193	36.7		396	40.2	215	39.8	
Less than high school	148	14.7	75	14.3		353	35.8	196	36.3	
US-born	902	89.7	475	90.3	0.02	731	74.1	392	72.6	0.04
Race/ethnicity					0.03					0.03
Hispanic	106	10.5	59	11.2		265	26.9	149	27.6	
Non-Hispanic black	195	19.4	98	18.6		255	25.9	141	26.1	
Non-Hispanic white	616	61.2	324	61.6		352	35.7	193	35.7	
Other	89	8.8	45	8.6		114	11.6	57	10.6	
Male	425	42.2	236	44.9	0.05	424	43.0	219	40.6	0.05
Employment status					0.03					0.05
Employed	620	61.6	218	60.5		446	45.2	234	43.3	
Not in the labor force	297	29.5	159	30.2		452	45.8	252	46.7	
Unemployed	89	8.8	49	9.3		88	8.9	54	10.0	
Had health insurance	799	79.4	427	81.2	0.04	684	69.4	372	68.9	0.01
Year					0.03					0.04
2012	382	38.0	203	38.6		358	36.3	206	38.1	
2014	351	34.9	177	33.7		339	34.4	178	33.0	
2016	273	27.1	146	27.8		289	29.3	156	28.9	
Residence in a metro area					0.03					0.05
Yes	765	76.0	397	75.5		748	75.9	399	73.9	
No	222	22.1	117	22.2		230	23.3	136	25.2	
Unknown	19	1.9	12	2.3		8	0.8	5	0.9	
Veteran	95	9.4	47	8.9	0.02	37	3.8	19	3.5	0.01
Food stamps receipt	262	26.0	142	27.0	0.02	366	37.1	232	43.0	0.12
Unbanked	125	12.4	69	13.1	0.02	— ^a	— ^a	— ^a	— ^a	— ^a
Rent-to-own purchasing use ^b	78	7.8	55	10.5	0.09	— ^a	— ^a	— ^a	— ^a	— ^a
Check cash use ^b	213	21.2	120	22.8	0.04	— ^a	— ^a	— ^a	— ^a	— ^a
RAL use ^b	66	6.6	49	9.3	0.10	— ^a	— ^a	— ^a	— ^a	— ^a
	Mean	SD	Mean	SD	SMD	Mean	SD	Mean	SD	SMD
Age (years)	44.3	13.2	44.1	13.5	0.01	44.3	14.4	44.1	14.1	0.02
Equivalized income (\$) ^c	2.4	2.3	2.5	3.4	0.03	1.6	3.2	1.4	1.8	0.07

SOURCE Authors' analysis of data merged across consecutive June Federal Deposit Insurance Corporation supplements and March Annual Social and Economic Supplements of the Current Population Survey, 2011-16. **NOTES** The propensity score-matched sample consisted of people randomly sampled from the bootstrapped matching procedure described in the text. SMD is standardized mean difference. SD is standard deviation. RAL is refund anticipation loan. ^aThese variables were not matched on in the analyses of the relationship between unbanked status and health because we hypothesized they were mediators of the relationship, not confounders. ^bPast-year household use of service. ^cEquivalized income is income adjusted to household size using the following formula, used by the Organization for Economic Cooperation and Development: (household income/10000) / (1 + (0.7ⁿnumber of non-head of household adults + 0.5ⁿnumber of children)). See Organization for Economic Cooperation and Development. What are equivalence scales? [Internet]. Paris: OECD; [cited 2018 Feb 5]. Available from: <http://www.oecd.org/eco/growth/OECD-Note-EquivalenceScales.pdf>

groups. Finally, sensitivity analyses indicated that reverse causation and unmeasured confounding were unlikely explanations for the observed results. Nonetheless, given the limitations of our data, we could not rule out the influence of these factors.

POLICY IMPLICATIONS Addressing the health effects of fringe borrowing and being unbanked can be approached from three angles: regula-

tions, alternative banking institutions, and social welfare programs and labor protections.

