Analysis of Crime Around Safe Space Locations – Community Report[1]

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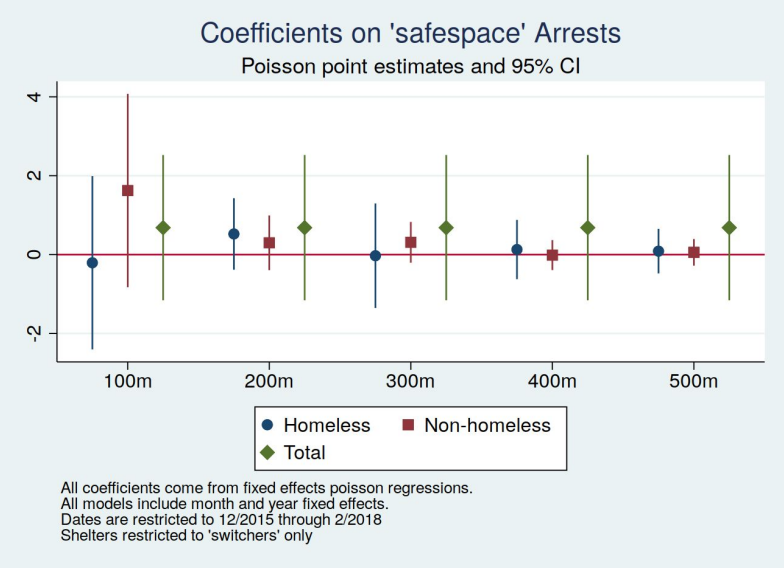
[1] The authors are grateful to former police Chief Michael O'Brien, current Chief Matt Madden and James Bennett at the Chico Police Department for providing arrest and calls for service data.

Executive Summary

Safe Space Winter Shelter (SSWS) is a low-barrier, winter shelter that has been operating in Chico since 2013. Each week during the winter months, the shelter moves to a different host church within Chico. Efforts to establish a permanent location for Safe Space have been met by community opposition, including arguments that a low barrier shelter would increase crime in the neighboring area.

Does a low-barrier shelter lead to increased crime rates in the vicinity? Faculty from Political Science, Economics and Geography at Chico State have explored this question, with collaboration from the Chico Police Department and the Safe Space Winter Shelter operations team. We use arrest records and calls for service (a contact with police dispatch), to understand whether either of these indicators of crime increase or decrease in a neighborhood when Safe Space is hosted by a church in that vicinity.

Using geo-spatial and statistical methods appropriate to the research question and type of data, our results suggest that Safe Space has no statistically significant effect on arrests or calls for service in 100-500 meter distances from the church hosting Safe Space. The figure below is representative of our findings. The dots represent the effect of safe space on arrests, and the vertical lines represent the confidence interval around that estimate. Arrests of individuals experiencing homelessness are represented in blue, housed individuals in red, and total arrests in green. If the confidence interval crosses the 0 line, this indicates that the effect of Safe Space on crime is not distinguishable from 0.



The full community report below provides more detail regarding data and methodology, additional results and a discussion of study limitations and next steps. Questions and comments should be directed to Jennifer Wilking - JWilking@csuchico.edu.

Introduction

Safe Space Winter Shelter (SSWS) is a low-barrier winter shelter that has been operating in Chico since 2013. The shelter typically operates between December and March, and rotates between roughly 13 different local churches. Between 40-60 individuals experiencing homelessness are sheltered each night through Safe Space during the months of operation.

After the Camp Fire, which destroyed approximately 11% of Butte County's housing stock, and added to the chronic homeless population in the region, Safe Space began exploring a permanent location for a year-round, low-barrier shelter.[2] As of January 2021, these efforts have not been successful. Several proposed locations have been met with community opposition, mainly centering on concerns regarding the potential for increased crime, and decreased quality of life for neighbors. These arguments are consistent with opposition to the location of services for individuals experiencing homelessness around the country (e.g Dum et al. 2017; Thierback-McLean 2019).

What is the impact of low-barrier shelters on crime in the surrounding neighborhoods? This question motivates the research conducted within this community report. To address this question, researchers examined arrest records and calls for service[3] over 2-3 years to understand if either measure of crime changed in the vicinity around a church, when that church was hosting Safe Space. The analysis considered the immediate area (100 to 500 meters) of each of the 15 shelter sites. We consistently find that arrests and calls for service do not significantly increase or decrease around church locations when they hosted community members experiencing homelessness.

