Beyond Books: Bridging Access to Safety-net Programs with Public Libraries

Pinka Chatterji*, Chun-Yu Ho†, Hyoshin Ki‡

Department of Economics, University at Albany, SUNY

February 13, 2026

1 Introduction

Take-up rates vary for mean-tested Safety-net Programs in the United States. 84% for Supplemental Nutrition, the Program SNAP (known as food stamps) participation rate was 2020 [1], 69.7% for Medicaid in 2017 (Abdus (2025)), and approximately 50-60% for Supplemental Security Income(SSI) (McGarry and Schoeni (2015)). These rates were calculated as the number of enrolled participants divided by the number of eligible participants.[2] Eligibility differs by the Safety-net Programs, where Medicaid requires income to be lower than 138% after Affordable Care Act in most states.[3], SNAP with 130% of poverty line nationwide.[4] Usually those programs are easy to apply and get benefits, compare to SSI and other means-tested programs as they offer to apply in online for every applicant and processing time is relatively shorter. However, SSI requires medical evidence that determines the disability status to be received before the age of 65 and requires more non-financial restrictions in addition to income requirements. As a result, outcome rate for initial

*pchatterji@albany.edu

†cho@albany.edu

‡hki2@albany.edu

[1]Source: U.S. Department of Agriculture, Food and Nutrition Service

[2]Defining eligible population might be biased due to the source of data, timing and measurement error, as discussed in Ko and Moffitt (2022)

[3]Source: Centers for Medicare & Medicaid

[4]Source: Food and Nutrition Service, Department of Agriculture

award for SSI is only 20.7% and takes 232 days to process, SNAP could be fast as 7 days to 30 days and Medicaid is usually processed within 45 days. [5]

According to Currie (2004), the reasons for low take-up rates can be broadly categorized into four categories. First, some eligible populations are unaware of their benefits or lack sufficient knowledge of the program. The second is the administrative burden, such as paperwork and obtaining proofs of eligibility. Another reason might be non-financial costs, such as work limitations, which are particularly relevant in programs like TANF. The last is stigma. For instance, using foot stamps could increase the stigma that inhibit people to enroll in SNAP, but after transition to EBT card, the stigma reduced and enrollment rate increased. (Currie and Grogger, 2001)

There is a large body of literatures that have explored the reasons behind this paradox of being *eligible but did not participate.* For example, previous studies have argued that there are multiple reasons for the low Medicaid take-up rates. First, there may be supply side issues, such as limited accessibility to care (Hahn (2013); Desai et al. (2023)). On the demand side, immigrant-related concerns (Aizer (2003); Giuntella and Lonsky (2020)) or transaction costs and lack of information are major barriers (Aizer (2007); Currie (2004); Remler et al. (2001); Bhargava and Manoli (2015)). Recent research, including that of Brown (2023) and Myerson and Li (2022), shows that the asymmetric information problem is a significant barrier to individual health. In addition, there would be spillover effects between safety net programs(Schmidt et al. (2024, 2019)), which allows for strong information asymmetry for safety net programs since people will be aware of other programs when they become eligible for one. National Academies of Sciences, Engineering, and Medicine (2023) also points out that these programs are aimed towards to more vulnerable populations, the problem of cognitive barriers is particularly relevant yet the administrative complexity of applying for the programs and continuing is also significant.

Public libraries can play a important role in addressing information asymmetry. Given the overwhelming amount of information available, individuals who need assistance the most may face asymmetric information problems. They may miss critical information, find it difficult to access it on their own, or even be unaware of its existence. This might be more critical, especially for vulnerable populations with limited access to information, such as those with low levels of education or limited Internet access. In this context, public libraries can serve as a solution by acting as guides to social

[5]Source: Social Security Administration, Deparment of Agriculture and CMS repectively

services, especially since they are reliable and credible information sources.

The role of public libraries today goes beyond books. Public libraries have unique characteristics. For example, they can work as purely public goods once constructed because of their non-exclusivity and non-rivalry. They provide free Internet access, digital literacy training, and personalized assistance from highly educated staff members. Libraries are often centrally located and open to everyone, making them ideal venues for disseminating public information and connecting individuals to essential services(Philbin et al., 2019; American Library Association, 2015), often with highly educated staff such as public librarians. With this charateristics, public libraries often serve as safe haven for vulnerable populations(Leonard Davis Institute of Health Economics, University of Pennsylvania, nd; California State Library, 2021; O'Malley, 2025). Despite these advantages, limited research exists on how libraries contribute to reducing the uninsured population by serving as information providers and community resource centers for health insurance. The role of public libraries is discussed in the following section.

This study aims to fill this gap by examining the impact of public libraries on public program enrollment. We examined how the accessibility and quality of public libraries affect the enrollment take-up rate. Safety-net Programs refer to means-tested programs, including Medicaid, the Supplemental Nutrition Assistance Program (SNAP), Supplemental Security Income (SSI), and other public assistance programs that provide cash transfers, such as TANF or general assistance. We also explored the heterogeneity of the impact of library access on enrollment by individual characteristics, such as educational attainment, Internet availability, race/ethnicity, and PUMA characteristics, including the previous number of libraries in the PUMA and urban/rural status.

This study contributes to the literature on social program take-up and information access by exploring the potential role of public libraries as an institutional remedy for persistent enrollment gaps. We focused on nationally representative data to assess whether and how public libraries contribute to improved enrollment in public assistance programs, particularly among populations likely to face information frictions.

First, while prior research has studied with qualitative methods, typically involving small-scale surveys, to investigate how public libraries serve as hubs for community well-being, our study is among the first to systematically quantify these effects using large-scale national census data. We provide empirical evidence that public libraries may serve as an effective supplementary infrastruc-

ture for improving population health, especially by increasing access to public programs such as Medicaid and SNAP.

The primary hypothesis under investigation is that information asymmetries may deter eligible individuals from enrolling in certain programs. Our findings indicate that the presence of a local public library is positively correlated with increased enrollment in Medicaid and the Supplemental Nutrition Assistance Program (SNAP), which are less administratively burdensome than Supplemental Security Income (SSI) or other cash-transfer public assistance programs. This suggests that if individuals are aware of their eligibility, they might enroll in these safety net programs, provided that the administrative burden is not excessively burdensome.

Our analysis also highlights important differences in how outreach is implemented across programs. The Public Library Association (PLA) has devoted more consistent and structured resources to Medicaid enrollment efforts, especially following the implementation of the Affordable Care Act (ACA). For Medicaid, in-person assistance is often provided by trained staff or community navigators in libraries. Public library organization(PLA) offers informational webinars that includes librarians to assist patrons with navigating public assistance programs as well(Public Library Association, 2021). In contrast, SNAP outreach through libraries tends to be more event-based, resulting in uneven access to application assistance. These institutional differences may partially explain why library presence is associated with stronger effects on Medicaid enrollment than SNAP.