► **REGULATIONS:** Regulations alone are unlikely to suffice. Many states have APR limits on fringe loans—typically 36 percent,²¹ which is less than a tenth of APRs charged in states with no limit.⁴⁰ Borrowing decreases after such regulations are implemented because fringe lending becomes unprofitable.³⁶ However, basic

needs may be left unmet or be satisfied at greater cost. Other potentially beneficial regulations, some of which may become federal, include limiting borrowing frequency and capping payments based on borrowers' income.⁴⁰ Some states have reported positive effects from these measures. For example, after North Carolina banned payday lending, over 90 percent of low- and middle-income households reported that the ban had neutral or positive effects on them.⁴¹ However, strict regulations may force consumers who lack other options into high-cost alternatives such as paying late fees.²¹ Consequently, some researchers, pointing to states such as Colorado, have argued for moderate regulations that cheapen credit without restricting supply. Nonetheless, Colorado's 120 percent payday loan APR limit is higher than the limit supported by consumer groups.⁴⁰ Moreover, lenders often skirt regulations by disguising their services and moving online.^{21,36}

Concerning mainstream banks, some researchers have argued that giving banks and credit unions clearer guidance about permissible underwriting practices, loan terms, and pricing and allowing them to charge realistic APRs would facilitate small-dollar lending.⁴⁰ However, providing financial services to low-income consumers is expensive: They often hold low deposits, borrow small amounts, and frequently default.⁴ More regulation is unlikely to enable banks and credit unions to offer sufficient affordable services to substantially reduce the need for fringe banking.²¹ Moreover, recent scandals concerning discriminatory lending, fraudulent accounts, and overdraft fees raise concerns about the role of commercial banks in low-income lending.²¹ Thus, while certain regulations (such as limits on APRs and fee caps) might be beneficial, in isolation they cannot be relied upon to improve financial well-being and health.

► **ALTERNATIVE BANKING INSTITUTIONS:** Recent government initiatives to provide the poor with financial services have relied on mainstream banks and credit unions. However, initiatives such as the FDIC's Small-Dollar Loan Pilot Program and the Community Reinvestment Act of 1977 reveal tensions between low-income communities' need for affordable services and the banks' need for profit. While the Community Reinvestment Act has encouraged banks to lend in underserved communities, those loans are often subprime.⁴ Meanwhile, the Community Development Banking Act of 1994, which aimed to create community-oriented banks in low-income communities (called community development financial institutions), was premised on the proposition that these institutions could serve the poor and maintain their profitability

EXHIBIT 2

Association between past-year fringe borrowing or unbanked status and poor or fair health

	Prevalence ratio	95% CI	N ^a
FRINGE BORROWING			
Unadjusted	1.40	1.14, 1.72	1,473
Adjusted ^b	1.38	1.14, 1.68	1,472
UNBANKED STATUS			
Unadjusted	1.21	1.02, 1.43	1,434
Adjusted ^c	1.17	0.99, 1.39	1,437

SOURCE Authors' analysis of data merged across consecutive June Federal Deposit Insurance Corporation supplements and March Annual Social and Economic Supplements of the Current Population Survey, 2011–16. **NOTES** The exhibit shows prevalence ratios from Poisson models calculated on propensity score-matched samples: specifically, the ratio of prevalences of poor/fair health among those reporting (versus not reporting) fringe borrowing or unbanked status. See the text for more explanation. CI is confidence interval. ^aMedian number of respondents in matched samples across bootstrap repetitions. ^bAdjusted for use of check cashing, rent-to-own purchasing, and refund anticipation loan services, unbanked status, income quartiles, high school education, and non-Hispanic white. ^cAdjusted for income quartiles, education (all categories), and race/ethnicity (all categories).

with minimal government assistance. However, most Community Development Banking Act funds have been used for real estate and business development, not banking for the poor, and many community development financial institutions have struggled to survive.⁴

Reconciling the needs of low-income communities and mainstream commercial banks remains problematic. In the past, banking services for these communities were often provided by credit unions and savings and loan associations

