



Recovery and Resilience in the Canal Community: Economic Impacts and Solutions During the COVID-19 Pandemic

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Received: 14 September 2021 / Revised: 17 April 2022 / Accepted: 20 April 2022
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Abstract

Background Public health pandemics, such as COVID-19, not only impact the physical health and wellbeing of communities but also often have far-reaching effects on their social, psychological, environmental, and economic welfare. The coronavirus pandemic has highlighted the significant inequities experienced among those who are Black, Indigenous, and People of Color (BIPOC), especially in the areas of housing instability, unemployment, and debt accrual. This study investigates the socioeconomic impacts of COVID-19 on residents of the Canal neighborhood (“The Canal”), a low-income Latinx community in Marin County, California. This study also uplifts mitigation strategies already underway to facilitate post-pandemic recovery efforts.

Methods This study utilized a mixed-methods, community participatory approach in which community leaders from a local nonprofit, Canal Alliance, administered a survey assessing the impact of COVID-19 on Canal residents. Additionally, community stakeholders including nonprofits, small businesses, and public officials were interviewed, and their field notes were analyzed through exploratory open coding.

Results On a macro level, the data showed that Canal residents were severely impacted by COVID-19 in the form of massive job loss (61.2% of respondents were unemployed or underemployed) as well as financial stress related to eviction, housing instability, and debt accrual (78.8% of respondents struggled to cover rent and often had to borrow money from friends and family).

Conclusions In spite of the severe socioeconomic impacts of COVID-19 on The Canal, there is a significant opportunity for recovery and growth because of an overwhelming investment by residents, community-based organizations, and public officials to support those who have been financially impacted by the pandemic. Some key areas of policy focus include expansion of affordable housing, pandemic-resistant workforce development, and restructuring of social services to increase accessibility. This report will explore recommendations related to strategic funding of community-based programs as well as short-term and long-term solutions for economic recovery.

Keywords Housing · COVID-19 testing · Debt · Employment · Social services · Racial inequities · Social determinants of health · Community health

Introduction

In the wake of COVID-19, the disproportionate number of cases and mortalities among BIPOC communities has forced those in power to reckon with the health disparities

deeply ingrained in systems and institutions across the USA. In October 2020, death rates due to COVID-19 were the highest among Black and Indigenous people, followed by Pacific Islanders and Latinx people [1]. As the pandemic continues to unfold, preliminary research suggests that the economic aftermath of the pandemic will soon result in devastating impacts among these same groups of people in the form of widespread unemployment and a growing number of individuals and families living below the federal poverty line [2]. In spite of this, these communities have found ways

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to maintain financially and support one another by building strong social networks and utilizing local resources.

One such community, located in California's San Francisco Bay Area, has suffered a high COVID-19 case rate and devastating health impacts among many of its residents. This community, known as "The Canal," is located in California's wealthiest county, Marin. The Canal is composed of an 81% Latinx majority and home to several different indigenous groups such as The Mam and K'iche' of Central America [3]. Despite the fact that just 16% of Marin County's total population is Latinx, by March 2020, they accounted for 74% of COVID-19 infections and 13% of deaths [4]. Unsurprisingly, most of these cases come from The Canal neighborhood – a region where COVID-19 positive testing rates peaked at 40% in August 2020 [5]. As a result of the community's high case rate, The Canal stands vulnerable to ongoing economic instability in the aftermath of the pandemic, and possibly other future disasters or crises. Lastly, given the disproportionate impact of COVID-19 on the community, and the subsequent clustering of transmission in the region, this study will utilize an exploratory approach to pandemic research in order to further understand methods of containing the spread of the virus, bolster recovery efforts, and expand these interventions to other parts of the county.

Objectives

In line with presenting community needs, the objectives of this study are threefold.

1. Impact

To understand the overarching health impacts of COVID-19 on residents of the Canal Community in San Rafael, CA, by investigating housing insecurity, unemployment, and financial stability/mobility.

2. Resilience

To understand the vulnerability and subsequent resilience of the region after statewide Shelter in Place measures are lifted by surveying the community on pressing economic, social, and health needs.

3. Solutions

To collaborate with Canal residents/stakeholders to propose potential policy reform and other remedies to support the community in the aftermath of COVID-19.

Background

Recovery of The Canal requires a global understanding of how the world, in general, is faring as a result of the COVID-19 pandemic. A 2020 report from the World Bank estimated that 11 million people could fall into poverty across from job loss in East Asia and the Pacific, and an additional 49 million individuals in other poor countries [6]. Domestically, in the first weeks of the pandemic (between March 15 and April 25, 2020), a record 30.2 million Americans filed for unemployment, with the unofficial unemployment rate hitting 14.7% [6].

Marin County was the third most highly impacted county out of the nine Bay Area counties when it comes to unemployment. Within the Bay Area, the unemployment rate was estimated at 27.4% in late 2020, just under the national estimated unemployment rate of 32.1%. In April 2020, the unemployment rate for Marin County peaked at 11.2%, climbing rapidly from just 2.3% in November 2019 [7].

Disproportionate Economic Impacts of COVID-19 on BIPOC and Low-income Communities

To address the financial impacts of COVID-19 on communities like The Canal, it is imperative to contextualize these data within the larger trends of disproportionate cases, mortalities, and negative economic effects among BIPOC individuals and families [2]. A national study revealed that Black and Hispanic people are dying in the largest numbers¹ in every age group [2]. This finding alone poses great importance to The Canal, a primarily Latinx neighborhood [3].

Preliminary economic data has also revealed that the COVID-19 pandemic and the concurrent shelter-in-place orders across the country have had the most extreme impact on women, non-White workers, lower-wage earners, and those with low levels of education [2]. Furthermore, 70% of Hispanic adults in the USA indicated that they did not have enough emergency funds to cover three months of expenses [2].

There have been severe financial losses among small businesses as well – both in closures and decreasing revenues. Nationally, approximately 50% of small businesses have not been able to rehire the employees they laid off [2]. Consequently, about 12 million unemployed were expected to have their benefits cut off entirely at the end of 2020 [8].

Employment Impacts on Latinx Population

In addition to causing disproportionately high mortality and case rates among Latinx populations, COVID-19 has also highlighted major health and economic disparities

¹ This data point refers to the death toll relative to share of US population.

when it comes to accessing healthcare, housing, and employment. One study reports that “among Hispanic adults at high risk for severe illness, 64.5% lived in households with at least one worker who was unable to work from home compared to only 46.6% among White adults” [9], page 1624). Recent data have also revealed that BIPOC and low-income populations living in urban settings more frequently live in crowded conditions and work in public-facing occupations that prevent physical distancing [10]. These findings illustrate a strong intersection between race, COVID-19 infection, and negative economic impacts—a theme that this study also explores.

Economic Impacts on Housing Stability During COVID-19

Preliminary research related to the housing impacts of COVID-19 has already demonstrated how the pandemic has disproportionately burdened renters compared to homeowners [11]. In the main industries that have been affected by economic shutdowns (food, accommodation, entertainment, retail, transportation), 31% of employees are renters, leaving service workers most vulnerable to eviction [11]. Furthermore, it has been predicted that 12 million renters will owe an average of \$5850 in back rent and utilities by January 2021 [8]. These data also indicated that the individuals and families most struggling with rental payments were typically BIPOC, including about 17% of Hispanic renters [8].

While many economists have speculated that the aftermath of COVID-19 will be comparable to the 2008 Housing Crisis, more recent data suggest that COVID-19 is notably different, in that it has more significantly impacted renters rather than homeowners [11]. The 2008 Housing Crisis specifically affected homeowners of all income levels, and for the most part, renters found themselves protected from the resulting foreclosures and massive debts. A recent study summarized this key difference by pointing out that homeowners often have more financial assets which may allow them to recover more easily, whereas renters (particularly low-income renters) tend to have less financial resiliency [11].

