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Abstract

Legal efforts to expand health insurance coverage have relied on traditional economic theory. Despite expanded subsidies and some state mandates, nearly 30 million Americans are uninsured, including many who could afford it. Where economic self-interest has not fostered enrollment, we test whether moral framing around community or responsibility could be more effective.

We present a pre-registered field experiment with a state government (Maryland) dataset of uninsured residents (N=16,477). We randomized to four conditions: (a) no-contact control, (b) affordability messaging (status quo), (c) responsibility messaging, or (d) community messaging, and found responsibility and community messages most effective (an 18.5% change).

A. Introduction

Broad insurance coverage is important to people who need healthcare. Those without insurance are three times as likely to go without needed care due to cost.[2] Broad insurance coverage is also important to healthcare providers seeking to get paid for services rendered and important to health insurers seeking to spread risk across a wider range of people.

To encourage health insurance uptake where it cannot be mandated,[3] lawmakers and policymakers have focused on consumers' economic self-interest, in particular by offering the carrot of subsidies to reduce cost.[4] For some consumers, this strategy has been effective.[5] Still, many consumers continue to see insurance as a bad deal, either because they rationally exploit private risk information, seek to get free care when needed (an externality), or irrationally misperceive the value of insurance due to cognitive biases (e.g., optimism).[6]

As a result, nearly 30 million Americans remain uninsured, including many who could afford it.[7] In the wake of Medicaid unwinding with the end of the public health emergency, that number is increasing.

Lawmakers' focus on affordability is understandable. In most surveys that ask respondents to self-report why they are uninsured, a majority report that they perceive insurance to be unaffordable (though

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[2] Tolbert J, Drake P, Damico A. Key facts about the uninsured population [Internet]. KFF; Dec 2022. Available from: https://www.kff.org/uninsured/issue-brief/key-facts-about-the-uninsured-population/

[3] Tax Cuts and Jobs Act of 2017, H.R. REP. No. 115-466, at 324 (2017) (Conf. Rep.) (effectively repealing the ACA's Individual Mandate).

[4] Epstein WN, Robertson CT, Yokum D, Ko H, Wilson KH, Ramos M, et al. Can moral framing drive insurance enrollment in the United States? J Empir Leg Stud. 2022; 19(4):799-1292. Available from: https://onlinelibrary.wiley.com/doi/epdf/10.1111/jels.12334

[5] Banthin, J, Buettgens, M, Simpson, M, Wang R, What if the American Rescue Plan's Enhanced Marketplace Subsidies Were Made Permanent? Estimates for 2022 [Internet]. Robert Wood Johnson Foundation & Urban Institute; April 2021. Available from: https://www.urban.org/sites/default/files/publication/104072/what-if-the-american-rescue-plans-enhanced-marketplace-subsidies-were-made-permanent-estimates-for-2022.pdf.

[6] Epstein, WN. Private Law Alternatives to the Individual Mandate. Minnesota L Rev 2020; 104: 1429-1498.

[7] Keisler-Starkey K, Bunch LN. Health Insurance Coverage in the United States: 2021. United States Census Bureau; Sep 2022. Report No.: P60-278. Available from: https://www.census.gov/library/publications/2022/demo/p60-278.html

many confessed they had not specifically checked the prices of insurance net of subsidies).[8] Still, policymakers have paid insufficient attention to respondents who note *other reasons* for uninsurance. In a 2019 survey, 26% of respondents cited reasons other than affordability for being uninsured, including 21.3% who said they did not need or want insurance.[9] These surveys are consistent with theory suggesting that cognitive biases may limit insurance uptake.

Although lawmakers and marketers of health insurance have focused on themes of economic rationality, there is other evidence that Americans view at least some aspects of health insurance through a moral lens. For example, in an October 2020 poll, 79% of Americans said that they did not think that the Supreme Court should overturn the legal protections for people with pre-existing conditions. That consensus was shared across Democrats (91%), Independents (81%), and Republicans (66%).[10] Americans' growing political commitment to this principle may reflect moral commitments, including forms of solidarity, altruism, and personal responsibility, that may combat both rational and irrational reasons for not enrolling in insurance. Recent work has shown a link between health behaviors and moral considerations.[11]

Outside healthcare, moral framing has been successfully deployed to prompt consumer behaviors, exploiting the "halo effect" or the "noble edge" effect – where people are more inclined to purchase if a product or seller is viewed as having moral qualities. For example, a shoe company markets their

[8] National Health Interview Survey [Internet]. National Center for Health Statistics; 2019. Available from: https://www.cdc.gov/nchs/nhis/2019nhis.htm

[9] 2019 National Health Interview Survey

[10] KFF Newsroom. Tracking Poll: A Large and Growing Majority, Including Republicans, Does Not Want the Supreme Court to Overturn the ACA's Protections for People with Pre-Existing Conditions [Internet]. KFF; Oct 2020. Available from: https://www.kff.org/health-reform/press-release/tracking-poll-a-large-and-growing-majority-including-republicans-does-not-want-the-supreme-court-to-overturn-the-acas-protections-for-people-with-pre-existing-conditions

[11] Pizza L, Ronfard S, Coley JD, Kelemen D. Why we should care about moral foundations when preparing for the next pandemic: Insights from Canada, the UK and the US. Plos one. 2023 May 12;18(5):e0285549.

product using a "buy one, give one" slogan.[12] Some consumers align their identities with having positive social impact, even if that comes with higher individual cost.[13]

A product's environmental impact can prompt purchasing behavior by increasing cognitive salience, prompting moral behavior, and reducing search cost.[14] Recent work has employed artificial intelligence to target environmentally-friendly products to consumers predisposed to buying sustainable and ethical products.[15] Notwithstanding lab and survey results, however, some studies have found limited efficacy

[12] Hamby A. One for me, one for you: cause-related marketing with buy-one give-one promotions. Psychology & Marketing. 2016 Sep;33(9):692-703.