Data

This analysis uses arrest records and calls for service data provided by the Chico Police Department, with records regarding Safe Space locations between 2015-2019 provided by the Safe Space operations team. Specifically, the analysis of arrest records extends from December 2015 to February 2018 (three Safe Space seasons), and analysis of calls for service records covers December 2017 to February 2019 (two Safe Space seasons). The dates were determined primarily by data availability.[4]

We use two measures of (potential) criminal activity as our outcomes to be analyzed: the number of arrests within a shelter area and the number of calls for service (CFS) within a shelter area. There are, at least, two reasons to use these different measures. First, the arrests and CFS only overlap for one Safe Space season (December 2018 through February 2019). Thus, due to the unavailability of the arrests data after February of 2018, we can continue investigating any

[2] A low-barrier shelter is one that does not make requirements for usage, such as sobriety. https://www.usich.gov/solutions/crisis-response/emergency-shelter/

[3] A call for service is a contact with police dispatch, primarily by landline or mobile phone, requesting information or a service response.

[4] Safe Space was delayed several weeks in 2018-2019 due to the Camp Fire, and we do not have arrest records extending past December 31, 2018.

potential relationship between Safe Space operation and crime rates for a longer period of time. Second, the CFS data allows us to address some of the concerns that solely using arrest data might generate. Specifically, by using CFS data we lessen any explicit or implicit biases that may go into the decision of whether or not to arrest any individual while an officer is on a call. For example, our findings would be threatened if an officer decides not to make an arrest that they normally would because the Safe Space is operating. This would cause us to underestimate any positive relationship between Safe Space operation and crime. On the other hand, if an officer decides to make an arrest that they normally would not because Safe Space is operating, then this would cause us to overestimate any positive relationship between Safe Space operation and crime.[5]

While the use of CFS data has its benefits, it is not a cure-all. One issue with the CFS data is that we had to make choices about which calls were relevant to the analysis and which calls were not. This was not an issue in the arrests data, as we simply observed whether or not an officer made an arrest. There are myriad reasons individuals may call for service, and the available data included over 300 unique categories of calls. We removed any calls for service that were not relevant or appropriate to Safe Space locations or our primary research question, such as 'railroad arm malfunction' and 'aircraft malfunction'.[6] After these restrictions, we are left with over 120,000 calls for service for our analysis. Additionally, unlike the arrest data, which includes the self-reported home address of the arrestee (from which we infer housing status), the calls for service data does not include this information.[7]

Methodology

Where applicable, we appended latitude and longitude coordinates to each CFS and arrest record, based on location descriptions from PD. Additionally, we appended coordinates to each Safe Space location and intake facility. We then created concentric rings around each location in 100m intervals, up to 500m, and each CFS or arrest record was noted with the corresponding distance ring associated with that data record. CFS and arrest records did not belong exclusively to one facility, as some distance rings overlapped. When an incident/arrest occurred in an overlapping region, it was assigned to the closest shelter.

To estimate the relative effect of hosting Safe Space on arrests and calls for service, we use fixed effects Poisson regression, and fixed effects negative binomial regression.

Fixed effects regression allows researchers to control for unobserved variables that do not vary over space and time (in this case, by shelter locations and by month and year). For example,

[5] If there is a negative relationship between Safe Space operation and crime, then there would be an overestimate in the first example and an underestimate in the second example.

[6] We attempt to address the problem of our inherently subjective decisions on which calls for service are relevant by including a looser definition of what is a valid call for service and re-estimating the results. The results are robust to this different definition.

[7] Not all calls for service in the data regard unique incidents. For example, multiple calls regarding a single incident, or a call that resulted in an arrest are included in the data. Redundancy is an issue for just under 1.6% of the observations in the data.

some areas of the city where Safe Space churches are located may be more prone to crime, independent of hosting Safe Space, than other church locations. By essentially comparing a church to itself - when it hosts Safe Space and when it does not - we can control for these differences. Additionally, we know that crime may vary across time, such as seasonal effects, or be higher or lower in a given month or year due to events that are not measured in the data, such as the Oroville Dam crisis or the Camp Fire. By including month and year fixed effects, the factors that do not vary by shelter but change over months and years, are also controlled.

As an example, consider the 2017-2018 Safe Space season, which operated between December 10th and March 4th, and included 10 different rotating churches. East Avenue church hosted Safe Space the week of December 31st to January 6th. For this year, the analysis effectively compares arrests and calls for service around East Avenue church during the week of December 31st, 2017, with arrests and calls for service around East Avenue church during the other weeks of the year.

Poisson and negative binomial estimators allow the researchers to mitigate the presence of bias in the data. Poisson estimators are appropriate for counts of data, such as number of arrests and calls for service. One of the assumptions of the Poisson model is that the mean of the dependent variable (in our case, crime) and variance of the dependent variable are the same. To make sure that our results are not being solely driven by this assumption, we re-estimate our models using negative binomial regression which is used for count data too, but does not have the aforementioned assumption requiring the mean of the dependent variable be equal to its variance. Our estimates did not change notably across the two estimators.