Experts foresee a future of potential mass evictions, deteriorating housing stock, and a potential housing market crash [11], as well as a “tidal wave” of accruing debt and unpaid rent that will only continue to grow unless comprehensive and fast-acting government relief is implemented [8].

i. Trust in Government Response

At the beginning of the COVID-19 pandemic, researchers in Israel conducted a national study to explore the psychological attributes and community-based influences that produced positive outcomes for individuals impacted by COVID-19. One of the key findings highlighted trust in government response as a strong indicator of financial resilience during the pandemic [12]. Furthermore, they concluded that a national acknowledgment of economic impacts, coupled with urgent and fast action, is a secondary indicator of a population’s ability to cope with the consequences of COVID-19 [12].

While these findings may at first appear obvious, they are significant in formulating an eventual economic response plan in communities like The Canal, where the messaging, language, and response of governmental leaders must be integrated in a way that promotes coping and resilience at a community level, rather than impeding it.

ii. Coordinated Reconstruction Efforts: Lessons from Hurricane Katrina

Although Hurricane Katrina devastated New Orleans over fifteen years ago, the reconstruction efforts serve as powerful reminders of the importance of community-driven recovery. In the aftermath of Hurricane Katrina, it was concluded that national recovery plans should focus on betterment instead of rapid recovery [13]. Unfortunately, the “betterment” framework was not aligned with the community’s vision and therefore failed to address the urgent needs of those living in severely damaged neighborhoods [13]. “Betterment” efforts also proved inadequate when it came to integrating equity into recovery plans. The national planning team tasked with providing economic support did not adhere to the evacuees’ public outcries for subsidized housing voucher programs and new affordable housing developments, which ultimately resulted in poor outcomes in long-term recovery efforts [13].

Another key finding in evaluating the Hurricane Katrina response is the importance of investing in employment sectors that can provide an optimal number of available jobs for individuals in hurricane-ravaged communities. Specifically, researchers learned that jobs related to culture, health, education, and port economy should have been prioritized in rebuilding industry and potential employment opportunities [13]. Understanding areas of economic opportunity is vital in the analysis of this study and important in guiding potential recommendations to expand workforce development.

Methods

Design

This study investigated the long-term health, social, and economic impacts of COVID-19 on The Canal neighborhood, a primarily Latinx, census-designated “low-income” area in Marin County. A mixed-methods approach was utilized, in that both quantitative data analysis and surveying as well as qualitative interviews were integrated into the research design [14].

Moreover, this study was structured by employing a community participatory research framework [15]. Community stakeholders within The Canal led, informed, and primarily implemented the project. All research materials were reviewed and evaluated by community members, and community leaders were consulted at each stage of the research. Moreover, the overall objective of the study was to transform the findings of the study into useful, operationalized policy recommendations to share with local officials in order to better meet the needs of Canal residents.

Specifically, the study was developed in close partnership with Canal Alliance, a community development corporation and an anchor institution that has served The Canal neighborhood for 38 years. For the quantitative component of the study, Canal Alliance community leaders conducted surveys telephonically and in-person at a weekly food pantry (with CDC protocols in place). The survey was also made available via Canal Alliance social media platforms (Facebook and Instagram) during the time period of November 2020–January 2021. Additionally, eleven community stakeholders (including business leaders, nonprofit representatives, and public officials) participated in interviews for the qualitative component of the study.

Resultant Outputs

To compute the impact of COVID-19 on the variables of interest (employment, housing, and debt accrual), questionnaire responses were totaled on the survey platform, Qualtrics. These raw datasets were then input into R coding software, where multivariate comparisons were tabulated to illustrate relevant findings. These findings were then transferred to Microsoft Excel and developed into figures, graphs, and tables.

Qualitative data was analyzed after interview notes were uploaded into the statistical platform, Dedoose, and coded by four researchers for overlying themes. Inter-rater reliability was assessed through a process in which each qualitative transcript was coded by at least two researchers. Relevant data was then weighted and evaluated for frequency.

Setting and Participants

The study interviewed and surveyed residents and stakeholders living and/or working within the 94,901 zip code, within the geographic region encompassed by census tracts 1122.01 and 1122.02.



Map of The Canal – San Rafael, California. (Crispell, 2015 [16]).

In partnership with Canal Alliance and community leaders, the research team utilized convenience sampling to complete the survey questionnaire and qualitative interviews.

Quantitative Surveys

Canal Alliance staff and community leaders identified participants from their personal networks and the organizational database. In total, between electronic and in-person/telephonic surveys, 1309 entries were completed. Approximately 450 surveys were completed by community leaders with in-person paper surveys, 385 were completed by community leaders via an online survey tool, and 474 were completed via social media outreach. Potential participants were approached in-person at Canal Alliance’s weekly food pantry by community leaders, via text message from Canal Alliance’s client database, and through community leaders’ personal contacts. The link to the online version of the survey was also disseminated through Canal Alliance’s social media platforms (Facebook and Instagram).

Qualitative Interviews

In addition, researchers conducted eleven qualitative interviews with Canal officials/stakeholders who were selected under the guidance of Canal Alliance staff and personnel. These stakeholders included local business owners,

community organizers, individuals employed by Canal-based nonprofits, educators, and medical professionals working in the community.

Inclusion Criteria

Inclusion criteria were co-created by the research team and Canal Alliance. Based on the sampling methodology, only participants that were identified by community leaders or staff and lived or worked in the geographic region were invited to participate. Based on the survey format (virtually via social media or in-person through surveying with community health workers), participants needed to have access to either a digital device or contact with Canal Alliance and their community health workers. Lastly, criteria related to age and ability were developed in accordance to UC Berkeley's ethical research guidelines.

Participant Criteria

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- Must be a resident, government official, small business owner, or otherwise stakeholder of the Canal Community (within the 94,901 zip code, census tracts 1122.01 and 1122.02) during the time of participating in the survey (between February 2020 and February 2021)
 - Must be 18 years or older
 - Must be physically and/or psychologically able to participate in an interview
 - Must be selected/identified by Canal Alliance
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Resident Surveys

The quantitative survey consisted of approximately thirty multiple-choice questions available in both English and Spanish (see Appendix, Fig. I). No personally identifying demographic information was collected, i.e., all survey and interview materials omitted name, address, and phone number. Survey content focused on respondents' personal experience during COVID-19 in the areas of housing, employment, debt, and COVID-19 testing, as well as recommendations for community social and economic recovery. Quantitative surveys lasted approximately 10–15 min and took place between November 2020 and January 2021.

Survey Development

The survey tool underwent an extensive and reiterative process before utilization with participants. First, the broader categories of interest were identified by Canal Alliance to frame the specific questions and formatting (mostly

multiple choice). The survey was then translated by a team of seven UC Berkeley undergraduate Spanish speakers (who identified as both native and non-native speakers). To ensure translation validity and reliability, each translation was reviewed by at least four different translators, and where discrepancies in vocabulary presented, students convened to agree upon the most appropriate Spanish terminology.

After the first draft, the survey was shared with Canal Alliance staff, UC Berkeley faculty, and community leaders for feedback and revision. The tool was then piloted among a group of 24 UC Berkeley Graduate Public Health students in a working group in which they shared feedback and edits. Lastly, the final version was shared with 30 community leaders for final revisions before dissemination in the community. According to many of the community leaders, much of the Spanish translation was too formal and confusing. Translators worked with principal investigators to increase language accessibility and also shorten the length and unnecessary content in the survey.

Analysis

The quantitative survey was disseminated and collated utilizing the Qualtrics platform. They were then exported to Excel and R for synthesis and univariate and bivariate data tabulations.

Stakeholder Qualitative Interviews

Structured qualitative interviews with individual stakeholders were conducted via encrypted zoom software or telephone and lasted approximately 30–45 min each. A copy of the qualitative interview protocol is included in the Appendix, Fig. J. They were not audio or video recorded. Respondents consented to participation and the documentation of field notes verbally during the interview. In each interview, one researcher interviewed the participant while a separate researcher completed field notes. The team of qualitative interviewers and notetakers consisted of a principle investigator and four research assistants. The principle investigator mostly conducted interviews while the research assistants took notes. The interview guide consisted of approximately 10 open-ended questions that addressed the perceived socioeconomic impacts of COVID-19 on The Canal as well as recommendations for recovery efforts.