[13] Schwartz D, Loewenstein G, Agüero-Gaete L. Encouraging pro-environmental behaviour through green identity labelling. Nat Sustain. May 2020;3:746-52. Available from: https://doi.org/10.1038/s41893-020-0543-4

[14] Lin W, Nayga RM. Green identity labeling, environmental information, and pro-environmental food choices. Food Policy. 2022;106. Available from: https://www.sciencedirect.com/science/article/abs/pii/S0306919221001664?via%3Dihub; Becchetti L, Salustri F, Scaramozzino P. Nudging and corporate environmental responsibility: A natural field experiment. Food Policy. 2020;97. Available from: https://www.sciencedirect.com/science/article/abs/pii/S030691922030155X; Edenbrandt AK, Lagerkvist CJ. "Is Food Labelling Effective in Reducing Climate Impact by Encouraging the Substitution of Protein Sources? Food Policy. 2021; 101. Available from: https://www.sciencedirect.com/science/article/pii/S0306919221000762

[15] Hermann E. Leveraging artificial intelligence in marketing for social good—an ethical perspective. J Bus Ethics. 2022;179:43–61. Available from: https://doi.org/10.1007/s10551-021-04843-y; Matz SC, Appel RE, Kosinksi M. Privacy in the age of psychological targeting. Curr Opin Psychol. Feb 2020;31:116-21. Available from: https://pubmed.ncbi.nlm.nih.gov/31563799/ ; Matz SC, Menges JI, Stillwell DJ, Schwartz HA. Predicting individual-level income from Facebook profiles. PLoS One. 2019 Mar 28;14(3):e0214369. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6438464/; Matz SC, Stillwell D, Müller SR, Bos MW. Predicting the personal appeal of marketing images using computational methods. J Consum Psychol. 2019;29(3):370-90. Available from: https://myscp.onlinelibrary.wiley.com/doi/10.1002/jcpy.1092

in increasing purchases.[16]

As part of a broader research agenda on private law solutions to healthcare policy, we test whether moral framing could support health insurance uptake. Our efforts to date are detailed in our recent publication.[3] Prior work has included collecting and analyzing the universe of advertisements from the state and Federal exchanges, finding that 96% spoke to self-interested frames of affordability and coverage. Almost none spoke to moral frames. We also conducted an online vignette experiment to determine what advertisement framings would lead to greater uptake, and a series of focus groups in English and Spanish to elaborate on these findings.

The prior work culminated in an online advertisement experiment targeting higher-income Americans nationwide (who could likely afford to purchase insurance) during the 2021-2022 open-enrollment period. In the online experiment (N ≈ 5.6m), consumers saw advertisements from a control group (highlighting economic self-interest, with real ads collected from the field) versus three experimental groups, whose messages were oriented around helping others, helping community, or responsibility themes.[3] We measured whether consumers clicked to "shop now" on the HealthCare.gov website (1.01% click-through rate (CTR) in English and 1.38% CTR in Spanish at baseline). "Helping community" ads increased CTR over the control by 14.5% in English and by 33.7% in Spanish. Ads emphasizing "responsibility" increased CTR by 30.3% in English, though reduced CTR by 14.7% in Spanish. "Helping others" ads increased CTR by 9.8% in English but decreased CTR by 13.9% in Spanish. All of these results were significant at the .01 level and were robust to demographic controls and subgroup analyses, using individual and county-level covariates.

Although the optimal approach varies, the status quo self-oriented message of economic rationality was not the top-performing approach for either language group, which has important implications for policymakers and future law reform efforts. If a $100 million advertising budget (as the Federal government deployed in 2017)[17] were moved from focusing on the self-oriented theme to the responsibility theme we piloted, and if scaling up is linear, the improved strategy could reap an additional 3.52 million clicks–that many more people beginning to shop for health insurance coverage.[18]

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[16] Eby B, Carrico AR, Truelove HB. The influence of environmental identity labeling on the uptake of pro-environmental behaviors. Clim Change. 2019;155(4):563-80.

[17] Gorenstein, J. HHS documents show Obamacare marketing was working in 2016; Sept. 2017. Available from: https://www.marketplace.org/2017/09/20/obamacare-marketing-worked-accord-hhs-documents/

[18] Seervai S. Cuts to the ACA's outreach budget will make it harder for people to enroll. The Commonwealth Fund; Oct 2017. Available from: https://www.commonwealthfund.org/publications/other-publication/2017/oct/cuts-acas-outreach-budget-will-make-it-harder-people-enroll

Of course, not all clicks will result in insurance enrollments, an outcome that our prior research could not observe.

In addition to this forgoing research about what is the optimal message to encourage health insurance uptake, there is also a question of whether health insurance exchanges are doing sufficient outreach to uninsured individuals, using any message whatsoever, or whether additional investments might be worthwhile. Following the de facto repeal of the federal individual mandate, most states are not even to identify their uninsureds and some have laws prohibiting their revenue departments from sharing that information with their state exchange. Our study contributes to a growing public administration literature on the value of emails, postcards, and other such outreach to motivate desired behaviors.

For instance, in a randomized controlled study in Oregon, Wright et al., found that low-cost mass marketing to Medicaid eligibles, who had not enrolled, substantially increased enrollment.[19] Similarly, in a 2015 randomized clinical trial of 744,510 individuals who had started the enrollment process on healthcare.gov but not completed it, Yokum et al. found that sending a low-cost ($0.55) letter resulted in 1753 marginal enrollments.[20] California experimented with sending deadline reminders to Marketplace-eligible populations with typically low take-up. The effort cost $0.69 per letter but raised enrollment by 1.3 percentage points and increased the average consumer's willingness to pay for insurance by at least $25 per month.[21] In 2017, the IRS sent informational letters to 3.9 million households that paid a tax penalty for lacking health insurance under the Affordable Care Act (the so-called individual mandate, which has since been zeroed out) and found that those who received letters were 1.1% more likely to enroll in coverage during the two years following the intervention.[22] The study also finds evidence that the additional coverage induced by sending the letters reduced mortality among those who enrolled. Our study contributes to a growing public administration literature on the value of

[19] Wright BJ, Garcia-Alexander G, Weller M, Baicker K. Low-cost behavioral nudges increase Medicaid take-up among eligible residents of Oregon. Health Aff. 2017;36(5). Available from: https://doi.org/10.1377/hlthaff.2016.1325

[20] Yokum D, Hopkins D, Feher A, Safran E, Peck J. Effectiveness of behaviorally informed letters on health insurance marketplace enrollment: a randomized clinical trial. JAMA Health Forum 2022;3(3):e220034. Available from: https://jamanetwork.com/journals/jama-health-forum/fullarticle/2789707

[21] Feher, A, Menashe, I, Miller, J, Wolf, E. Personalized Letters And Emails Increased Marketplace Enrollment Among Households Eligible For Zero-Premium Plans. Health Aff. 2023;42(4). Available from: https://doi.org/10.1377/hlthaff.2022.01301.