Our study indicates that the presence of library facilities exerts a particularly strong influence on subgroups that are more prone to encountering information barriers. Notably, individuals who lack Internet access at home, those with lower educational qualifications, and young adults show significantly higher rates of program enrollment when a public library is accessible within their community. These results emphasize the critical role of physical library institutions in addressing information inequality, especially for populations that face digital or educational disadvantages.

Our paper is structured as follows: Section 2 discusses the role of public libraries in the U.S. and related works. Section 3 presents the data and model. Section 4 presents the empirical results and heterogeneity analysis. Section 6 shows possible mechanism analysis, and Section 7 concludes the paper.

2 Role of Public Libraries

One of the greatest advantages of public libraries, as mentioned above, is that they function as almost pure public goods that are non-excludable and non-rivalrous once provided. Additionally, they often have highly educated staff, as most public librarian positions require a Master of Library Science (MLS) or a Master of Library and Information Science (MLIS) degree.[6] In addition to the free public computers. They also provide a space itself for people to gather to learn.(Aabø and Audunson (2012))

Public libraries also work as health information providers. They also inform patents about Safety-net Programs and provide webinars for librarians to stay current. For example, they provided information about the ACA, helped people understand the enrollment process, and offered computers for enrollment. From 2018 to 2020, the PLA announced annual public library awardees—up to 100 U.S. libraries—that disseminated information, offered education, partnered with health insurance enrollment and provider groups, and encouraged community members to enroll in the Health Insurance Marketplace during the open enrollment period. Additionally, they supported libraries that became Certified Application Counselor-designated organizations and certified at least one staff member or volunteer as a Certified Application Counselor.[7] For some states such as New York, libraries often used as place for Navigators for Medicaid and patrons could sign up on site.(New York State Department of Health, 2021) In 2013, the University of Maryland and the American Library Association conducted the Digital Inclusion Survey (Bertot et al. (2014)), which expanded on the Public Library Funding and Technology Access Study(PLFTAS) to document the impact of libraries in building digitally inclusive communities. The survey found that 77% of libraries offered online health resources and 58% provided programs to help people find and evaluate health information before the Affordable Care Act (ACA) was implemented.

Some studies have focused on the role of public libraries in improving public health. (Philbin et al. (2019); Whiteman et al. (2018); Morgan et al. (2016); Engeszer et al. (2016); Brian Real (2015)). Most of these studies focused on the role of public libraries as information providers on health and other government benefit programs, mostly using survey data to do so. Our research aims to add empirical analysis to the existing literature to see how and how much public libraries

[6]Source: American Library Association
[7]Source: PLA's Insurance Education and Outreach Initiatives

can help increase the enrollment rate.

Another example is the role of the technology assistant. PLFTAS(Hoffman et al. (2011)) was a multi-year project that assessed public access to computers, the Internet, and Internet-related services in U.S. public libraries, as well as the impact of library funding changes on connectivity, technology deployment, and sustainability. According to the 2010-2011 report, over 87% of libraries provide formal or informal technology training, and 70% of libraries reported increased use of public access workstations, such as printers. They also provide Wi-Fi access, which is crucial for people without Internet access at home. However, Fleary et al. (2022) found that economic, social, and health-related programs offered by public libraries are more frequent in highly educated areas, indicating a disparity in access to information.

While public libraries are a nearly universal infrastructure, there is limited research on their socioeconomic impact. Previous research has found that an increase in library funding, mainly from locals, affects student achievement.(Gilpin et al. (2024); Witte and Geys (2011)) Bekkerman and Gilpin (2013) found that an increase in Internet access contributes to further knowledge, which is a local library resource. Bhatt (2010) showed that increase in library use impact the amount of time reading by offsetting watching TVs. In more recent studies, Ferreira Neto et al. (2023) found that public libraries may reduce nearby crime in Kansas City, MO. Reimers and Waldfogel (2024) showed that restriction on ebook access might have negative patron welfare impact. DeBoer (1992); Vitaliano (1997, 1998); Hemmeter (2006); Ferreira Neto and Hall (2019) used public libraries to estimate efficiency of libraries in terms of cost.

3 Empirical Strategy

3.1 Data

Our primary data source is the Public Library Survey (PLS) conducted by the Institute of Museum and Library Services (IMLS). This annual survey gathered information on approximately 9,000 public libraries, with 17,546 outlet libraries across the United States. PLS includes the geographic locations of libraries and details of library services, resources, and staffing available from 1992 to 2022. We excluded libraries that were bookmobiles or books-by-mail only, as they are not open to the public and do not provide the same level of access as traditional libraries. We also

dropped libraries that reported no staff, zero opening hours, or no funding for the whole year or any missings from these categories. PLS data are available at the library level, which allows us to aggregate the data into the PUMA level.

We constructed the PUMA-level dataset by aggregating the library data into the PUMA level. We first aggregated the library information at the county level, which is available in the PLS data, and then recalculated the library information based on the counties included in the PUMA. We assumed that individuals could access the library within their county, regardless of the PUMA in which they reside. Thus, in cases where a county is split across multiple PUMAs, library access is considered to be shared among all residents of the county.

In addition to the PLS data, we used the American Community Survey Public Use Microdata Sample dataset (ACS) to capture individual socioeconomic characteristics, such as educational attainment and median income, gender, age, citizenship status, marital status, and number of children. ACS also includes information about safety-net program enrollment status, including Medicaid, SNAP, SSI, and other public assistance programs, such as TANF. These data represent approximately 1% of the total U.S. population. [8]

For insurance status, we used the question in the ACS questionnaire *Is this person CURRENTLY covered by any of the following types of health insurance or health coverage plans?* and respondents would check yes or no for each type of coverage in item *a. Insurance through a current or former employer or union. b. It was purchased directly from an insurance company. c. Medicare; d. Medicaid, Medical Assistance, or any kind of government assistance plan for those with low incomes; e. TRICARE, CHAMP-VA, or other military healthcare; f. VA; g. Indian Health Service; h. Other.* We defined an individual as Medicaid enrolled if they answered yes to item d. Our data only included individuals aged 18–65 years to avoid potential bias from Medicare enrollment. We defined individuals as uninsured if they answered no to all types of health insurance coverage.

For other safety-net program enrollment, we used the question *In the past 12 months, did anyone in this household receive Food Stamps or a Food Stamp benefit card?* for SNAP enrollment. For other safety net programs, especially with cash benefits, we utilized questions about income in the past 12 months, where respondents will mark *Yes* if they received *Supplemental Security Income (SSI)* or *Any public assistance or welfare payments from the state or local welfare office* . We defined an

[8] Source: U.S. Census Bureau

individual as SSI enrolled if they answered yes to the question about SSI and defined the individual as public assistance income enrolled if they answered yes to the question about public assistance income. ACS defines these other public assistance amounts as cash welfare programs, such as Temporary Assistance for Needy Families(TANF), Welfare or welfare to work, General Assistance, General Relief, Emergency Assistance, and Diversion Payments[9].