Analysis

Field notes (with brief summaries) were uploaded into the Dedoose qualitative coding platform. They were coded by six researchers using a Grounded Theory framework and

exploratory open coding approach [17]. Researchers utilized inductive reasoning to develop theories from the data set rather than investigating a hypothesis. Split between the team, each field note was coded by three people.

Results

Summary of Key Findings

- **Employment:** 73.9% of respondents reported making less money since the start of COVID-19, and 61.2% of respondents reported they were either unemployed or underemployed
- **Housing:** Approximately 1/3rd of respondents indicated that they were primarily struggling to cover their rent each month (compared to other expenses)
- **Debt Accrual:** 78.8% of respondents indicated that they struggled to cover their basic household expenses at some point during the pandemic
- **Solutions:** Top recommendations for economic recovery were respectively (1) financial relief programs for unemployed individuals and families, (2) rental support, and (3) utility bill assistance
- **Response Rates:** Among the qualitative stakeholder interviews, 11 out of 12 (91.67%) individuals participated in a completed interview protocol. The overall response rate for quantitative surveys is difficult to estimate given the informal nature of outreach (i.e., “shares” on social media, word-of-mouth conversations, community health workers approaching Canal residents at public events). In total, 1310 complete surveys were analyzed (54 English surveys and 1256 Spanish surveys)

Employment During COVID-19

Survey data revealed that significant losses were suffered by Canal residents during the initial COVID-19 lockdown periods and through the rest of 2020 in the form of decreasing income, unemployment, and difficulty finding a job. Specifically, 73.9% of respondents reported making less money since the start of COVID-19, and 61.2% of respondents reported they were either unemployed or underemployed (working less than 40 h/week) (Fig. A). For job seekers, in particular, 61.3% of respondents were unable to find a new job after losing their previous job during COVID-19 (Fig. A).

As a consequence of significant and widespread job loss, many households experienced a severe drop in income (630 participants out of 1066 answering this question reported making \$0–999 last month – October, November, or December 2020) (Fig. B). Furthermore, 50.07% of those who lost income reported a loss of between \$501 and \$1000 per month (Fig. C).

Parallel observations were made by Canal stakeholders who noted the total elimination of many jobs in the sectors of childcare, hospitality, and housecleaning, with mixed impacts on the field of landscaping and construction. In some cases, respondents reported stable and ongoing employment in landscaping and construction jobs, while others noted the elimination of such jobs during the pandemic. One participant noted, “*The number of cases in the area were three times higher than other communities. Most workers were frontline workers. A lot of businesses had to shut down following state orders and this affected Canal parents since most were working in the food industry.*”

The industries described in the qualitative interviews as experiencing lay-offs and closures matched survey results. Most survey respondents reported to have worked prior to the pandemic in either housecleaning, restaurants/hospitality, or gardening/construction (Fig. D).

One interview respondent in the local business community also noted, “*Construction might be a focus of growth in the aftermath of the pandemic. In Marin County it is challenging to find people interested in construction programs. [I] observed that the construction industry remained stable throughout the pandemic.*”

Despite the quantitative evidence that many Canal residents work in the profession of “gardening/construction,” the statement by the interviewee from the local business community reflects a gap in filling available construction jobs with skilled construction workers or gardeners who are seeking work. This contradiction also calls for further delineation between gardening and construction work in order to understand the true population of available construction workers in The Canal.

Impact on Housing During COVID-19

Quantitative housing data revealed that the majority of survey respondents (71.7%) are renters or subletters in apartment dwellings, and that paying rent has posed the greatest financial challenge during the COVID-19 pandemic. Approximately 1/3rd of respondents indicated that they were primarily struggling to cover their rent each month compared to other expenses. To lessen the burden, over 50% of respondents stated that they are splitting rent with roommates and/or receiving rental assistance from friends and family (Fig. E).

Several interview respondents also noted that many families in The Canal live in “*multigenerational*” and “*overcrowded*” apartments in which many individuals are cohabitating in a shared space and “*multiple families are living under the same roof*.”

Regarding eviction rates during the COVID-19 pandemic, approximately 5.3% of respondents stated that they had been evicted or received an eviction notice.

One Canal stakeholder expressed similar concern over rising eviction rates: “*People were unable to pay rent and in some cases this led to self-eviction. Non-profit organizations have worked on rent freezes and eviction moratorium...[but the rent freezes] have short term positive effects [and] long term negative effects.*”

Debt Accrual During COVID-19

As a result of high rates of unemployment and job loss or underemployment, most respondents (78.8%) indicated that they struggled to cover their basic household expenses at some point during the pandemic. When unable to pay a bill, 26.2% of respondents reported soliciting help from family members, and 23.2% reported requesting an extension from the billing agency (Fig. F).

As for receiving public benefits and other forms of governmental support, the most widely used program was Medi-Cal. Five hundred and twenty-nine survey respondents (nearly half of overall respondents) reported using Medi-Cal, and 278 respondents reported that they did not use any public benefit programs (Fig. G).

Borrowing money from trusted friends and family members presented as a common form of seeking financial sustainability and survival: Out of 1041 respondents answering this question, 60.2% ($n = 627$) had debt owed money to friends or family, and 23% of respondents ($n = 239$) owed money to financial lenders.

Impacts and Solutions Towards Economic Recovery During COVID-19

In identifying the level of impact that COVID-19 has had on Canal residents’ financial circumstances, the overwhelming majority (97.8%) of respondents reported that they are not doing well financially since the pandemic. Survey data revealed that 998 out of 1020 respondents are “doing okay” or “worse” financially since the pandemic. In particular, most participants indicated that housing and unemployment were the most difficult part of COVID-19. Instructed to choose the top 3 challenging parts of the pandemic, 637 respondents selected unemployment as the main challenge, and 399 respondents selected housing instability (out of 2537 total responses).

In alignment with these pressing concerns, respondents asked for recommendations to improve their situation and stressed the need for governmental intervention in housing assistance and workforce development. Instructed to choose their top 3 recommendations for “those in charge” to better support the Canal Community, 636 respondents indicated that financial relief programs for unemployed individuals and families would be the most helpful intervention, followed by 495 respondents who ranked monetary support for housing/rent, and 345 who recommended providing utility bill assistance (Fig. H).

Interview respondents reported severe impacts on the community that pose a serious threat to rapid economic recovery. One participant shared, “*Our greatest fear is that residents of Canal may leave the area – a large portion of the area has been forced to leave because of the lack of housing (which has had) a huge impact on community.*” While another reported, “*The COVID-19 pandemic has greatly impacted the Hispanic community causing high unemployment rates and housing issues involving residents’ inability to pay rent.*”

Key Themes and Supporting Evidence

An overview of both qualitative and quantitative findings revealed five key themes present in both interviews and surveys that encapsulate both the most significant impacts of COVID-19 on The Canal as well as possible solutions or opportunities for economic recovery.

Main theme	Qualitative theme	Quantitative evidence
Housing as a primary stressor	Community-based organizations and policymakers need to team up to provide supportive housing services and rental protection in order to meet the growing need of residents facing housing instability	Approximately 1/3rd of respondents indicated that they were struggling most with paying rent
The importance of familial networks for financial support	Many Canal residents made ends meet throughout the pandemic by relying on familial networks	60.2% of respondents in debt owe money to friends or family
The relationship between unemployment and surmounting debt	Long stretches of unemployment and limited income have resulted in large debts among many residents, the result of which could be devastating in the future	78.8% of respondents reported that their household income has been too low to cover their basic expenses

Main theme	Qualitative theme	Quantitative evidence
A need for easily accessible services	There is a presenting need for increased accessibility of services and resources	278 respondents reported that they did not use any public benefit programs
Investing in pandemic-resistance workforce development	Policy makers should invest in workforce development in pandemic-resistant occupations or sectors	Only 11.6% of respondents reported that they were working 40 or more hours per week

Based on the reported findings above, we summarize the main points and recommendations below.