[22] Goldin, Jacob, Lurie, Ithai Z, McCubbin, Janet. "Health Insurance and Mortality: Experimental Evidence from Taxpayer Outreach," 2021. *The Quarterly Journal of Economics*, 136(1): 1–49, https://doi.org/10.1093/qje/qjaa029.

emails, postcards, and other such outreach to motivate desired behaviors. To our knowledge, it is the first field study on the effect of moral framing on insurance enrollment.

B. Methods

We conduct a randomized field experiment to determine the efficacy of a marginal advertisement using our top-performing framings from our previous work. We collaborate with a state health insurance exchange and observe both engagement with our outreach emails and health insurance uptake at the household level.

B.1 Research Setting

Two states initially agreed to participate in this study, and we had intended to pool the data across states. Because of the substantial unplanned differences in the implementations of our experiment in one state, we depart from our pre-registered analysis plan and instead report on only the protocol-compliant state here.[23]

We implemented our experiment in Maryland, during the 2023 open enrollment period.[24] With a population of 6.16 million, Maryland is a relatively high-income jurisdiction (median income of $91,431, compared to $69,021 nationally), though with significant inequality (10.3% under the federal poverty level, compared to 11.6% nationally).[25] We also note that 65.4% of Maryland voters supported Joe Biden in the 2020 election (as compared to 51.3% nationally), which is potentially relevant to our theory that moral and political commitments can be mobilized to direct consumer behavior.[26]

[23] Our pre-registered analysis (osf.io/qmd6h) specified that we would pool the data from Colorado as well. Those analyses, which will be shown on OSF, yield null results (not shown).

[24] Section 1321 of the Affordable Care Act provides that states may elect to implement an Exchange, which is a mechanism for organizing the health insurance marketplace to permit individuals and small employers to easily compare plans. In addition to increasing transparency and facilitating shopping, Exchanges are supposed to create more efficient and competitive insurance markets. See https://www.cms.gov/CCIIO/Resources/Files/guidance_to_states_on_exchanges. For states that elected not to implement their own Exchange, the federal government implemented one for them at healthcare.gov. PPACA 1321(c).

[25] U.S. Census Bureau. Quick Facts. April 2022. Available from: https://www.census.gov/quickfacts

[26] The Cook Political Report. 2020 National Popular Vote Tracker. 2020. Available from: https://www.cookpolitical.com/2020-national-popular-vote-tracker

In terms of health insurance, 7.1% of Marylanders under age 65 lack coverage, compared to a national rate of 9.8%. Maryland operates its own health insurance exchange, rather than use the Federal Exchange. It also has a highly-concentrated (uncompetitive) individual health insurance market, as indicated by a Herfindahl-Hirschman Index score above 2,500 (5,566 for Maryland), only somewhat higher than the national average of 5,201.[27] Nonetheless, in 2022, the average monthly price of a lowest-cost silver premium plan was $319 in Maryland, below the national average of $428.[28] Maryland offers an Earned Income Tax Credit (EITC) equal to 50% of the federal tax credit for working people with low to moderate income; access requires filing a tax return.[29]

We selected Maryland largely because it has a dataset in which residents have self-identified that they were uninsured when filing their state taxes. Marylanders are encouraged to check a box on their state tax form, "authoriz[ing] the Comptroller of Maryland to share information from this tax return with the Maryland Health Benefit Exchange for the purpose of determining pre-eligibility for no-cost or low-cost health care coverage."[30] We note that there is substantial variation across states in the availability of this information, which may have important policy consequences.

B.2 Sample

Our research population was formed out of the universe of "box checkers." First, each box checker was assigned to a unique household. In Maryland this corresponds to a single Form 502. We note that over 93% of all married couples use the "Married Filing Jointly" filing status.[31] Thus, we believe this is a reasonable approximation of "household" for these purposes. We applied the following filters: (1) the household has both an email address and a mailing address listed; (2) the household has not

[27] Individual Insurance Market Competition [Internet]. KFF; 2019. Available from: https://www.kff.org/other/state-indicator/individual-insurance-market-competition

[28] Average Marketplace Premiums by Metal Tier, 2018 - 2023 [Internet]. KFF; 2023. Available from: https://www.kff.org/health-reform/state-indicator/average-marketplace-premiums-by-metal-tie

[29] Maryland Department of Human Services, Earned Income Tax Credit, https://dhs.maryland.gov/weathering-tough-times/earned-income-tax-credit/#:~:text=If%20you%20qualify%20for%20the,of%20the%20federal%20tax%20credit (last accessed June 16, 2023).

[30] Comptroller of Maryland. Resident Income Tax Return Form 502 [form on Internet]. Available from: https://www.marylandtaxes.gov/forms/21_forms/502.pdf

[31] IRS. SOI Tax Stats - Individual Statistical Tables by Filing Status [Internet]. Available from: https://www.irs.gov/statistics/soi-tax-stats-individual-statistical-tables-by-filing-status

subsequently requested not to be contacted; and (3) at least one person in the household has not yet signed up for insurance on the state health exchange or Medicaid. Additionally (4), before sending the postcards, all names were run through a U.S. Postal Service database, which looks for bad addresses, and either fixes them or excludes them from the database.

After these screens, the dataset had 16,477 households. Using the statewide population per household ratio of 2.62, we estimate that 43,170 Marylanders were included in this sample.[32] Given an estimated 364,000 uninsured Marylanders overall,[33] the sample consists of 11.8% of them. Appendix A explains our randomization procedure.

B.3 Exposures (Stimuli)

We worked with Maryland's health exchange and the marketing agency GMMB to create three bi-lingual postcards, differing only in their text. (See Appendix B.) The text was constructed in collaboration with the marketing team for the Exchange and was translated into Spanish, and shown just below the English text. In the first intervention condition ("Affordability"), the English text read, "Find a low-cost quality health plan today. Get peace of mind with coverage." This text was modeled on the text that the Maryland Health Benefit Exchange had used in prior communications, focused on affordability. In the second intervention condition ("Responsibility"), the text read, "It's your responsibility to get covered. It's up to you to take care of your health. Get insured." Finally, the third non-control condition ("Community") read, "We all benefit when everyone in our community gets covered. An insured community is a protected community. Enroll now." The moral framing language was modeled on the best-performing text from the helping community and responsibility frames in our previous advertising experiment. All postcards had identical imagery, chosen by our field partner; an image of two young women hugging. All postcards also listed the website, MarylandHealthConnection.gov. The postcards were sent on November 9, 2022, more than two months prior to the enrollment deadline.