Our geographic unit for analysis is PUMA(Public Use Microdata Area), which is a Census defined geographic unit that is a non-overlapping statistical geographic area containing no fewer than 100,000 people. While ACS 1-year data with county identifiers only includes individuals in the U.S. who reside in counties with more than 65,000 people, which raises the concern that there is a potential to lose individuals who reside in rural or underserved areas in our analysis, we try to use ACS data with PUMA identifiers, which have nearly complete coverage. Multiple counties can form a single PUMA or one large county can be divided into multiple PUMAs. For example, Albany County in New York has approximately 300,000 residents; therefore, it is divided into two PUMAs. On the other hand, Fulton and Montgomery counties, which are near Albany, NY, and are considered rural counties, have a population of approximately 50,000; therefore, these two counties will construct one PUMA. [10] Moreover, PUMA boundaries have changed over time, and it is difficult to match different PUMA definitions. To ensure comparability over time, we restricted the study to the years when the PUMA definition was consistent and could cover most of the time period in our dataset (2012–2021). In addition, we wanted to avoid any unintentional impact of the pandemic. As a result, we defined our final dataset as spanning from 2012 to 2019, with 2,350 PUMAs each year in the U.S.

Table 1 shows descriptive statistics for the years 2012, 2017 and 2019 for all public libraries in the U.S.[11], which includes the first and last years of our data after dropping any missing or irrelevant[12] values.

[Table 1 here.]

According to IMLS, the number of patrons is either the actual count of visits or, if an actual

[9] Source: U.S. Census Bureau

[10] Only 100 PUMAs (0.04% of the whole PUMAs) includes counties split across multiple PUMAs that also include other counties. All other PUMAs includes only one counties, or counties that are not splited across multiple PUMAs.

[11] U.S. territories are excluded from our analysis.

[12] We dropped if operating hours, total staffs or total revenue are reported as 0 or missing.

count of visits is unavailable, annual estimates were determined by counting visits during a typical week in October and multiplying the count by 52. Annual open hours were calculated as the mean of the average opening hours in the county per library. Revenue and Expenditures are inflation adjusted. For library accessibility measures, we used the number of libraries as a proxy. In our dataset, around 39 PUMAs had no libraries each year, while around 125 PUMAs had less than five libraries.

3.2 Model

Our main interest is to estimate the effect of public library access, defined as the number of libraries in a PUMA, on enrollment in safety net programs. We will estimate whether an increase in the library in a PUMA affects the enrollment rate of safety net programs, including Medicaid, SNAP, SSI, and other public assistance programs, such as TANF or General Assistance.

$$Y_{ipt} = \beta Number\ of\ Library_{pt} + \tau X_{ipt} + \psi_t + \kappa_p + \epsilon_{pt}$$

where Y_{ipt} is a binary variable for the safety net program enrollment status of individual i in PUMA p at time t. $Number\ of\ Library_{pt}$ is the total number of libraries in PUMA p. X_{ipt} includes log of population in puma t, Medicaid expansion status and demographic controls, including dummy variables for percentage of poverty line (10-point increments), unemployment status, education level, race/ethnicity, age groups (5-year bins), marital status, number of children, foreign-born status, and citizenship status, mainly following Courtemanche et al. (2017). We included PUMA fixed effects κ_p and year fixed effects ψ_t to control for unobserved PUMA-level time-invariant factors, such as puma-level preference, public transportation availabilities, and exogenous yearly shock. Standard errors were clustered at the PUMA level. The main results are presented in table 2.

We additionally wanted to estimate the potential causal effect of library access on public program enrollment. To do this, we used number of libraries in each puma p 20 year ago as an instrument variable for current number of libraries in puma p. The idea is that the historical number of libraries would be correlated with the current number of libraries, but it would not directly affect the current enrollment status of individual i except through the current number of libraries. We estimated the following two-stage least squares (2SLS) model:

$$\text{First Stage:} \quad Number\ of\ Library_{pt} = \pi Historical\ Number\ of\ Library_{p,t-20} + \tau X_{ipt} + \psi_t + \kappa_p + \nu_{pt}$$

$$\text{Second Stage:} \quad Y_{ipt} = \beta \widehat{Number\ of\ Library}_{pt} + \tau X_{ipt} + \psi_t + \kappa_p + \epsilon_{pt}$$

4 Results

4.1 Main Result

In this section, we present our main findings using the model using both TWFE and 2SLS. The results are shown in table 2.

[Table 2 here.]

The result shows that one additional library at the PUMA level increases Medicaid enrollment by 0.3 points and SNAP enrollment by 0.2 points, while other controls remain the same. In contrast, the effect of library access on SSI and public assistance income enrollment was not statistically significant. When using IV, one additioanl library increases Medicaid enrollment by 0.8 points however, we didn't find significant increase in SNAP enrollment. Considering the mean, this is a 2.2% and 5.8% increase respectively at the mean for Medicaid enrollment.

Our main findings have two implications. First, the results suggest that the presence of an information problem from one additional library yields a positive and significant increase in the enrollment rate and no significant increase from those safety net programs that are relatively harder to obtain even if individuals are aware of it. The increase in take up rate associated with Medicaid and SNAP indicate the presence of an information gap, which libraries could potentially help mitigate. There is a notable increase in participation in Medicaid and SNAP, which are relatively easier to enroll compared to other programs, once information is provided. Conversely, programs such as SSI and other public assistance initiatives, such as TANF or General Assistance(GA), impose more stringent requirements, including medical documentation or work-related restrictions. These requirements cannot be easily addressed through informational resources alone. Consequently, even when individuals become aware of these programs due to enhanced information accessibility through

the library, additional barriers to enrollment may persist.

Another interpretation is that the impact is more substantial on Medicaid than on SNAP. Initially, it can be argued that SNAP faced fewer informational barriers than Medicaid. Although the dissemination of information about Medicaid increased significantly after the Affordable Care Act, information about SNAP might be more easily accessible in everyday environments, such as finding an EBT sign from dollar stores or grocery stores. Furthermore, if we assume that the level of information asymmetry is similar between the two programs, it could be suggested that enhanced outreach initiatives might more effectively mitigate these informational barriers because libraries are more actively engaged with Medicaid. For example, public libraries themselves could be used as a place for enrollment with on-site staff[13], or library staffs could help them directly to enroll the insurance. According to Whiteman et al. (2018), 30.5% of Pennsylvania librarians helped patrons to enroll the insurance and 51% of public librarians assited enrolling in social benefits and making ends meet.(Whiteman et al., 2018; Draper, 2022)

The TWFE estimator has the limitation that early treated units might be used as controls for late-treated units. However, implementing the Goodman-Bacon decomposition. (Goodman-Bacon, 2021) our treatment effects come from 76% of the never-treated group.

Given the stronger IV estimates for Medicaid enrollment, we next investigate whether increased library access shifts individuals out of uninsurance or other coverage types. Specifically, we estimate the effect of library access on changes in insurance coverage status, including being uninsured, having employer-sponsored insurance, direct-purchase insurance, Medicare, and Medicaid; the results are reported in table 3.