1. Housing as a Primary Stressor

Housing was frequently mentioned in qualitative interviews and a prevalent theme in resident surveys. Specifically, survey data revealed that many people who lost employment or experienced a reduction in weekly hours were most concerned about covering rental payments and had consequently accumulated debts to friends, family, and financial lenders as a result. The vast majority of respondents reported that they were either renters or subletters and thus are at increased risk for eviction or sudden changes in housing circumstances.

Notably, the top recommendation within the local community was a call for increased housing support and assistance. Similarly, interview respondents highlighted the siloed nature of current housing assistance and mutual aid programs in the county, and the challenges some residents face in accessing them – in the form of language/translation barriers, long wait times, and bureaucratic processes. One respondent summarized this sentiment by stating, “*I believe that there is opportunity for nonprofits and community advocates to address housing disparities and the lack of affordable housing as well as the lack of protection for renters. [There need to be] provisions around evictions, and rent control needs to be stronger. [We proposed] buying a motel for homeless or housing and the idea was shut down.*”

2. The Importance of Familial Networks for Financial Support

Overwhelmingly, survey participants reported that they were leaning on friends and family members for financial support during periods of unemployment, job loss, and economic instability. Sixty point two percent of respondents facing debt indicated that they received funds from loved ones, a percentage exceeding other sources like nonprofits, lending companies, or governmental entities.

This finding was strongly echoed in stakeholder interviews, in that many respondents speculated that Canal residents were making ends meet by pulling together as a community and “picking up slack” when an individual or family might be struggling. As one respondent noted, “*A lot of business owners borrow from their families, from [past] generations...the money runs out.*”

This structure of community-centered networks may pose vulnerability to lending companies, who could potentially target families who are at or near the edge of poverty. This could consequently push reimbursement and pay-back efforts well into the future as families begin to recover financially and/or utilize loans.

3. The Relationship Between Unemployment and Mounting Debt

Unsurprisingly, 61.2% of respondents reported that they had lost employment or experienced a reduction in hours and simultaneously struggled to cover their basic needs, forcing them to turn to alternative sources of financial support. One interview respondent observed, “*Families were living on the edge before the pandemic hit, [and] had no emergency funds. They were devastated without any warning...When the breadwinner gets sick, how does the family recover?*”.

While some participants indicated that they turned to familial networks or accessed governmental funds, many people also shared that in the event of a \$200 emergency, they would not have the money readily available nor know where to find it. Furthermore, those who were actively job seeking were struggling to secure new employment and, at best, were offered a few hours rather than full-time work. The phenomena of unemployment and debt were discussed in several interviews, when respondents noted that the high rate of job loss in The Canal resulted in the accumulation of massive debts. One respondent speculated that these debts could result in the displacement of many families in the coming years.

4. A Need for Easily Accessible Services

Despite the very apparent need for economic support and services, there were a considerably small number of survey respondents who reported utilizing governmental benefits or mutual aid funds. An interview participant similarly speculated, “*In general there has been a long-standing acknowledgement that The Canal needs more to get the same opportunities as other parts of Marin – access to housing, internet, healthy good food, access to everything.*”

Responses to a question about benefits utilization in particular revealed a very small number of people who

were actually receiving services – including free social services like weekly food pantries. It is curious as to why this trend exists and could be related to the rigid eligibility criteria of some public benefits, including the requirement of proof of legal status. On the other hand, it is possible that there is a lack of knowledge of these programs and/or challenges in enrollment and registration.

Offering a potential future vision for The Canal, one interview participant described a countywide collaboration between Marin County school districts, local nonprofits, and other interested parties to provide a “one-stop shop” of social services in a building that would span several blocks and offer a variety of supports and programs for individuals and families in need. She emphasized the importance of centralizing resources and convening them in a shared, widely accessible space where community members could gather.

5. Investing in Pandemic-resistance Workforce Development

In exploring the devastating impacts of COVID-19 on the occupational sectors that are common among Canal residents, it is evident that professions like childcare/education, housecleaning, restaurants/hospitality, and in some cases, construction are vulnerable to shelter-in-place orders and consequential lay-offs. Unsurprisingly, these fields involve significant “in-person” or “direct contact” with others and therefore pose a risk to airborne transmission of COVID-19. The closure – both temporary and permanent – of many businesses in these sectors across the USA primarily impacted “frontline” workers, where some individuals were eligible for sick pay or paid time off and many others were not. Furthermore, these professions also do not easily transition to remote or “work from home” employment and usually cannot be adapted into quarantined environments.

Given these realities, and the high volume of Canal residents employed in jobs vulnerable to layoff or termination, it is critical that new workforce opportunities are actively created with the support of the county, state, and federal government. This was acknowledged by several interview respondents who suggested that increasing partnerships with employers and educational or vocational institutions is integral to sustained economic stability in The Canal. Not only should these programs include employment opportunities tied to higher education but also vocational trades that are resilient to future public health crises. An interview respondent suggested,

“[Some areas of future economic development could be] increase in IT, cyber security...Anything tech related will continue to expand. Also, “green” manufacturing take-out products, online packaging, manufacturing – marketing, distributing.” This type of strategic workforce expansion not only signals a firm investment in community health and welfare but serves as a protection against potential economic devastation down the line.

Discussion

Research from this study shows that the COVID-19 pandemic has had a clear and dramatic impact on The Canal Community. Despite limited pre-pandemic data (with respect to rates of housing insecurity, unemployment, and debt), statewide data proves that the effects of COVID-19 on the community are significant, even compared to California as a whole. For example, the 5.3% eviction rate of study participants is nearly five times as high as the state average of 0.83% (based on most recently reported statewide eviction data) (Eviction [18]). On a national scale, 3.4% of Americans’ personal debt was delinquent in September 2020 compared to the 60.2% of Canal residents interviewed in this study [19]. Given the aforementioned barriers and challenges faced by residents of the Canal specifically, study findings suggest that the Canal Community is suffering disproportionately to the rest of the state and country, despite being geographically located in one of the USA’s wealthiest counties.

Limitations and Directions for Future Research

Limitations in the Literature

It should be noted that it was increasingly difficult to identify previous studies or reports that specifically address the issue of debt accrual and lending in the aftermath of a public health crisis or natural disaster. This study aimed to investigate how debt accrual has and will affect residents during the COVID-19 pandemic. It appears that very little research has been done on this particular subject, and that more data investigating debt during public health crises are needed.

Additionally, much of the available literature tended to highlight perceived benefits or failures of local government, political institutions, and communities themselves rather than the particular interventions or strategies that have facilitated survival and sustainability in the economic aftermath of a disaster or crisis. Further analysis and exploration of the resilience strategies in the fields of public health and public

policy should also highlight “asset-based” frameworks that showcase the ways in which communities build on solutions and strategies.

Methodological Limitations

Throughout the surveying process, the need for various adjustments in future iterations of this study or parallel research should be considered. Some of the surveyors reported that there were various elements of the survey tool that made it difficult to utilize and, if amended, would yield better results. For example, phrasing such as “select your top 3 answers” and “check all that apply” was confusing to respondents. Many questions were framed as “check all that apply” so that some people selected multiple answers, and not all responses represented independent participants. Additionally, there was a significantly higher incompleteness rate for surveys submitted online versus those completed in-person or telephonically with community leaders. The volume and sequencing of questions was also overwhelming to respondents and surveyors alike. Fewer questions and improved ordering of the survey tool would have also likely produced better results.

Ongoing Research on the Socioeconomic Impacts of COVID-19

Future research on the socioeconomic impacts of COVID-19 on The Canal should target subject areas and demographics that this study was not able to reach. It is critical to investigate the unique and specific impacts on undocumented residents of The Canal – a particularly vulnerable group given their lack of legal status and the significant barriers that pose to accessing healthcare resources and social services as well as securing reliable employment. However, future research with this population must take into account confidentiality and privacy concerns first and foremost.