We also crafted an email advertisement tracking these same themes, manipulating the subject line and first sentences of the email body. Emails used the same language as the postcards and contained a link to MarylandHealthConnection.gov. Our field partner believed that it was important to emphasize the value of coverage and affordability and to remind recipients of the deadline, even while also using the moral frames, so all three emails included such language. (See Appendix C for copy.) The email came from an official Exchange email address (MarylandHealthConnection@info.maryland.gov). The email was sent November 29, 2022, 1.5 months ahead of the enrollment deadline.

Each household in our sample received one card (in the three intervention groups) or no card (in the Control), along with a matching email (in the three intervention groups) or no email (in the Control).

[32] https://www.census.gov/quickfacts/MD

[33] https://www.kff.org/other/state-indicator/total-population

B.4 Analyses Performed

Our primary analyses are to examine whether the receipt of a particular messaging strategy led to greater engagement with emails and insurance enrollment. Initially, we can simply read the bivariate proportions, exploiting our randomized experiment. For additional precision, we then utilize the regression specification shown in Appendix A. We present linear regressions in the body and provide logistic regressions in the supplemental tables.

All primary analyses were performed in STATA version 18. Some supplemental analyses were performed in Python 3.11.2 using statsmodels version 0.14.0 and Microsoft Excel 365.

C. Results

We report on both a proximate outcome, engagement with our email manipulations, as well as more distal ultimate outcomes, insurance enrollment.

C.1 Email Engagement

Using a platform for mass email marketing, we observed whether the sent emails were bounced or otherwise failed to reach their recipient, whether they were opened, and if so, whether the link within the message was clicked. Note that the messaging manipulation was included in the subject of the email, so it could have an effect on health insurance uptake, even if not opened. These analyses of email performance were not pre-registered.

The Maryland Exchange sent 11,977 emails, 292 failed to reach their recipients, and 5,712 were opened, with similar rates across experimental conditions (46% for Affordability, 52% for Responsibility, and 49% for Community). Our primary analysis for this data is whether respondents click on the link within the email, the proximate behavioral step to shop for health insurance coverage. We define the denominator as the non-failed emails, and ignore whether or not the email was opened. Exhibit 1 shows this outcome with 95% confidence intervals. One of the moral-framed messages, Responsibility, yielded substantially more clicks (at 2.3%) compared to Affordability (1.7%) or Community (1.6%).

C.2 Insurance Enrollment

Exploiting the randomized design, Exhibit 2 shows differences in insurance uptake by experimental condition, with 95% confidence intervals. Generally, it is clear that all the intervention groups outperform the no-contact Control group, and the moral frames appear somewhat stronger than the Affordability frame. Exhibit 3 provides regression analyses (N = 16,477), using qualified health plan (QHP) enrollment (control group mean = 3.109%), Medicaid enrollment (2.686%), and any plan enrollment (5.795%) as the outcomes.

Compared to the no-contact Control, we find that the status-quo Affordability frame was the most significant boost for QHP enrollment (0.822 percentage points), but we observe a non-significant negative effect on Medicaid enrollment, surprisingly. The two effects combined for Affordability to yield no significant boost to overall enrollment, although the coefficient is positive (0.785 percentage points).

In contrast, Responsibility-framing boosted QHP enrollment significantly (0.699 percentage points). It had a positive non-significant effect on Medicaid enrollment. It had an overall positive and highly-significant effect (1.072 percentage points) on overall insurance enrollment.

With slightly smaller coefficients, a similar story is told for Community-framing, with a positive, nonsignificant boost to QHP enrollment and a positive nonsignificant boost to Medicaid enrollment, combining to produce a significant 1.047 percentage point boost to overall enrollment.

To summarize, both of the moral frames (Responsibility and Community) showed significant increases in overall insurance uptake, but the Affordability frame yielded a smaller difference that cannot be distinguished from the null. To put the largest effect (1.047 percentage points on overall enrollment for Responsibility), in relative terms, it is an 18% increase over the 5.795 Control group mean.

Exhibit S2 examines effects on QHP enrollment within population subsets in Maryland. We see all three messages being most effective in higher-income zip codes (where there is a lower proportion below the federal poverty level), suggesting that these are households that are able to buy insurance but benefit from the nudge of a messaging intervention. In an exploratory analysis, Exhibit S3 shows zipcodes in the upper half of the income distribution and finds both Affordability (1.42 percentage points, p=.020) and Responsibility (1.35 percentage points, p=.027) to have significant effects. Exhibit S2 also suggests a trend towards Community being more effective as the Hispanic population grows as a proportion. Exhibit S4 likewise shows effects on Medicaid enrollment within population subsets, without striking findings. For overall insurance enrollment, combining these two outcomes, Exhibit S5 suggests that surprisingly the Affordability framing has less effectiveness among those in poorer areas, perhaps because it does not ring true that insurance is actually affordable for them. Of course, we cannot rule out multiple testing leading to false positives in these exploratory analyses.

We also conducted hypothesis tests comparing the framing messages against each other rather than against the no-contact control. Thus, we cannot rule out the hypothesis that the messages have equal effects.

D. Discussion

D.1 Limitations

While our study benefitted from a relatively large sample size and a randomized controlled design, it had certain limitations. One limitation is that we lacked household-level or individual-level covariates, and instead can only use zipcode-level data, which creates an ecological inference problem. Although

we are not concerned with confounds, individual-level covariates would reduce the level of unaccounted variation in our models, and allow us to explore effects in interesting data subsets.

Postcards and emails may not be the optimal modes of outreach, though we did find substantial engagement with the emails, in terms of clicks (see Exhibit 1). We considered sending text messages, as well, but at the time of the experiment, it was not clear that text messages were legally permitted. Subsequently, the Federal Communications Commission issued guidance clarifying that states can send text messages to prompt insurance enrollment without violating the Telephone Consumer Protection Act (TCPA).[34] Future work should explore the efficacy of sending text messages utilizing moral framing.

There are many potential ways to express the themes we were interested in testing, including both the status quo affordability theme and the moral themes. Within each theme, we were not able to empirically compare the effectiveness of different potential versions of these messages, and thus cannot know that we used the optimal message. However, the chosen messages were based on the prior phases of work intended to optimize them.[3]

Similarly, we were unable to target specific messages to households depending on whether they preferred English or Spanish. Each message was instead presented bilingually. This is a significant limitation of our current methods, given that our prior work with Google ads shows that effective messages with one language-group can actually backfire with the other (e.g., ads emphasizing "responsibility" increased CTR by 30.3% in English, though reduced CTR by 14.7% in Spanish).[3]

All postcards had identical imagery, chosen by our field partners. The image selected (two young women hugging) may be more resonant with some respondents (e.g., perhaps those who identify with a similar demographic) and consonant with some themes (e.g., community) but may create cognitive dissonance with other groups (e.g., older persons, conservatives) or themes (e.g., responsibility or affordability). Future work should explore better image-respondent and image-theme mapping.