EXHIBIT 3

Sensitivity analyses to assess potential unmeasured confounding and reverse causation in the relationship between fringe borrowing or unbanked status and self-rated health

	Prevalence ratio	95% CI	N ^a
CONTROL EXPOSURES^b			
Check cashing use in past year	1.14	0.95, 1.37	1,473
Tax refund anticipation loan use	1.01	0.72, 1.41	698
EXCLUDING PEOPLE IN POOR OR FAIR HEALTH BEFORE BASELINE^c			
Fringe borrowing	1.37	0.93, 2.01	7,534
Unbanked status	1.40	1.01, 1.92	7,843

SOURCE Authors' analysis of data merged across consecutive June Federal Deposit Insurance Corporation supplements and March Annual Social and Economic Supplements of the Current Population Survey, 2011–16. **NOTES** The exhibit shows prevalence ratios from Poisson models calculated on propensity score-matched samples for the control exposure analyses and calculated on the full sample for the reverse causation analyses: specifically, the ratio of prevalences of poor/fair health among those reporting (versus not reporting) check cashing and tax refund anticipation loan use or fringe borrowing and unbanked status. See the text for more explanation. CI is confidence interval. ^aMedian number of respondents in matched samples across bootstrap repetitions. ^bPropensity score-matched analyses were matched on the variables described in the text and adjusted for the use of fringe loans, other fringe banking services, unbanked status, income quartiles, high school education, and non-Hispanic white. If unmeasured confounding were minimal, we expected to find null or small prevalence ratio estimates. ^cAnalyses (not propensity score matched) adjusted for the variables described in the text. If reverse causation were minimal, we expected to find estimated prevalence ratios similar to those identified in the main analyses (see exhibit 2).

that were outside the mainstream banking sector. Similarly, the government could now foster appropriate services by providing community development financial institutions with stronger regulatory oversight and more financial support.⁴ Government-supported and community-led lending circles, which pool community resources to provide low-cost credit, are another option.⁴ Resurrecting a US Postal Service banking system, which existed from 1910 to 1967 and has analogues in other countries, could address geographic barriers to banking in low-income communities (because of the ubiquity of post offices) and the costs of low-income banking (given a nonprofit mission).⁴ Municipal banks could serve similar functions.⁴² Finally, mobile banking, a growing industry in the US and elsewhere, offers inexpensive and easy-to-use services attractive to the underbanked.³ However, they require customers to have internet access and digital literacy, which could pose a barrier for the poor and elderly, and their services are difficult to regulate.⁸

► **SOCIAL WELFARE PROGRAMS AND LABOR PROTECTIONS:** With nearly half of Americans reporting that they would be unable to produce \$400 cash for an emergency²² and the common use of fringe loans for necessities,¹⁸ the core of the fringe banking problem is financial instability and scarce resources. Robust public provision

of necessities such as public health programs, health care, housing, and disability assistance—coupled with initiatives to raise incomes, such as minimum wage increases and support for labor protections—would address the root causes of demand for fringe services.¹⁸ One study found that California's early Medicaid expansion was associated with an 11 percent reduction in payday borrowing,⁴³ while another found that each \$1 increase in the state-level minimum wage was associated with a 40 percent reduction in payday borrowing.⁴⁴ These programs also have salutary effects on other social determinants of health.⁴⁵ Addressing broader structural factors that deepen financial instability and poverty for marginalized groups, such as segregation and mass incarceration, might also reduce fringe borrowing and improve health equity.⁴⁶

CONCLUSION This research adds to the growing evidence that connects specific kinds of household debt and financial exclusion to poor health. Effectively addressing the health consequences of fringe borrowing and being unbanked will likely require expanding social welfare programs and labor protections. Future research should explore in more depth how the two-tier US financial system—one for the wealthy and one for the poor—affects health and worsens health inequities. ■

An abbreviated version of this article was presented in a poster session at the Annual Interdisciplinary Population

Health Research Conference, in Austin, Texas, October 2, 2017. Anjum Hajat's work was supported by strategic hire

funds provided by the University of Washington School of Public Health and the Bill & Melinda Gates Foundation.

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