Similarly, there is a clear and present need to better engage indigenous populations living in The Canal, such as those who belong to the Ma'm and K'iche' groups. To engage indigenous residents, it is necessary to involve bilingual individuals from those specific communities. Secondly, this study revealed the need to investigate worker's rights, and the inability of employees to take sick time due to the risk of losing their job and income. An additional area of interest is the socioeconomic impacts on women, specifically during COVID-19, and the tailored supports necessary to facilitate their financial mobility.

Conclusion

The socioeconomic impacts of COVID-19 are wide and far-reaching, especially among low-income BIPOC communities across the USA. Where stark disparities have come to light related to access to healthcare services and life-saving treatment, attention dedicated to the economic context surrounding COVID-19 is necessary. Within Marin County's Canal, serious negative impacts have been experienced by residents in the areas of lost financial capital and housing instability and pose a major threat to residents newly at risk of displacement. These factors alone position The Canal as increasingly vulnerable to a future natural disaster or public health crisis, even after the COVID-19 pandemic.

However, despite the dire circumstances, The Canal has fostered resiliency in practicing various strategies residents utilize to help one another, make ends meet, and advocate for change. Urgent action is desperately needed in the areas of affordable housing, pandemic-resistant workforce development, and the restructuring of social services. More importantly, community voice and opinion are critical in the creation of such services in order to ensure that they are culturally informed, accessible, and effectively addressing the economic need. Such an approach warrants a future-facing, strength-based framework that employs the tools and resources inherent to The Canal Community.