Our experiment in late 2022 and early 2023 may have been affected by the COVID pandemic, which was then waning. Themes of responsibility and community may have been reinforced during the pandemic, and it is not clear whether our findings will hold in the future. The novelty of our approaches may have also drawn additional engagement.

Finally, we cannot say whether the postcard or email directly prompted an enrollment, as neither Exchange was able to track an individual from clicking on the email through enrollment. Rather, our data is based on marginal new enrollments per intervention during the open enrollment period, exploiting our randomization versus a no-contact control group. So while we can infer causality, it may be indirect.

[34] FCC Provides Guidance to Enable Critical Health Care Coverage Calls. Federal Communications Commission; Jan 23, 2023. Available from: https://www.fcc.gov/document/fcc-provides-guidance-enable-critical-health-care-coverage-calls

We also emphasize that our interventions are cumulative with other marketing (e.g., billboards or bus wraps) during the same enrollment period. Our no-contact Control group allows us to measure the marginal effects of postcard and email campaigns against this baseline.

D.2 Implications

In a world without an insurance coverage mandate, a default insurance system, or even a public option, it is important to understand how best to encourage insurance uptake. This work is particularly important as uninsurance is again rising with the unwinding of pandemic-era protections, which increased or maintained coverage in the United States.

In our prior national internet-advertising study, we found that moral framing is more effective than affordability framing to move people to shop for health insurance.[3] Still, the optimal moral frame can vary across language groups (Spanish versus English). Community-oriented framing was most effective amongst Spanish speakers and responsibility framing was most effective amongst English speakers.

This project extends that work. In settings like Maryland, our study shows that direct outreach to uninsureds can improve insurance uptake, regardless of message. Back of the envelope, we spent $9,975 on postcards for 12,456 households; the emails had no marginal cost. We estimated a ~1% increase, which means 125 marginal households had at least one additional insurance enrollment due to the outreach efforts. Thus, the campaign yields a marginal household enrollment per $80 spent. Nonetheless, our event study suggests that most of the effect happened only after the email was sent; suggesting that an email-only campaign (or email plus text-message campaign) might be worthwhile, with a very high return on-investment. A full cost-benefit analysis would need to have a social valuation for having one more person insured, and would require estimates of the stickiness of insurance coverage across years.

For both email engagement and insurance uptake, we found significant effects for both of our moral messages, replicating and extending our national online advertising study. For insurance enrollments, we cannot reject the hypothesis that affordability framing was equally effective. Also consistent with our earlier advertising study, we note that community-oriented messaging seems to be most effective in zip codes with higher Hispanic populations, although we note that the advertising study tracked click-through rates of Spanish-speakers, not Hispanic populations more generally, and in fact found different trends among English-speakers in Hispanic zip codes.[3]

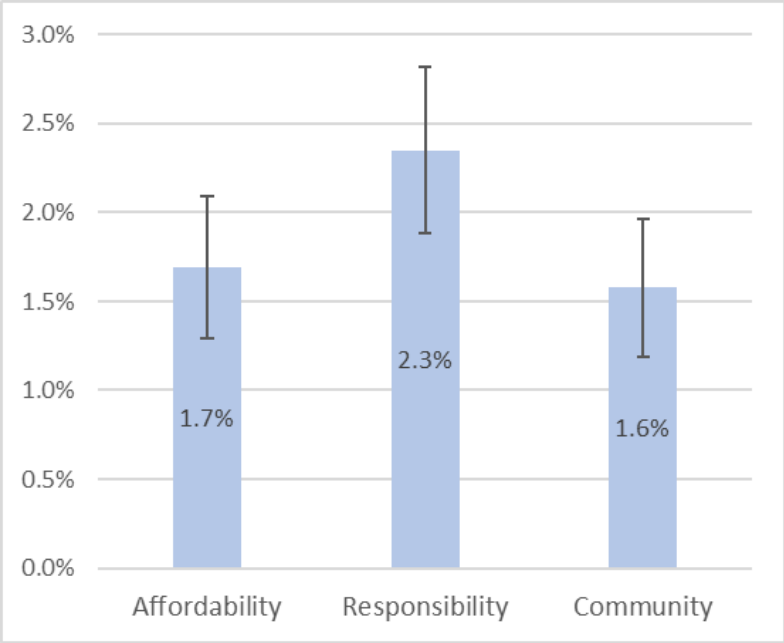
Considering the broader impacts of this research, we note that unlike Maryland, most states do not have contact information identifying their uninsured populations. Rather, many states have laws limiting the ability of the State exchange to identify and communicate directly with uninsured individuals. This first legislative step to build such a dataset will be necessary if other states, or the Federal government, seeks to exploit our findings in Maryland that individual outreach regardless of message can improve enrollment at relatively low cost. Jurisdictions should also experiment with ways to ensure that their databases represent most of the uninsured, as our sample here was estimated to cover only 11% of them, and they may not be representative.

While the present research approach has the strengths of randomized controlled design in a field setting measuring actual consumer behaviors, this approach lacks the advantages of laboratory/survey studies, which allow researchers to manipulate and measure respondents' attitudes and beliefs. We speculate that this vein of work around moral framing may be limited by an inferential gap. Even if Americans feel solidarity for fellow Americans who have pre-existing conditions and need healthcare, they may not fully understand that their own consumer behavior to buy health insurance serves the goal of cross-subsidizing care for those fellow Americans. Public education could aid in closing that inferential gap. There is also evidence that norms are changing over time and additional study in the coming years could find that reactions to moral framing and concepts of social solidarity get stronger.

Moreover, the standard collective action problems for altruism remain in the absence of a government-based mandate. Although other (technical) features of American health policy (e.g., the medical loss ratio) are in fact helpful to support redistribution through insurance, individuals may not be confident that their marginal health insurance premiums will actually be redistributed in a way that helps fellow patients, rather than enriching shareholders, executives, and physicians. Future lab/survey research could explore these inferential gaps and whether they can be addressed, but even if marketing interventions can be better optimized and improve enrollment at the margins, these considerations suggest that marketing interventions will never fully address the sorts of market failures that require government intervention.