This analysis serves two purposes. First, it helps identify whether the observed increase in Medicaid enrollment reflects transitions from uninsurance or from other forms of coverage. Second, it allows us to assess whether the Medicaid effect is consistent with an information-based mechanism. Enrollment in employer-sponsored insurance, direct-purchase insurance, or Medicare is unlikely to respond to improved information access alone, as these programs are governed by eligibility rules and institutional constraints that information provision cannot directly relax.

Moreover, because our sample is restricted to individuals under age 65, we do not expect library access to affect Medicare enrollment. As a result, Medicare provides a natural placebo outcome

[13]Source: NY State of Health, Press Release

in this setting. Finding no effect on Medicare coverage would support the interpretation that the Medicaid effect operates through the alleviation of informational barriers, whereas a significant effect on Medicare would suggest that the Medicaid results reflect broader forces unrelated to information.

[Table 3 here.]

We found that one additional library reduces the uninsured rate by 0.6 points and increases Medicaid enrollment by 0.8 points, while there is no significant change in employer-sponsored insurance, direct-purchase insurance, or Medicare enrollment. This suggests that the increase in Medicaid enrollment is primarily driven by transitions from uninsurance, which is consistent with our assumption. The lack of significant effects on other coverage types further supports the interpretation that the observed increase in Medicaid enrollment is not due to broader changes in insurance coverage but rather reflects improved access to information about Medicaid through increased library access.

4.2 Heterogeneous Analysis

4.2.1 Environmental Heterogeneity

In this section, we demonstrate the two primary heterogeneous effects among individuals due to spatial differences. First, we aimed to examine the role of accessibility to reliable information resources in reducing information barriers. To assess these varied impacts, we selected two subgroups, and the results are shown in table 4.

First, we categorized individuals into two groups: those with and without home Internet access. We divided the sample into two groups based on their Internet access at home, as reported in the ACS data: *At this house, apartment, or mobile home –do you or any member of this household have access to the Internet?* If individuals answered *No*, they were classified as having no Internet access. Limited Internet access may constitute a primary barrier to information, and furthermore, individuals lacking home Internet are likely to exhibit lower levels of digital literacy, which could further strengthen the information barrier. According to Linnan et al. (2004), patrons in communities that lack of home internet access often use libraries to access health information.

Panels A and B in table 4 show the results of the heterogeneity analysis by internet access. The results show that the effect of library access on safety net program enrollment is two times larger for

individuals with no internet access compared to those with internet access, especially for Medicaid in absolute terms; however, at the mean, the effects are relatively similar across the groups.

In addition, we examined the role of accessibility of libraries with urban and rural classification from the 2010 Census. Since urban and rural classifications are based on the county level, we aggregated them to the PUMA level. If PUMA includes rural counties, it is counted as rural PUMA. We have 529 rural PUMAs and 1,822 urban PUMAs, corresponding to 4,044,963 individuals residing in rural PUMA and 11,253,840 in urban PUMAs.

Panels C and D in table 4 show the results. The results show that the effect of library access on safety net program enrollment is significantly larger for individuals who reside in urban areas than for those who reside in rural areas. Here, PUMAs with rural areas have larger geographic areas by definition, which possibly leads to a higher travel distance to libraries. The number of libraries varies within urban and rural PUMAs, where urban PUMAs have 40.02 libraries on average, while rural PUMAs only have 17.38 libraries on average. In addition, most rural counties do not have convenient public transportation, which might cause higher travel costs. This might suggest another example that accessibility plays an important role in making libraries effective information hubs.

[Table 4 here.]

Results from panel A and B suggest that the presence of an information problem is more pronounced for individuals without home Internet access. The effect of one additional library on Medicaid enrollment is 0.004 for individuals without home Internet access, which is two times larger than for those with home Internet access. Similarly, the effect on SNAP enrollment for individuals without home Internet access is 0.002, which is also two times larger than for those with home Internet access. However, when scaled by group-specific means, the effects are relatively similar across the groups.

For panel C and D, the effect of one additional library on Medicaid enrollment is 0.003 for individuals residing in urban areas (2.2% at the mean), which is 1.5 times larger than for those residing in rural areas(1.4% at the mean). Similarly, the effect on SNAP enrollment for individuals residing in urban areas is 0.002, where there is no significant effect for those residing in rural areas. This suggest that to make libraries effective information hubs, accessibility plays an important role.

4.2.2 Individual Characteristics

As we expect that the information problem might be different across individual characteristics, we will discuss the heterogeneity analysis by educational attainment, age, and racial/ethnic differences.

For educational differences, we expect that lower educational attainment is expected to have more information problems due to cognition, literacy skills, or technical skills. Younger age groups who just transited to adults might also face information problems, since they are not used to safety net programs. Aizer (2007) found that the information barrier is more severe to Hispanics and Asians. Deatils for individual characteristics results are attached in section A

We first divided our sample into four groups based on educational attainment: less than high school, high school graduates, some college, and college graduates. The results are shown in panel A of table A.1. The results show that the effect of library access on safety net program enrollment in absolute terms is five times larger for individuals with less than a high school education than for college graduates. The effect on SNAP enrollment for individuals with less than high school education is three times larger for college graduates. As consistent with the previous result, the effect on SSI and public assistance income enrollment is not statistically significant.

On the other hand, when scaled by group-specific means, the impact of library access on Medicaid is 1.7% at the mean for individuals with less than high school education, 1.7% for high school graduates, 2.1% for some college, and 2.3% for college graduates. Similarly, the effect on SNAP enrollment is 1% at the mean for individuals with less than high school education, 0.6% for high school graduates, 2% for some college, and 2.7% for college graduates. These results suggest that the information problem is more severe for individuals with lower educational attainment, however libraries could be more effective for individuals with higher educational attainment. This might be because individuals with higher educational attainment are more likely to have better literacy skills, which could help them to understand the information provided by libraries and to navigate the enrollment process more effectively.

If we divide sample with age groups, the impact of one additional library could increase 0.4 points(2.5% relative to the mean) and 0.3 points (1.9% relative to the mean) for Medicaid and SNAP, respectively, for young individuals who are under 30. However, for people who are 50 to 64,

the impact of libraries is 0.2 points for both Medicaid(1.6% at the mean) and SNAP(0.9% at the mean), which is 2 times and 3 times smaller than young adults. This might support our assumption that younger groups may not be aware of the safety net programs that they are eligible for compared to other age groups.

Racial or ethnical differences may also play a role in the information problem, since they might have different neighborhood which leads to different amount of information available, or they might have different language barriers. The American Library Association (ALA) formally recognizes these barriers in its professional guidelines for multilingual collections and services.[14] According to the ALA guideline 3.4.1, *"Libraries should provide reference and information services in the most commonly used languages. In addition, special effort must be made to provide service to recently arrived immigrant groups."* In line with these institutional commitments, libraries are often considered as more neutral and welcoming than other government institutions, which may reduce the pressure of imperfect language skills when seeking help.