Appendix

Figure A

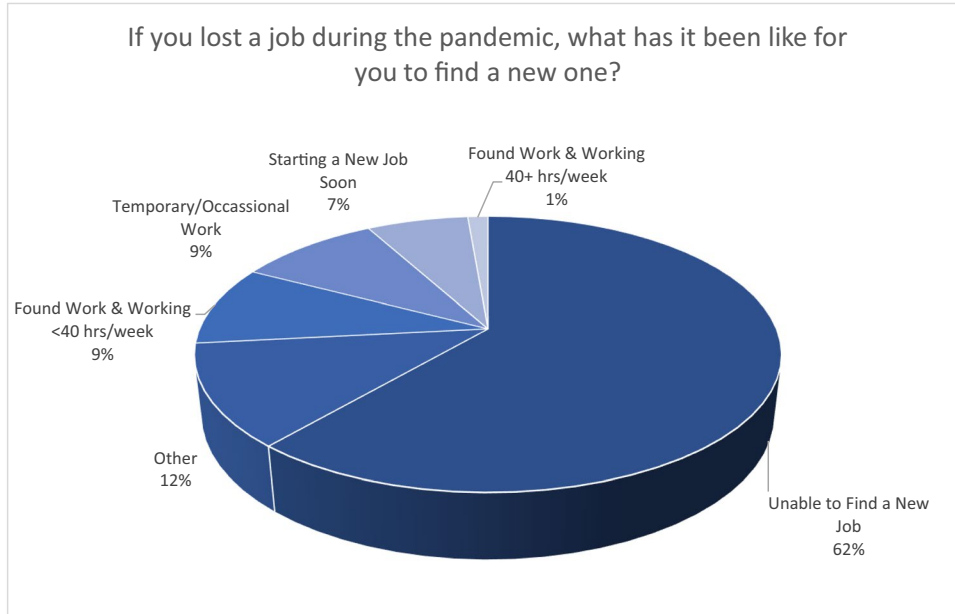


Figure B

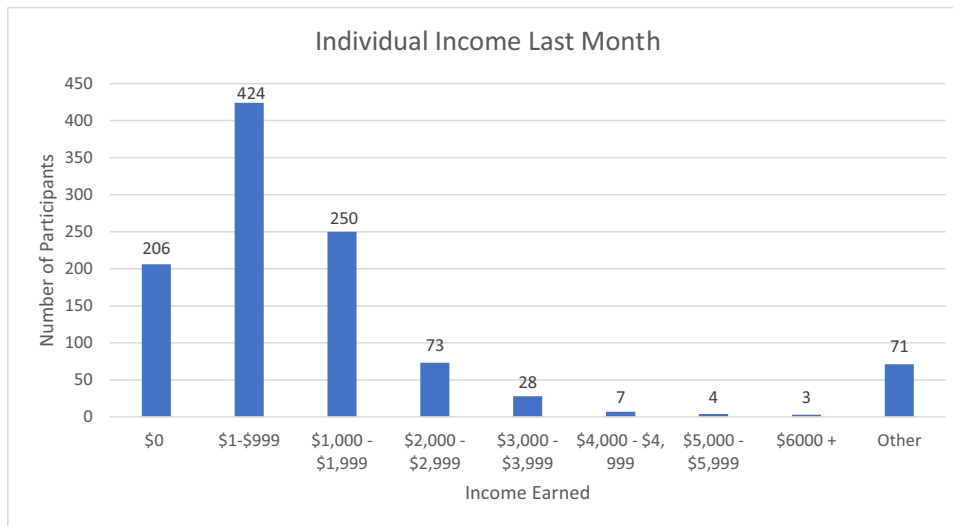


Figure C

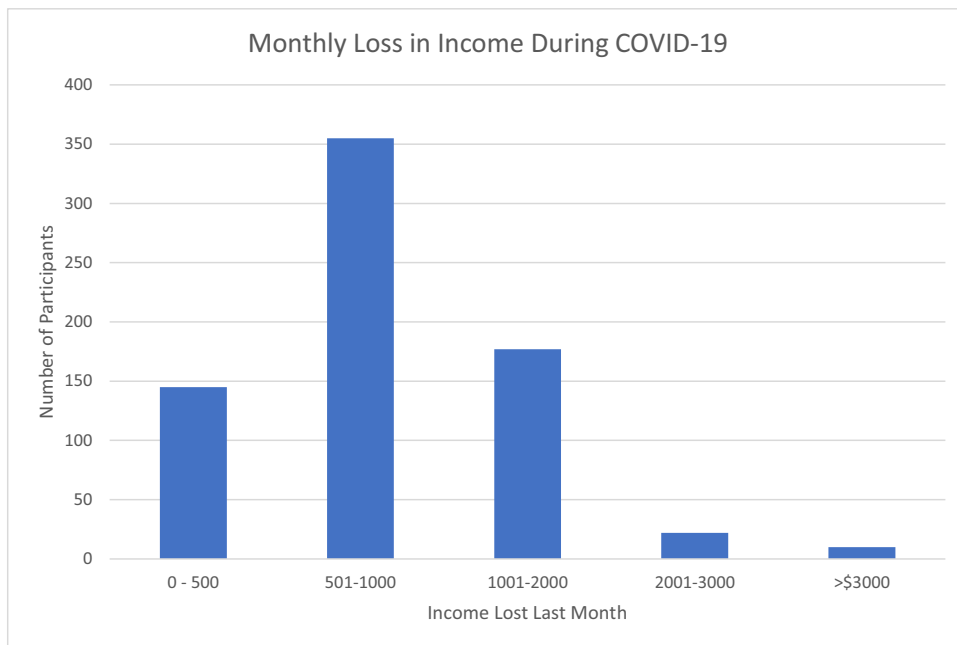


Figure D

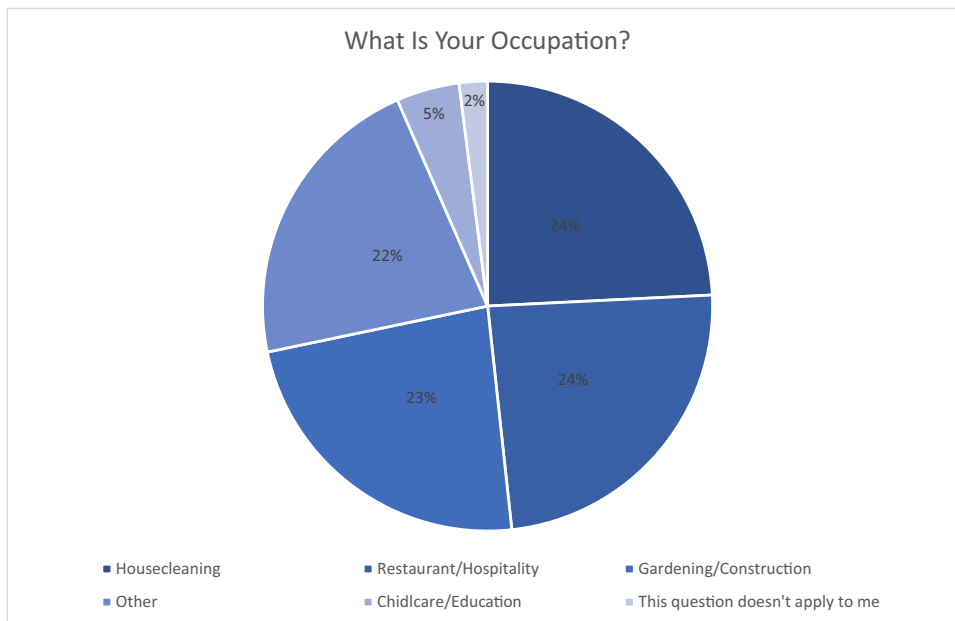


Figure E

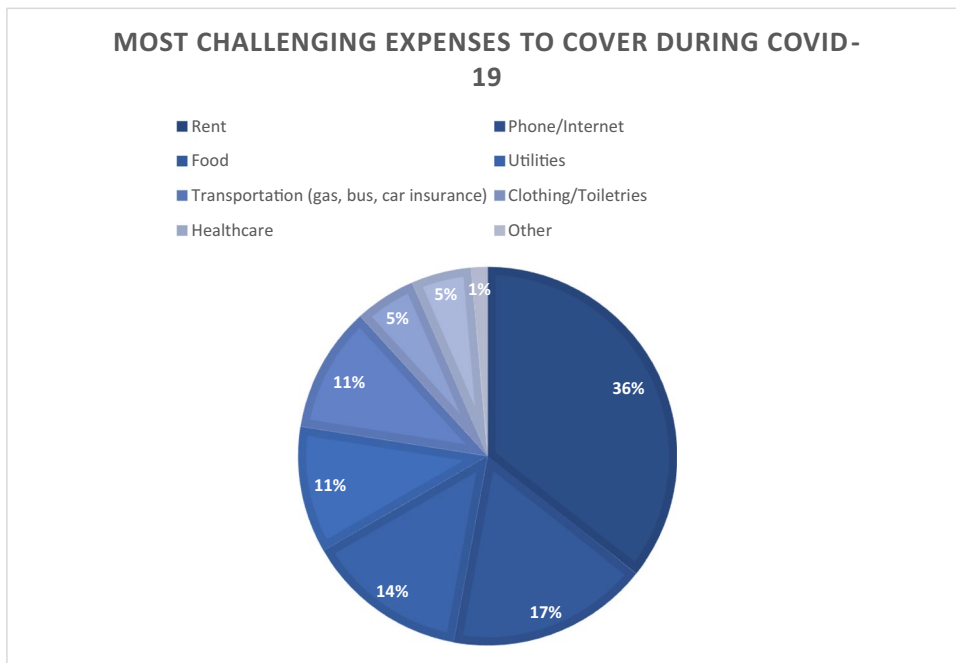


Figure F

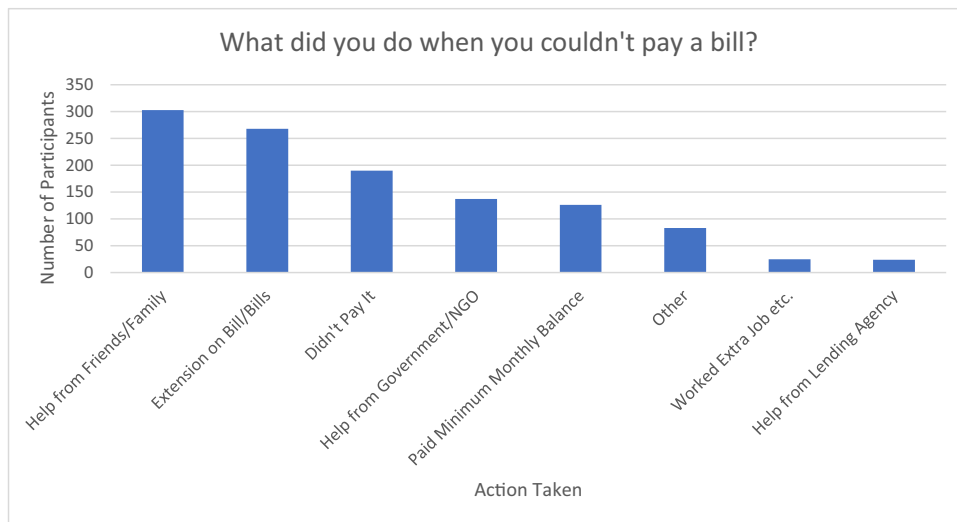


Figure G

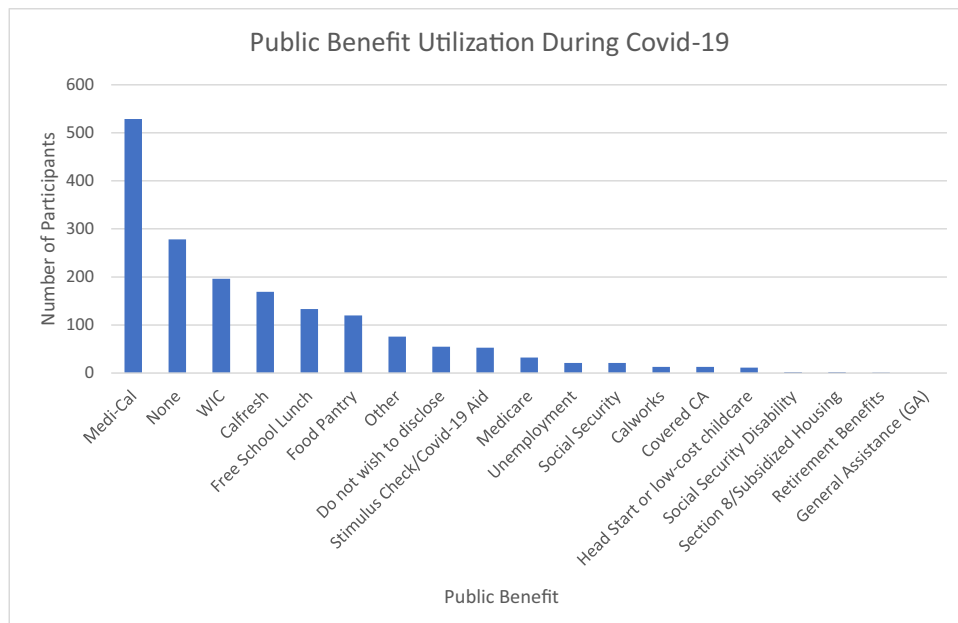


Figure H

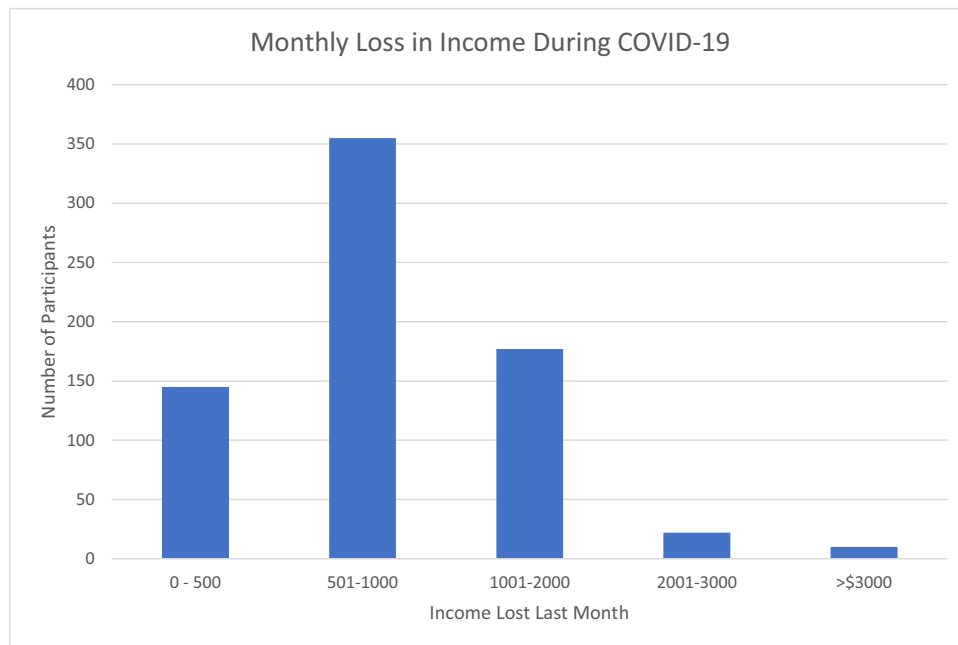


Figure I

QUANTITATIVE ENGLISH SURVEY QUESTIONNAIRE

ID Number: _____

Covid-19 Canal Community Resilience & Recovery Survey

--

Do you live in the zip code 94901?

- Yes
- No

-If NO, skip to Thank You Screen-

--

Demographic & Household Information

1) What is your age? [Number drop down menu]

What is your gender?

- Male
- Female
- Additional Category: _____
- Do not wish to disclose.

What is your race/ethnic background? Please check all that apply.

- Latino/Hispanic
- African American/Black
- White
- Asian
- American Indian or Alaskan Native
- Pacific Islander
- Mixed Race
- Additional Category: _____
- Do not wish to disclose.

How many people do you live with in your household? [Number drop down menu]

Number of Adults: [Number drop down menu]

Number of children below 18 years of age: [Number drop down menu]

--

Household Finances & Income

Employment

Are you currently working? Please check all that apply.

- I work 40 hours or more a week. (yes category)
- I work less than 40 hours a week. (yes category)
- I am a business owner or self-employed. (yes category)
 - If YES, skips to Section (a)
- I am not employed but looking for work.
- I am not employed and **not** looking for work.
- I am retired.
- I am not working because I take care of the home.
- I am a full-time student.
- I am unable to work due to a disability.
- I am unable to work because I (or a family member) have Covid-19 or suffer from related long-term impacts of the virus.
- Other: _____

a) If you are a business owner or self-employed, have you experienced any challenges since March 1, 2020?

- Yes
 - If YES, skips to Section (aa)
- No

aa) What problems or challenges have you faced as a business owner or while self-employed? Please check all that apply.

- I have struggled to keep my business open.
- I have struggled to retain employees.
- I have had to close my business and/or change jobs.
- I have had to temporarily close my business and/or change jobs.
- I have had to accept loans or financial assistance to maintain my business.
- Other: _____

- Question for “yes category” answers (i.e. people who are currently employed) -
What industry do you work in? Please check all that apply.

- Restaurants/Hospitality
- Housecleaning
- Landscaping/Construction
- Childcare/Education
- Other: _____
- This question does not apply to me.

Have you experienced any changes in employment since March 1, 2020? Please check all that apply.

- My employment status did not change.
- I lost a job.
- My work hours were reduced.
- I changed jobs.
- I am actively searching for a job, or have looked for a job since March 1st.
 - If YES, skips to Section (b) and (bb)
- I am on temporary leave and waiting to go back to that job.
- I was laid off and am **not** waiting to go back to that job.
- I had to leave my job to take care of things at home or for other personal reasons.
- Other: _____

b) *If you have looked for a job at any point since March 1, 2020:* What has it been like for you to find a new job?

- I have **not** been able to find a new job.
- I have been able to find work; and I am now working 40 or **more** hours a week.
- I have been able to find work; and I am now working **less** than 40 hours a week.
- I have found temporary and/or occasional work (like babysitting or cleaning).
- I am in the process of getting hired at a new job.
- Other: _____