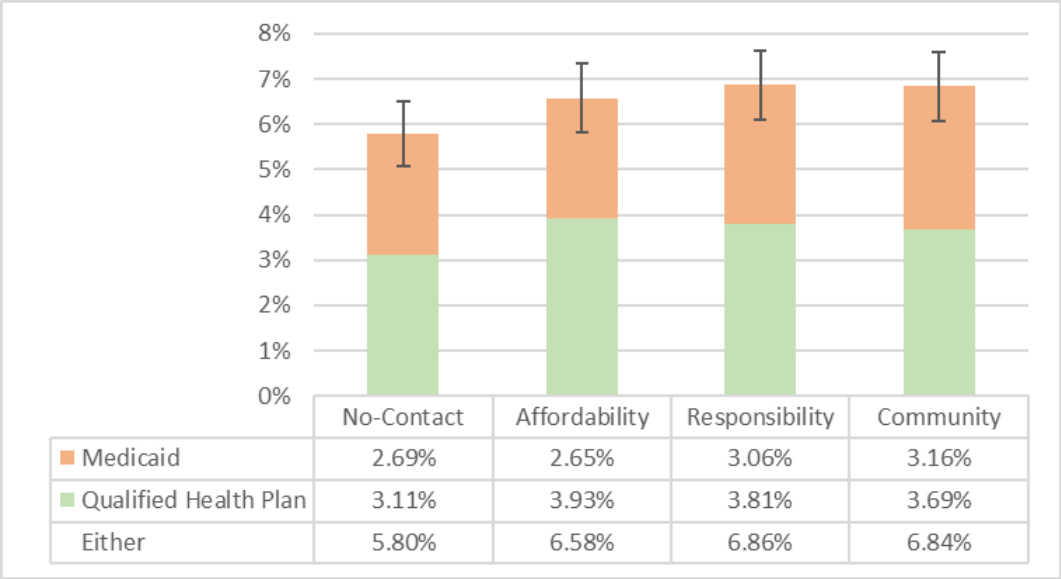
Tables and Figures

Exhibit 1 – Email Clicks per Non-Bounced Email by Experimental Condition (N=11,685)



Note: 95% confidence intervals shown.

Exhibit 2 – Insurance Enrollment Rates by Experimental Conditions (N=16,477)



	No-Contact	Affordability	Responsibility	Community
Medicaid	2.69%	2.65%	3.06%	3.16%
Qualified Health Plan	3.11%	3.93%	3.81%	3.69%
Either	5.80%	6.58%	6.86%	6.84%

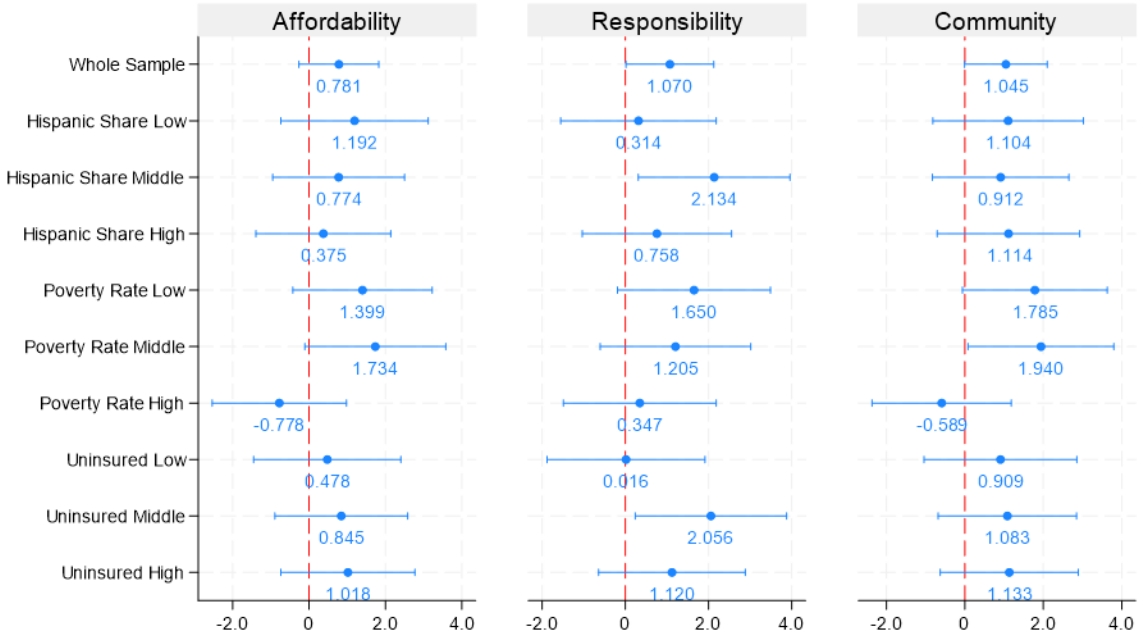
Note: 95% confidence intervals shown.

Exhibit 3. Regressions, Linear Probability Models

	Marginal effect (%)		
	Enrolling in qualified health plan	Enrolling in Medicaid	Enrolling in any plan
Intervention arm (reference=control)			
Affordability	0.822** (0.407)	-0.038 (0.357)	0.785 (0.533)
Responsibility	0.699* (0.404)	0.373 (0.370)	1.072** (0.539)
Community	0.576 (0.401)	0.472 (0.372)	1.047* (0.538)
Share of Hispanic population (%)	-0.005 (0.028)	0.002 (0.025)	-0.002 (0.037)
Share of households with income below federal poverty level (%)	-0.082*** (0.025)	0.028 (0.025)	-0.054 (0.035)
Share of uninsured population (%)	-0.012 (0.071)	-0.060 (0.068)	-0.072 (0.097)
Constant	4.070*** (0.071)	2.757*** (0.360)	6.827*** (0.523)
Observations	16,477	16,477	16,477
Control group mean	3.109	2.686	5.795

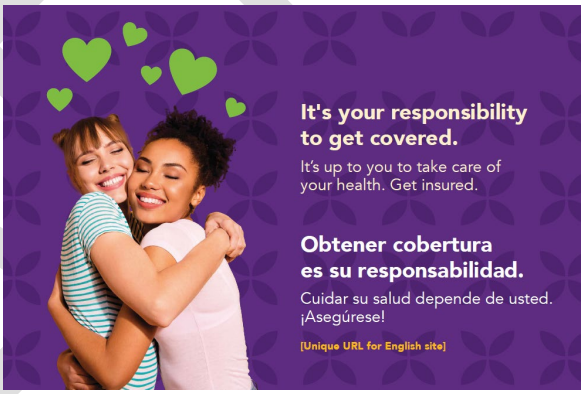
We report heteroskedasticity-robust, HC3 standard errors in parentheses. *, **, ***: significant at 0.1, 0.05, and 0.01.