We found that impacts of Asians and Hispanics of libraries are larger than those of Whites and Blacks, which is consistent with the findings of Aizer (2007), who found the information barrier is more severe for Hispanic and Asian individuals. We see that libraries could help whites 0.9% increase on Medicaid enrollment at the mean, however, it could increase 1.7% and 2.2% for asians and hispanics, respectively. We didn't find significant impact for Black individuals.

5 Possible Mechanism

In this section, we explore the potential mechanisms underlying the observed effects by leveraging the specific attributes of libraries, as summarized in table 1. Instead of focusing on the number of libraries, we consider several operational characteristics that can facilitate enrollment in safety net programs. Specifically, we examined the number of safety net programs conducted in libraries, total library staff, number of computers available to the public, and average weekly operating hours. We did not include SSI and other safety net programs in this analysis since the existence of libraries does not significantly increase their take-up rates. The estimation equation is presented in equation (1), where all other specifications are same as section 3.2, except for rather than number of libraries, we

[14]Source: Reference and User Services Association, American Library Association.

used other library characteristics as number of staffs, number of computers that are opened to the public, number of programs that are offered to the public, and opening hours per week.

$$Y_{ipt} = \beta Library\ Characteristics_{pt} + \tau X_{ipt} + \psi_t + \kappa_c + \epsilon_{pt} \tag{1}$$

[Table 5 here.]

Table 5 suggests that the mechanisms linking library access to safety net program enrollment may differ across programs. For Medicaid, we find that an increase in the total number of library staff is associated with a 0.3 points increase in the enrollment rate, which is comparable in magnitude to our main estimate. This pattern is consistent with the interpretation that the Medicaid effect operates primarily through staff-mediated assistance rather than through passive information provision alone.

In many public libraries, on-site enrollment assistance is available during enrollment periods, as certified navigators—who may include trained librarians—are often present to provide direct, person-to-person support. Such assistance can help individuals navigate eligibility rules, documentation requirements, and application procedures, which are salient barriers in Medicaid enrollment.

In contrast, we find no corresponding effects for SNAP, suggesting that staff-based assistance plays a more limited role in facilitating enrollment in that program. SNAP enrollment assistance in libraries is less common and is generally limited to occasional outreach events compared to Medicaid. Consequently, if they have information about the program, they might be more likely to use the library as a place to apply for benefits rather than to receive assistance to fill in the documents. This suggests that the number of computers and operating hours are more important for SNAP enrollment.

Another significant finding of these results is that if the average operating hours in PUMA are extended by one hour while all other factors remain constant, it could result in a 1.2 points increase in Medicaid enrollment and a 1.9 points increase in SNAP enrollment. This finding supports our hypothesis that accessibility is crucial for libraries to function as efficient information hubs. Additionally, it is evident that the provision of more public programs by libraries could have a substantial impact on both Medicaid and SNAP enrollment.

Given that the average weekly operating hours in PUMA are 46.5, and assuming libraries are open every day except Sunday, most libraries operate for approximately 7.75 hours daily. This

schedule often coincides with peak work hours and results in libraries closing before individuals complete their workdays. As both Medicaid and SNAP expect individuals to be employed if they are able-bodied, this timing may hinder access to information. If libraries could extend their operating hours by an average of one hour, or all libraries could open approximately 10 minutes more per day, it could significantly increase the number of individuals enrolled in Medicaid and SNAP.

6 Conclusion

We show that an increase in library access has a significant and positive impact on take-up rates for Medicaid and SNAP enrollment, but not for SSI and other public assistance income programs, probably because of different administrative difficulties. The impact of an increased number of libraries is more pronounced in people who have less accessibility to the Internet and in people who live in urban areas, which makes them easy to access. Regarding individual differences, we found a more pronounced impact for individuals whose educational attainments are less than high school, young adults, and asian/Hispanic individuals who are considered a vulnerable population and may face higher information barriers. These findings suggest that public libraries can serve as a valuable resource for individuals seeking information and enrollment assistance, particularly in underserved communities, even though this is not their primary goal.

Our results have a few limitations. First, we lack detailed information on the specific services or different magnitudes of outreach provided by libraries, such as the extent to which libraries actively promote health information or which kind of Safety-net Programs were held. However, our study contributes to previous literature that is usually conducted with surveys with small samples, indicating that libraries do reduce information barriers and help increase engagement with safety net programs.

Furthermore, our findings may raise concerns regarding endogeneity in the location selection of public libraries although we instrument with historical number of libraries. The prevalence of libraries is potentially correlated with higher median income and elevated educational attainment, as the majority of library funding is derived from local government sources and is closely linked to local taxes, which may be associated with individuals ineligible for safety-net programs. According to Fleary et al. (2022), economic, social, and health-related programs offered by public libraries are

more prevalent in areas with higher educational levels. This observation suggests that Public Use Microdata Areas (PUMAs) with reduced needs for safety-net programs, or in other words, with fewer eligible populations, are more likely to possess a greater number of libraries and resources. Consequently, our estimates are likely to be biased downward, resulting in conservative estimates. If libraries were more likely to be located randomly or optimally, the impact of library access on safety net program enrollment would likely be more substantial.

Our results suggest alternative channels for increasing take-up rates in safety net programs, particularly for individuals with limited access to information. Prior research has often examined the effects of introducing new approaches to reduce information barriers. Instead, we propose that public libraries, which are already established and function as community hubs, can act as complements in providing information and bridge individuals for benefits.

References

Aabø, S. and Audunson, R. (2012). Use of library space and the library as place. *Library & Information Science Research*, 34(2):138–149.

Abdus, S. (2025). Trends in Medicaid Take-Up Among Eligible Adults After the Affordable Care Act Medicaid Expansions: 2014–2019. *Medical Care Research and Review*, 82(1):100–106.

Aizer, A. (2003). Low Take-Up in Medicaid: Does Outreach Matter and for Whom? *American Economic Review*, 93(2):238–241.

Aizer, A. (2007). Public Health Insurance, Program Take-Up, and Child Health. *The Review of Economics and Statistics*, 89(3):400–415.

American Library Association (2015). New research highlights libraries' expanded roles. https://www.ala.org/news/2015/10/new-research-highlights-libraries-expanded-roles. Press release.

Bekkerman, A. and Gilpin, G. (2013). High-speed Internet growth and the demand for locally accessible information content. *Journal of Urban Economics*, 77:1–10.

Bertot, J. C., Jaeger, P. T., Lee, J., Dubbels, K., McDermott, A. J., and Real, B. (2014). 2013 digital inclusion survey: Survey findings and results. Technical report, Information Policy & Access Center, University of Maryland College Park, College Park, MD.

Bhargava, S. and Manoli, D. (2015). Psychological Frictions and the Incomplete Take-Up of Social Benefits: Evidence from an IRS Field Experiment. *American Economic Review*, 105(11):3489–3529.