bb) What industry did you work in prior to March 1, 2020? Please check all that apply.

- I was working in the same industry prior March 1, 2020.
- Restaurants/Hospitality
- Housecleaning
- Landscaping/Construction
- Childcare/Education
- Other: _____
- This question does not apply to me.

How much income did **you** make or receive last month?

- \$0
- \$1-\$999
- \$1,000-\$1,999
- \$2,000-\$2,999
- \$3,000 - \$3,999
- \$4,000 - \$4,999
- \$5,000- \$5,999
- \$6,000+
- Other: _____

How much did **everyone in your household combined** make or receive last month?

- \$0
- \$1-\$999
- \$1,000-\$1,999
- \$2,000-\$2,999
- \$3,000 - \$3,999
- \$4,000 - \$4,999
- \$5,000- \$5,999
- \$6,000+
- Other: _____

In comparison to before March 1, 2020, are you making more, less, or about the same now?

- I am making more.
- If YES, skip to (x)-
- I am making less.
- If YES, skip to (y)-
- I am making about the same.
- Other: _____

x) How much **more** are you making per month?

\$ _____ [number drop down]

y) How much **less** are you making per month?

\$ _____ [number drop down]

--

Finances & Expenses

At any point since March 1, 2020 was your household income too low to cover your expenses (rent, food, transportation, health, utilities)?

- Yes
- No
- Other: _____

- If YES, skip to (c & d)-

c) Which bills were difficult to pay? Please check all that apply.

- Food
- Rent
- Utilities
- Phone/Internet
- Transportation (gas, bus, car insurance)
- Clothing/Toiletries
- Healthcare
- Other: _____

d) What did you do when you were unable to pay one of your bills? Please check all that apply.

- I did not pay the bill or bills.
- I asked for an extension on the bill or bills.
- I paid the minimum monthly balance or only part of a bill or bills.
- I got help from my friends or family.
- I worked an extra job or found some alternative way to find the money.
- I asked for help from the government or a community organization.
- I got help from a lending agency.
- Other: _____

Do you (or any of your family/household members) use any government or financial assistance programs to get by? Please check all that apply.

- I do not use any government or financial assistance programs.
- Medi-Cal
- Medicare
- ACA Covered California health insurance
- Food Stamps/Calfresh
- Social Security
- Social Security Disability
- Retirement Benefits
- General Assistance (GA)
- Cash Assistance – Calworks
- WIC
- Section 8 Housing or Housing Subsidies
- Food Pantry
- Free School Lunch
- Unemployment
- Stimulus Check or other Covid-19 governmental assistance
- Head Start or low-cost childcare
- Other: _____

- Do not wish to disclose.

Imagine an emergency situation where you needed \$200. How would you find the money?
Please check all that apply.

- I would not have \$200 and am not sure how I would get it.
- I would have the \$200 and it would be easy for me to access.
- I would have the \$200 but it would then be difficult for me to purchase other items I need.
- I would have to borrow the \$200 from someone I know.
- I would have to get a loan.
- I would have to request the money from a government or community organization.
- Other: _____

Do you owe money to friends, family, or neighbors as a result of the pandemic?

- Yes
- No

Do you owe money to financial lenders (for example, banks or credit agencies) as a result of Covid-19?

- Yes
- No

- If YES, skip to (e)-

e) What are some of your plans on how to pay back the money you owe? Please check all that apply.

- I am saving the money through income earned at my place of employment.
- I am applying for financial assistance from the government or another organization.
- I am not sure how I will pay back the money right now.
- Other: _____

--

Housing

What is your living situation like now? Please check all that apply.

- I rent my apartment.
- I own my apartment.
- I rent my house.
- I own my house.