Exhibit 4 – Coefficient plot: Effect on enrolling in any plan in subsets split by zipcode-level covariates



This figure presents coefficients and 95% confidence intervals taken from the regressions (reference group: control) with all neighborhood-level covariates controlled for (shown in column (2) in Table 2).

Appendix A. Postcard Collateral

Condition 1	
Condition 2	
Condition 3	

Appendix B. Emails

Condition 1

Subject: Find a low-cost quality health plan today.

Email copy:

Get peace of mind with coverage.

Life happens. Health insurance through Maryland Health Connection can help protect you and your wallet from the unexpected. It's also the only place to get tax credits to help cover the cost of your plan. From doctor or ER visits to mental health services, you can get the care you need.

You can enroll between November 1, 2022 – January 15, 2023 at MarylandHealthConnection.gov.

Condition 2

Subject: It's your responsibility to get covered.

Email copy:

It's up to you to take care of your health. Get insured.

Life happens. Health insurance through Maryland Health Connection can help protect you and your wallet from the unexpected. It's also the only place to get tax credits to help cover the cost of your plan. From doctor or ER visits to mental health services, you can get the care you need.

You can enroll between November 1, 2022 – January 15, 2023 at MarylandHealthConnection.gov.

Condition 3

An insured community is a protected community. Enroll now.

Life happens. Health insurance through Maryland Health Connection can help protect you and your wallet from the unexpected. It's also the only place to get tax credits to help cover the cost of your plan. From doctor or ER visits to mental health services, you can get the care you need.

You can enroll between November 1, 2022 – January 15, 2023 at MarylandHealthConnection.gov.

Appendix C. Additional Tables and Figures

Exhibit S1. Neighborhood characteristics (zip-level) by experimental condition (N = 16,477 households)

	Intervention arm			
	No-Contact	Affordability	Responsibility	Community
Share of Hispanic population (%)	10.709	10.792	10.781	10.796
Share of households with income below federal poverty level (%)	10.149	10.203	10.157	10.123
Share of uninsured population (%)	6.399	6.413	6.398	6.420
Observations	4,021	4,152	4,152	4,152

Neighborhood characteristics at the zip-code level were from AHRQ sociodemographic database (https://www.ahrq.gov/sdoh/data-analytics.html). Note that the data drops two households from the analysis because their ZIP codes were not matched to a ZCTA in the AQHR data.

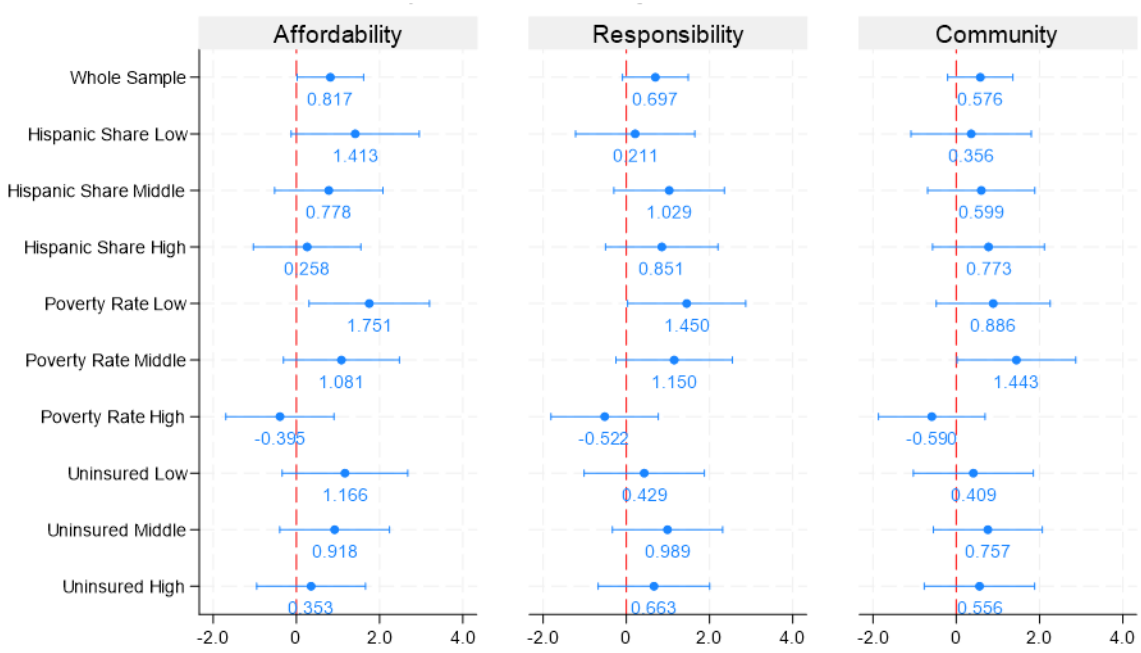
Exhibit S2. Logistic Regressions

	Marginal effect (%)					
	Enrolling in qualified health plan		Enrolling in Medicaid		Enrolling in any plan	
	(1)	(2)	(3)	(4)	(5)	(6)
Intervention arm (reference=control)						
Affordability	0.884** (0.421)	0.839** (0.416)	-0.039 (0.384)	-0.040 (0.383)	0.819 (0.560)	0.822 (0.559)
Responsibility	0.731* (0.424)	0.725* (0.419)	0.374 (0.371)	0.373 (0.370)	1.101** (0.554)	1.100** (0.553)
Community	0.614 (0.427)	0.607 (0.423)	0.464 (0.368)	0.465 (0.367)	1.078* (0.555)	1.076* (0.553)
Share of Hispanic population (%)		-0.005 (0.028)		0.002 (0.026)		-0.003 (0.038)
Share of households with income below federal poverty level (%)		-0.091*** (0.030)		0.027 (0.072)		-0.055 (0.038)
Share of uninsured population (%)		-0.008 (0.071)		-0.063 (0.072)		-0.075 (0.100)
Constant	3.635*** (0.146)	4.270*** (0.146)	2.889*** (0.130)	2.858*** (0.130)	6.151*** (0.192)	7.319*** (0.192)
Observations	16,477		16,477		16,477	
Control group mean	3.109		2.686		5.795	

Marginal effects are calculated from logistic regression coefficients. We report robust standard errors in parentheses.

*, **, ***: significant at 0.1, 0.05, and 0.01.