Bhatt, R. (2010). The impact of public library use on reading, television, and academic outcomes. *Journal of Urban Economics*, 68(2):148–166.

Brian Real, Abigail J. McDermott, J. C. B. (2015). Digital inclusion and the affordable care act:public libraries, politics, policy, and enrollment in "obamacare". *Public Library Quarterly*, 34(1):1–22.

Brown, J. H. (2023). The impact of a long-term care information campaign on insurance coverage. *Journal of Health Economics*, 92:102822.

California State Library (2021). Value of libraries: Supporting vulnerable populations and addressing community needs. Technical report, California State Library.

Courtemanche, C., Marton, J., Ukert, B., Yelowitz, A., and Zapata, D. (2017). Early Impacts of the Affordable Care Act on Health Insurance Coverage in Medicaid Expansion and Non-Expansion States. *Journal of Policy Analysis and Management: [the Journal of the Association for Public Policy Analysis and Management]*, 36(1):178–210.

Currie, J. (2004). The Take Up of Social Benefits.

Currie, J. M. and Grogger, J. (2001). Explaining Recent Declines in Food Stamp Program Participation. *Brookings-Wharton Papers on Urban Affairs*, 2001(1):203–244.

DeBoer, L. (1992). Economies of scale and input substitution in public libraries. *Journal of Urban Economics*, 32(2):257–268.

Desai, S. M., Padmanabhan, P., Chen, A. Z., Lewis, A., and Glied, S. A. (2023). Hospital concentration and low-income populations: Evidence from New York State Medicaid. *Journal of Health Economics*, 90:102770.

Draper, C. L. (2022). Exploring the Feasibility of Partnerships between Public Libraries and the SNAP-Ed Program. *Public Library Quarterly*, 41(5):439–455.

Engeszer, R. J., Olmstadt, W., Daley, J., Norfolk, M., Krekeler, K., Rogers, M., Colditz, G., Anwuri, V. V., Morris, S., Voorhees, M., McDonald, B., Bernstein, J., Schoening, P., and Williams, L. (2016). Evolution of an academic–public library partnership. *Journal of the Medical Library Association : JMLA*, 104(1):62–66.

Ferreira Neto, A. B. and Hall, J. C. (2019). Economies of scale and governance of library systems: Evidence from West Virginia. *Economics of Governance*, 20(3):237–253.

Ferreira Neto, A. B., Nowicki, J., and Shakya, S. (2023). Do public libraries help mitigate crime? Evidence from Kansas City, MO. *Journal of Cultural Economics*.

Fleary, S. A., Gonçalves, C., Joseph, P. L., and Baker, D. M. (2022). Census Tract Demographics Associated with Libraries' Social, Economic, and Health-Related Programming. *International Journal of Environmental Research and Public Health*, 19(11):6598.

Gilpin, G., Karger, E., and Nencka, P. (2024). The Returns to Public Library Investment. *American Economic Journal: Economic Policy*, 16(2):78–109.

Giuntella, O. and Lonsky, J. (2020). The effects of DACA on health insurance, access to care, and health outcomes. *Journal of Health Economics*, 72:102320.

Goodman-Bacon, A. (2021). Difference-in-differences with variation in treatment timing. *Journal of Econometrics*, 225(2):254–277.

Hahn, Y. (2013). The effect of Medicaid physician fees on take-up of public health insurance among children in poverty. *Journal of Health Economics*, 32(2):452–462.

Hemmeter, J. A. (2006). Estimating Public Library Efficiency Using Stochastic Frontiers. *Public Finance Review*, 34(3):328–348.

Hoffman, J., Bertot, J. C., Davis, D. M., and Clark, L. (2011). Libraries connect communities: Public library funding & technology access study 2010-2011.

Ko, W. and Moffitt, R. A. (2022). Take-up of Social Benefits.

Leonard Davis Institute of Health Economics, University of Pennsylvania (n.d.). Public libraries and health. https://ldi.upenn.edu/our-work/research-updates/public-libraries-and-health/. Online research summary.

Linnan, L. A., Wildemuth, B. M., Gollop, C., Hull, P., Silbajoris, C., and Monnig, R. (2004). Public librarians as a resource for promoting health: Results from the Health for Everyone in Libraries Project (HELP) librarian survey. *Health Promotion Practice*, 5(2):182–190.

McGarry, K. M. and Schoeni, R. F. (2015). Understanding Participation in SSI. *SSRN Electronic Journal*.

Morgan, A. U., Dupuis, R., D'Alonzo, B., Johnson, A., Graves, A., Brooks, K. L., McClintock, A., Klusaritz, H., Bogner, H., Long, J. A., Grande, D., and Cannuscio, C. C. (2016). Beyond Books: Public Libraries As Partners For Population Health. *Health Affairs*, 35(11):2030–2036.

Myerson, R. and Li, H. (2022). Information Gaps and Health Insurance Enrollment: Evidence from the Affordable Care Act Navigator Programs. *American Journal of Health Economics*, 8(4):477–505.

National Academies of Sciences, Engineering, and Medicine (2023). Social safety net benefits. In *Behavioral Economics: Policy Impact and Future Directions*. National Academies Press. NCBI Bookshelf.

New York State Department of Health (2021). New york state of health open enrollment period begins for 2022 coverage. https://www.health.ny.gov/press/releases/2021/2021-12-02_open_enrollment.htm. Press release.

O'Malley, K. (2025). Libraries are public health hubs. https://www.wbur.org/cognoscenti/2025/09/09/public-libraries-health-maha-trump-imls-katherine-omalley. Opinion / essay.

Philbin, M. M., Parker, C. M., Flaherty, M. G., and Hirsch, J. S. (2019). Public Libraries: A Community-Level Resource to Advance Population Health. *Journal of Community Health*, 44(1):192–199.

Public Library Association (2021). Supporting formerly incarcerated individuals with a fresh start @ your library. https://www.ala.org/pla/education/onlinelearning/webinars/ondemand/freshstart. On-demand webinar; Public Library Association, American Library Association.

Reimers, I. and Waldfogel, J. (2024). The First Sale Doctrine and Public Library Provision of Print and Electronic Books. *The Review of Economics and Statistics*, pages 1–43.

Remler, D., Rachlin, J. E., and Glied, S. (2001). What Can the Take-Up of Other Programs Teach Us About How to Improve Take-Up of Health Insurance Programs?

Schmidt, L., Shore-Sheppard, L., and Watson, T. (2019). The Impact of Expanding Public Health Insurance on Safety Net Program Participation: Evidence from the ACA Medicaid Expansion.

Schmidt, L., Shore-Sheppard, L., and Watson, T. (2024). Safety-Net Program Spillovers and Administrative Burden. *National Tax Journal*, 77(1):199–221.

Vitaliano, D. F. (1997). X-Inefficiency in the Public Sector: The Case of Libraries. *Public Finance Review*, 25(6):629–643.