- I am the subletter in a home and pay rent.
- I am subletting parts of my home and receive payment.
- I am staying temporarily with friends/family and not paying rent.
- I am living in a homeless shelter
- I am unhoused – living in a car, public space, etc.
- Other: _____

Who do you live with? (Check all that apply)

- I live alone.
- My immediate family (children, partner, parents).
- My extended family (grandparents, aunts, uncles, cousins).
- Friends or acquaintances.
- People I do not know very well.
- I am homeless/unhoused.
- Other: _____

How are you paying your rent right now? (Check all that apply)

- I am able to completely cover my rent through my earned income.
- I split the rent with my roommates.
- I receive government help/money to cover the rent.
- I received a loan from a financial lending agency to cover rent.
- My landlord has waived all or part of the rent since the beginning of Covid-19.
- I am struggling to make rent each month and have to ask friends/family for help.
- I am unable to cover my rent right now and am not sure what to do.
- Other: _____

Have you received an eviction notice or been evicted?

- Yes
- No

--

Covid-19 Testing

Do you get tested for Covid-19 on a monthly basis?

- Yes
- No - If NO, skip to (z)-

z) Why don't you get tested for Covid-19 on a monthly basis? Please check all that apply.

- I don't have the time to get tested because I am working.
- I don't have the time to get tested because I am busy with other things.

- I don't know where to get tested.
- I feel uncomfortable and/or fearful of getting tested.
- The testing site is too far from where I live.
- I am concerned that I would not be able to afford a Covid-19 test.
- Getting tested for Covid-19 is not a priority for me.
- Other: _____

What would make getting tested for Covid-19 easier for you? Please check all that apply.

- Testing sites that are closer to where I live.
- Testing sites that are open on the weekends.
- Testing sites that are open in the evenings.
- Getting paid (compensated) to take a Covid-19 test.
- Someone coming to my house to test me.
- Testing at my workplace.
- More information about Covid-19 prior to taking a test.
- Other: _____

--

Recommendations & Solutions

What has been the hardest part of the Covid-19 Pandemic for you?

Please choose **at most 3 answers**.

- Health & Healthcare
- Education for myself or my family
- Unemployment
- Trouble with Housing
- Covering basic needs – utilities, clothes, etc.
- Access to food
- Mental health and stress
- Social isolation/lack of community support
- I have not experienced any hardship during the Covid-19 Pandemic.
- Other: _____

How do you feel about your financial situation now compared to before Covid-19?

- Things have been a little bit difficult for me.
- Things have been very difficult for me.
- Things are about the same.
- Things are going okay for me.
- Things are going very well for me.

What do you think people in charge should do better to support people in The Canal right now?

Please choose **at most 3 answers total**.

Unemployment and Finances

- Provide ongoing financial assistance for Canal residents who have lost income and/or employment.
- Provide more services for struggling small businesses or people in need of loans.
- Provide housing/housing assistance for Canal residents who are struggling to pay their rent and/or are at risk of eviction.
- Provide financial support for gas, water, electric bills and/or waivers.

Health

- Provide help with food and food delivery.
- Provide more services to help the elderly and/or disabled residents of The Canal.
- Provide better access to Covid-19 testing, health, and mental health services.
- Implement stricter guidelines related to social distancing, mask-wearing, and other public health recommendations to stop the spread of Covid-19.
- Provide more opportunities for families/individuals to safely quarantine if and when infected with Covid-19.
- Do a better job of informing people about the pandemic, daily changes, and what is going on.

Social Services

- Provide supports for school-aged children by way of better internet access and technology.
- Provide childcare for working families and parents.
- Provide more social services for residents – help with everyday needs like transportation, case management, legal services, etc.

Other

Anything else? _____ [paragraph]

Is there anything else you want to share?

Please do not include any information in your response that could identify yourself or others.

[Free Response]

[Thank You Screen]

Thank you so much for taking the time to participate in our survey. Your story and your voice are essential in improving The Canal community and finding the right supports to help us get through the Covid-19 Pandemic.

Figure J**QUALITATIVE ENGLISH PROTOCOL****Objectives of Qualitative Interviews with Local Business Owners**

To explore the various ways in which small business owners of the Canal are “making ends meet” throughout the COVID-19 pandemic, and subsequently understand adaptation strategies that facilitate economic resiliency during public health crises and disasters.

Impact

To understand the overarching and long-term health impacts of COVID-19 on residents of the Canal Community in San Rafael, CA, by investigating economic and employment-related impacts on local small businesses.

Resilience

To understand the vulnerability and subsequent resiliency of the region after statewide Shelter in Place measures are lifted by surveying small businesses on pressing economic, social, and health needs.

Solutions

To collaborate with Canal small businesses to propose potential policy reform and other remedies to support the community in the aftermath of COVID-19 and potential future public health phenomena or natural disasters.

Instructions:

If the respondent, for any reason, suddenly has limited time, or needs to cut short the interview, please make sure to ask questions in **red**.

Questions

[Interviewer]: Please do not include any information in your response that could identify yourself or others.

- 1) Tell us about your business – including when you were founded, what services/products you provide, and your team/staff.
- 2) What is your position at the business? What are your responsibilities?
- 3) What does a “normal day” look like for you pre- and post-COVID-19 (before and after March 2020)?
- 4) Describe the main impacts that COVID-19 has had on your business.
- 5) Describe any changes (if applicable) to employees and personnel.

Probe: lay-offs, furloughs

- 6) How have the county closing and reopening plans affected your business (if at all)?
- 7) What type of help or financial assistance have you sought (if at all) during the pandemic?

Probe: Was it helpful?

- 8) How has your business managed to “make it” during this difficult time?
- 9) What opportunities/challenges do you foresee for your business in 2021?
- 10) What do you think people in charge should do to support small businesses throughout the COVID-19 pandemic?

Objectives of Qualitative Interviews with Local Stakeholders

To explore the various ways that community stakeholders perceive residents to be faring financially throughout the COVID-19 pandemic, and subsequently understand adaptation strategies that facilitate economic resiliency during public health crises and disasters.

Impact

To understand the overarching and long-term health impacts of COVID-19 on residents of the Canal Community in San Rafael, CA, by learning from stakeholders who work with and on behalf of the neighborhood.

Resilience

To understand the vulnerability and subsequent resiliency of the region after statewide Shelter in Place measures are lifted by surveying local stakeholders on pressing economic, social, and health needs.

Solutions

To collaborate with local stakeholders to propose potential policy reform and other remedies to support the community in the aftermath of COVID-19 and potential future public health phenomena or natural disasters.

Instructions:

If the respondent, for any reason, suddenly has limited time, or needs to cut short the interview, please make sure to ask questions in **red**.

Questions

[Interviewer]: Please do not include any information in your response that could identify yourself or others.

- 1) Describe your position and role within the Canal Community.
- 2) What, if any, personal connection do you have to The Canal?
- 3) From your observation, knowledge, and experience, how do you think residents of The Canal have been impacted by COVID-19.
- 4) From your observation, knowledge, and experience, how are residents of the Canal making ends meet and getting by?
- 5) What are the challenges/opportunities of the community right now related to **housing**?
- 6) What are the challenges/opportunities of the community right now related to **employment**?

- 7) What are you/your organization currently working on to support residents of The Canal in housing and employment?
- 8) Who else is working on these issues? What is being done by other stakeholders or organizations?
- 9) What do you think might be some of the long term impacts of COVID-19 on The Canal in the areas of housing and employment?
- 10) What do you think people in charge should do to support the Canal Community throughout the COVID-19 pandemic?

Acknowledgements This study would not have been possible without the leadership, guidance, and tireless efforts of Canal Alliance, and the specific contributions of Omar Carrera, Fernando Barreto, Stephanie McNally, Yolanda Oviedo, and the hard work of Canal Alliance Community Leaders.

The research team would also like to acknowledge Jordan Weiss, Dr. Karen Sokal-Gutierrez, and Dr. Renee Roy Elias for their knowledge, insight, and assistance.

Funding This study was funded by:

Kathryn Edin (Sociologist at Princeton University): \$250.00
Richard Robbins (Local Real Estate Developer): \$2000.00

Declarations

Ethics Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Consent to Participate Informed consent was obtained from all individual participants included in the study.

Conflict of Interest The authors declare no competing interests.

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