Exhibit S3. Coefficient plot: Effect on enrolling in qualified health plan in subsets split by zipcode-level covariates



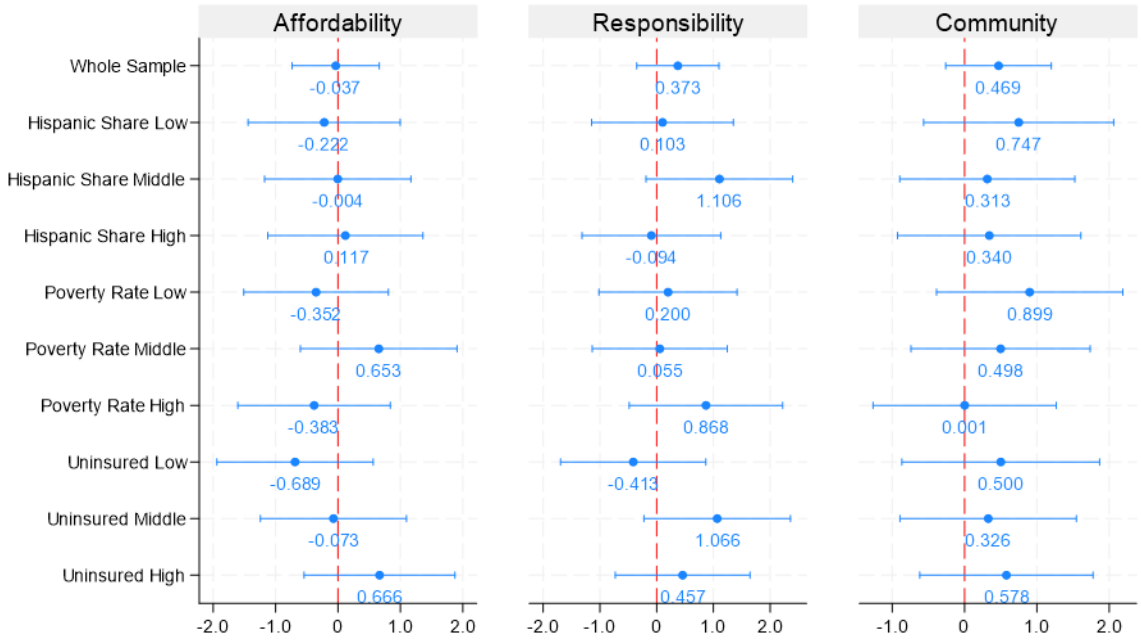
This figure presents coefficients and 95% confidence intervals taken from the regressions of enrolling in a qualified health plan (reference group: control).

Exhibit S4 – Effects on QHP Enrollment in Subset of Higher-Income Zip Codes

	Marginal effect (%)
Intervention arm (reference=control)	
Affordability	1.4239** (0.613)
Responsibility	1.3502** (0.609)
Community	0.9603 (0.595)
Constant	3.2307*** (0.397)
Observations	8,126
Control group mean	1.4239

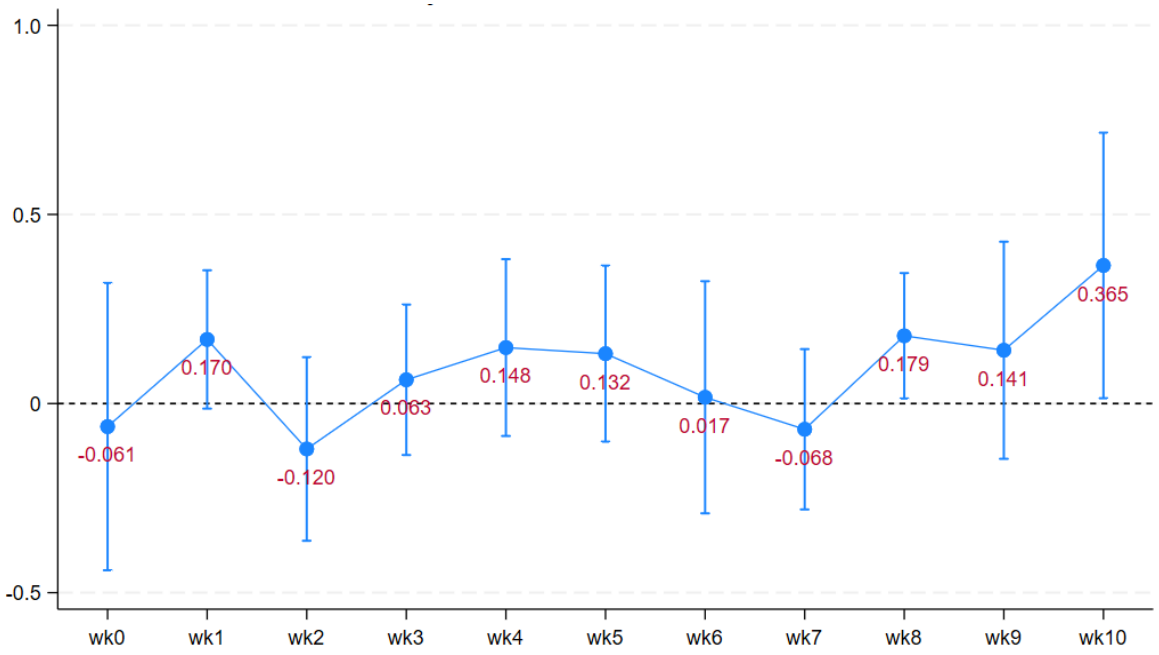
QHP = Qualified Health Plan. Regressing enrollment in a QHP on experimental arm after subsetting to the lowest 50% of the sample sorted by their ZIP code's percent of residents in poverty. We report heteroskedasticity-robust, HC3 standard errors in parentheses.
*, **, ***: significant at 0.1, 0.05, and 0.01.

Exhibit S5. Coefficient plot: Effect on enrolling in Medicaid in subsets split by zipcode-level covariates



This figure presents coefficients and 95% confidence intervals taken from the regressions (reference group: control).

Exhibit S6. Longitudinal Analysis of Differences Between Any Intervention versus Control on Any Insurance Enrollment (Medicaid or QHP) by Week



The postcard was sent in week 1 and the email was sent in week 4. Each dot represents a coefficient estimate (unit is percentages) from a separate regression within the week on the impact of any intervention (Affordability, Responsibility, or Community) versus the no-contact Control group (represented by the dotted line at zero). 95% confidence intervals are shown. The outcome is enrolling in any plan (Qualified Health Plan (QHP) or Medicaid)).