Vitaliano, D. F. (1998). Assessing Public Library Efficiency Using Data Envelopment Analysis. *Annals of Public and Cooperative Economics*, 69(1):107–122.

Whiteman, E. D., Dupuis, R., Morgan, A. U., D'Alonzo, B., Epstein, C., Klusaritz, H., and Cannuscio, C. C. (2018). Public Libraries As Partners for Health. *Preventing Chronic Disease*, 15:170392.

Witte, K. D. and Geys, B. (2011). Evaluating efficient public good provision: Theory and evidence from a generalised conditional efficiency model for public libraries. *Journal of Urban Economics*, 69(3):319–327.

Tables and Figures

Table 1: Descriptive Statistics

	2012	**2015**	**2019**
Individual Level Dependent Variables			
Medicaid enrollment rate	0.114	0.146	0.142
SNAP recipient rate	0.143	0.130	0.101
SSI recipient rate	0.031	0.030	0.027
Public assistance income recipient rate	0.018	0.016	0.013
PUMA level Public Library Measures			
Number of Library per 100,000 population	25.99	25.58	25.56
Total Library Revenue	141.618	165.802	187.233
Total Number of Staffs	1.14	1.25	1.21
Total Number of Library Patrons	132.2	125.8	107.1
Total Number of Safety-net Programs	25.19	33.48	41.64
Total Number of Computers	19.7	21.9	23.0
Average Operating Hours (Weekly)	46.5	47.3	48.0

Note: Public Library Variables are reported in PUMA level. The number of library patents and total revenues are reported in units of millions. The number of Staff and Public Programs provided by libraries are reported in units of ten thousands. Computers are reported in units of thousands. The Average Operating Hours are computed as the mean of county-level averages. Weekly operating hours were calculated as the mean of the county average operating hours. Revenues are inflation adjusted with 2020 CPI.

Table 2: Effect of Library Access on Safety net program enrollments

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	First Stage	Medicaid		SNAP		SSI		Other	
	Number of Libraries	OLS	IV	OLS	IV	OLS	IV	OLS	IV
Historical Number of Libraries	0.1363***								
	(0.0357)								
Number of Libraries		0.003***	0.008**	0.002***	-0.003	0.000	-0.000	0.000	-0.001
		(0.000)	(0.003)	(0.000)	(0.003)	(0.000)	(0.001)	(0.000)	(0.001)
F statistics	14.6162								
Mean of Dep. Var.		0.137		0.125		0.030		0.016	
Observations	15,298,803	15,298,803	15,298,803	15,298,803	15,298,803	15,298,803	15,298,803	15,298,803	15,298,803
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PUMA FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demographic Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.
Column (1) reports the first-stage regression of the number of libraries on the instrument number of libraries 20 years ago. The first-stage specification includes the same fixed effects and demographic controls as the IV specifications in columns (3), (5), (7), and (9).
Demographic controls include dummy variables for the percentage of poverty line (10-point increments), unemployment status, education level, race/ethnicity, age groups (5-year bins), marital status, number of children, foreign-born status, and citizenship status, log of population in PUMA and Medicaid expansion status.

Table 3: Effect of Library Access on Insurance Coverage Changes

	(1) First Stage	(2) Uninsured	(3)	(4) Employer insurance	(5)	(6) Direct insurance	(7)	(8) Medicare	(9)	(10) Medicaid	(11)
	Number of Libraries	OLS	IV	OLS	IV	OLS	IV	OLS	IV	OLS	IV
Historical Number of Libraries (20 years ago)	0.1363***										
	(0.0357)										
Number of Libraries		-0.004***	-0.006*	0.000	-0.001	0.001***	0.001	-0.000	0.000	0.003***	0.008**
		(0.000)	(0.003)	(0.000)	(0.003)	(0.000)	(0.003)	(0.000)	(0.001)	(0.000)	(0.003)
First-stage F statistic	14.6162										
Mean of Dep. Var.		0.152		0.603		0.108		0.038		0.140	
Observations	15,298,803	15,298,803	15,298,803	15,298,803	15,298,803	15,298,803	15,298,803	15,298,803	15,298,803	15,298,803	15,298,803
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PUMA FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demographic Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.
Column (1) reports the first-stage regression of the number of libraries on the instrument number of libraries 20 years ago. The first-stage specification includes the same fixed effects and demographic controls as the IV specifications in columns (3), (5), (7), and (9).
Demographic controls include dummy variables for the percentage of poverty line (10-point increments), unemployment status, education level, race/ethnicity, age groups (5-year bins), marital status, number of children, foreign-born status, and citizenship status, log of population in PUMA and Medicaid expansion status.

Table 4: Effect of Library Access on Safety-net Program Enrollment

	Medicaid	SNAP	SSI	Other
Panel I: Internet Access				
Panel A: No Internet Access				
Number of Libraries	0.004***	0.002*	0.000	0.001*
	(0.001)	(0.001)	(0.000)	(0.000)
Observations	1,107,262	1,107,262	1,107,262	1,107,262
Mean of Dep. Var.	0.273	0.305	0.0761	0.0331
Panel B: With Internet Access				
Number of Libraries	0.002***	0.001***	-0.000**	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Observations	11,506,771	11,506,771	11,506,771	11,506,771
Mean of Dep. Var.	0.127	0.120	0.0230	0.0134
Panel II: Urban-Rural Specification				
Panel C: Rural Areas				
Number of Libraries	0.002*	-0.001	0.000	0.000**
	(0.001)	(0.001)	(0.000)	(0.000)
Observations	4,044,963	4,044,963	4,044,963	4,044,963
Mean of Dep. Var.	0.147	0.155	0.0369	0.0156
Panel D: Urban Areas				
Number of Libraries	0.003***	0.002***	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Observations	11,253,840	11,253,840	11,253,840	11,253,840
Mean of Dep. Var.	0.139	0.135	0.0266	0.0157

Standard errors in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Note: Panel A–B split individuals with internet access. Panel C–D use 2010 county-level rurality index to define rural/urban PUMAs.
All regressions include PUMA and year fixed effects. SEs clustered at the PUMA level.
Demographic controls include dummy variables for the percentage of poverty line (10-point increments), unemployment status, education level, race/ethnicity, age groups (5-year bins), marital status, number of children, foreign-born status, and citizenship status, log of population in PUMA and Medicaid expansion status.

Table 5: Effect of other library characteristics on Safety Net program enrollment

	Medicaid	**SNAP**
Total number of Staffs (Unit:10,000)	0.0028*	-0.0008
	(0.0016)	(0.0010)
Total number of Public Use Computers (Unit:1,000)	0.0001	0.0002***
	(0.0000)	(0.0001)
Total number of Programs (Unit:100,000)	0.0000*	0.0001***
	(0.0000)	(0.0000)
Average Hours open per week per library	0.0121**	0.0190***
	(0.0055)	(0.0053)
Observations	15,298,803	

Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Note: All estimates are from separate regressions. PUMA and year fixed effects are included. Standard errors are clustered at the PUMA level. Demographic controls include dummy variables for the percentage of poverty line (10-point increments), unemployment status, education level, race/ethnicity, age groups (5-year bins), marital status, number of children, foreign-born status, and citizenship status, log of population in PUMA and Medicaid expansion status.

A Appendix

Figure A.1: Changes of Distribution of Libraries

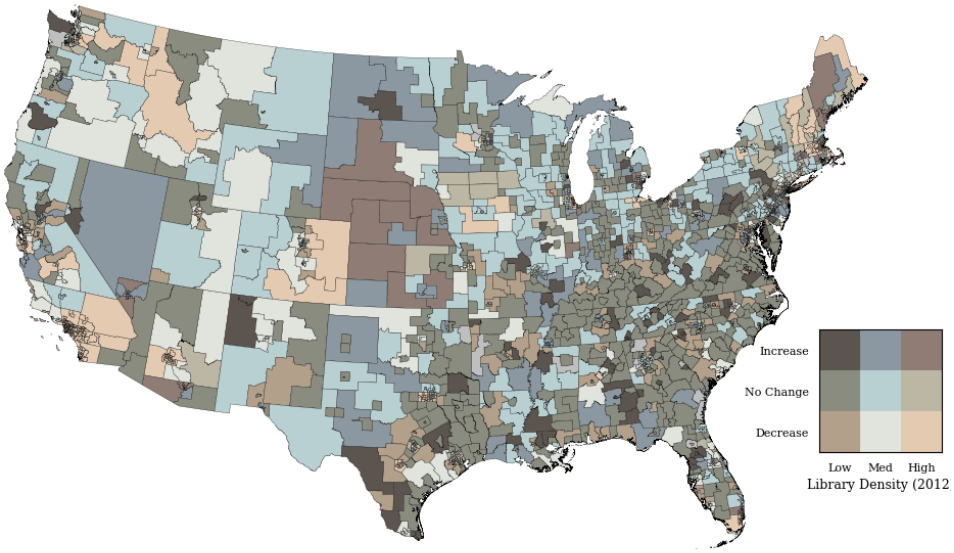


Table A.1: Effect of Library Access on Safety Net Program Enrollment, by Education Level

	Medicaid	SNAP	SSI	Other
Panel A: Less than High School				
Number of Libraries	0.005***	0.003***	0.000	0.000**
	(6.48)	(4.68)	(1.11)	(2.27)
Mean of Dep. Var.	0.303	0.308	0.077	0.033
Observations	1,658,745	1,658,745	1,658,745	1,658,745
Panel B: High School Graduate				
Number of Libraries	0.003***	0.003***	-0.000***	0.000
	(6.33)	(3.53)	(-0.17)	(-0.54)
Mean of Dep. Var.	0.178	0.176	0.039	0.018
Observations	3,405,070	3,405,070	3,405,070	3,405,070
Panel C: Some College				
Number of Libraries	0.003***	0.003***	-0.000***	0.000
	(5.64)	(7.77)	(-2.85)	(-0.71)
Mean of Dep. Var.	0.142	0.143	0.026	0.017
Observations	5,605,883	5,605,883	5,605,883	5,605,883
Panel D: College Graduate				
Number of Libraries	0.001***	0.001***	-0.000	0.000
	(1.99)	(-2.86)	(-0.21)	(1.24)
Mean of Dep. Var.	0.043	0.037	0.006	0.005
Observations	4,629,105	4,629,105	4,629,105	4,629,105

t-statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.
Note: A PUMA and year fixed effects are included. Standard errors are clustered at the PUMA level. Demographic controls include indicators for income relative to the poverty line (10-point bins), unemployment status, education, race/ethnicity, age groups (5-year bins), marital status, number of children, foreign-born status, and citizenship. Log PUMA population and Medicaid expansion status are included as PUMA-level controls.

Table A.2: Effect of Library Access on Safety Net Program Enrollment, by Age

	Medicaid	SNAP	SSI	Other
Panel A: Age 18–29				
Number of Libraries	0.004***	0.003***	-0.000	0.000
	(7.47)	(7.01)	(-0.84)	(-0.76)
Mean of Dep. Var.	0.163	0.159	0.019	0.014
Observations	3,709,629	3,709,629	3,709,629	3,709,629
Panel B: Age 30–49				
Number of Libraries	0.002***	0.002***	0.000	0.000
	(5.21)	(6.45)	(0.64)	(-0.15)
Mean of Dep. Var.	0.134	0.145	0.024	0.018
Observations	6,103,144	6,103,144	6,103,144	6,103,144
Panel C: Age 50–64				
Number of Libraries	0.002***	0.001***	-0.000	0.000
	(4.64)	(3.98)	(0.07)	(-0.31)
Mean of Dep. Var.	0.129	0.114	0.044	0.014
Observations	5,486,030	5,486,030	5,486,030	5,486,030

t-statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.
Note: A PUMA and year fixed effects are included. Standard errors are clustered at the PUMA level. Demographic controls include indicators for income relative to the poverty line (10-point bins), unemployment status, education, race/ethnicity, age groups (5-year bins), marital status, number of children, foreign-born status, and citizenship. Log of PUMA population and Medicaid expansion status are included as PUMA-level controls.

Table A.3: Effect of Library Access on Safety Net Program Enrollment, by Race/Ethnicity

Panel A: White	Medicaid	SNAP	SSI	Other
Number of Libraries	0.001***	0.001***	0.000	0.000
	(1.99)	(5.18)	(0.59)	(-0.20)
Mean of Dep. Var.	0.110	0.098	0.026	0.013
Observations	10,172,753	10,172,753	10,172,753	10,172,753
Panel B: Black				
Number of Libraries	-0.001	0.001	0.000	-0.000
	(-0.91)	(1.52)	(0.32)	(-0.94)
Mean of Dep. Var.	0.229	0.266	0.056	0.028
Observations	1,584,728	1,584,728	1,584,728	1,584,728
Panel C: Asian				
Number of Libraries	0.002***	0.001***	-0.000*	0.000
	(3.41)	(3.70)	(-2.10)	(0.06)
Mean of Dep. Var.	0.118	0.074	0.011	0.008
Observations	866,579	866,579	866,579	866,579
Panel D: Hispanic				
Number of Libraries	0.004***	0.003***	-0.000	0.000
	(6.18)	(5.90)	(-0.83)	(-1.69)
Mean of Dep. Var.	0.182	0.202	0.023	0.018
Observations	2,199,674	2,199,674	2,199,674	2,199,674

t-statistics in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.
Note: PUMA and year fixed effects are included. Standard errors are clustered at the PUMA level. Demographic controls include indicators for income relative to the poverty line (10-point bins), unemployment status, education, race/ethnicity, age groups (5-year bins), marital status, number of children, foreign-born status, and citizenship. Log PUMA population and Medicaid expansion status are included as PUMA-level controls.