In addition to using both Poisson and Negative Binomial estimators, researchers estimated models in various ways. First, we tested multiple distances from the church, ranging from 100 meters to 500 meters, in one hundred meter increments (following Faraj et al. 2018).[8] For reference, a city block is about 300 meters in length. Second, housing status is provided in the arrest record data, so we can distinguish arrests of people experiencing homelessness versus those who are housed. Finally, in addition to the multiple host locations of Safe Space, researchers also examined arrest records and calls for service around fixed locations associated with Safe Space, such as the church that Safe Space previously used for client intake each evening, and the Jesus Center, where Safe Space guests were dropped off each morning. We analyzed the data with these fixed locations, and without (referred to as “switchers only”).

Finally, if Safe Space locations were selected based on some consideration regarding crime, or if officers policed around churches more when Safe Space was present, then these analyses would be biased. To understand the considerations for choosing a specific week, researchers conducted interviews with the Safe Space team member responsible for scheduling, and with two leaders of churches who participate in Safe Space. Primary considerations for churches to

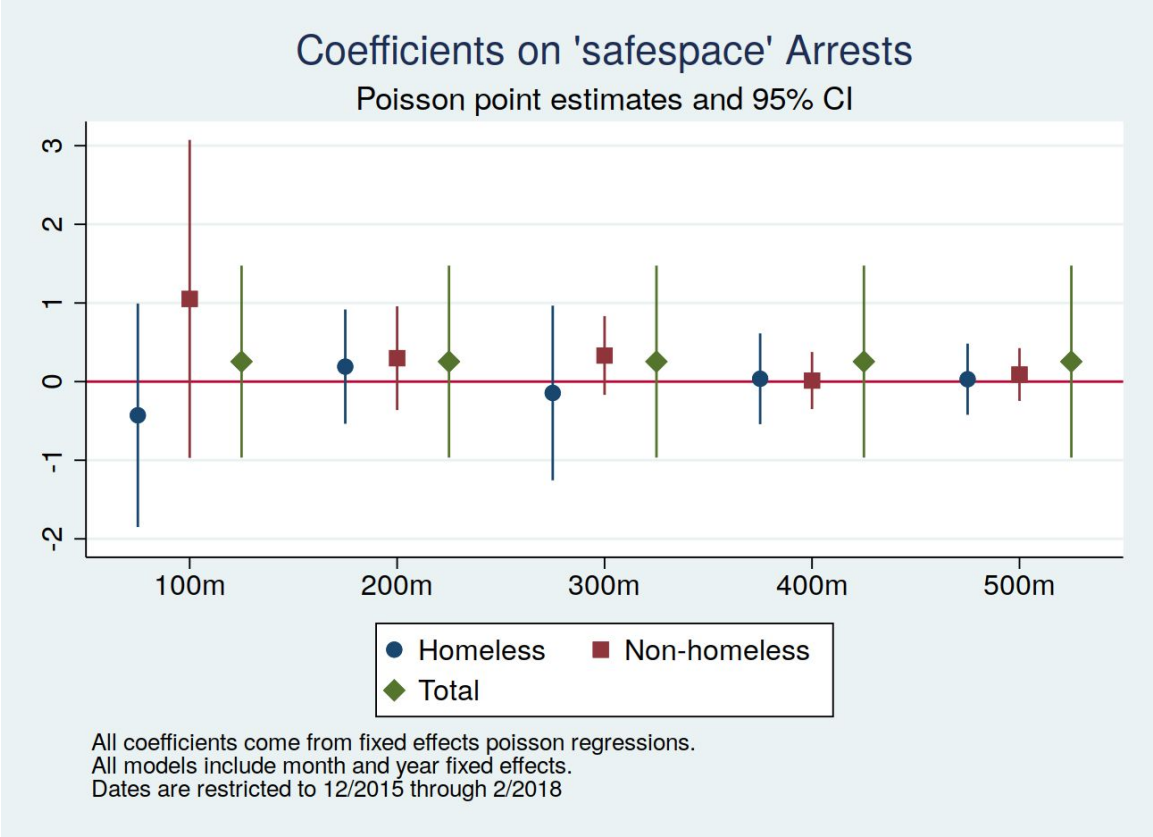
[8] Distances of between ¼ to ½ miles surrounding shelters were also explored, corresponding to approximately 400 and 800 meters. The greater distances did not yield significant effects of Safe Space, and created more overlapping rings between Safe Space locations.

host Safe Space, and for selecting a specific week, relate to church capacity and other scheduled commitments. For example, most churches are very busy around the Christmas holiday and prefer to host after Christmas. Additionally, while Safe Space notifies the Chico Police Department of their scheduled locations at the start of the season, the Chico Police Department did not conduct additional patrols of churches when Safe Space was being hosted.

Results

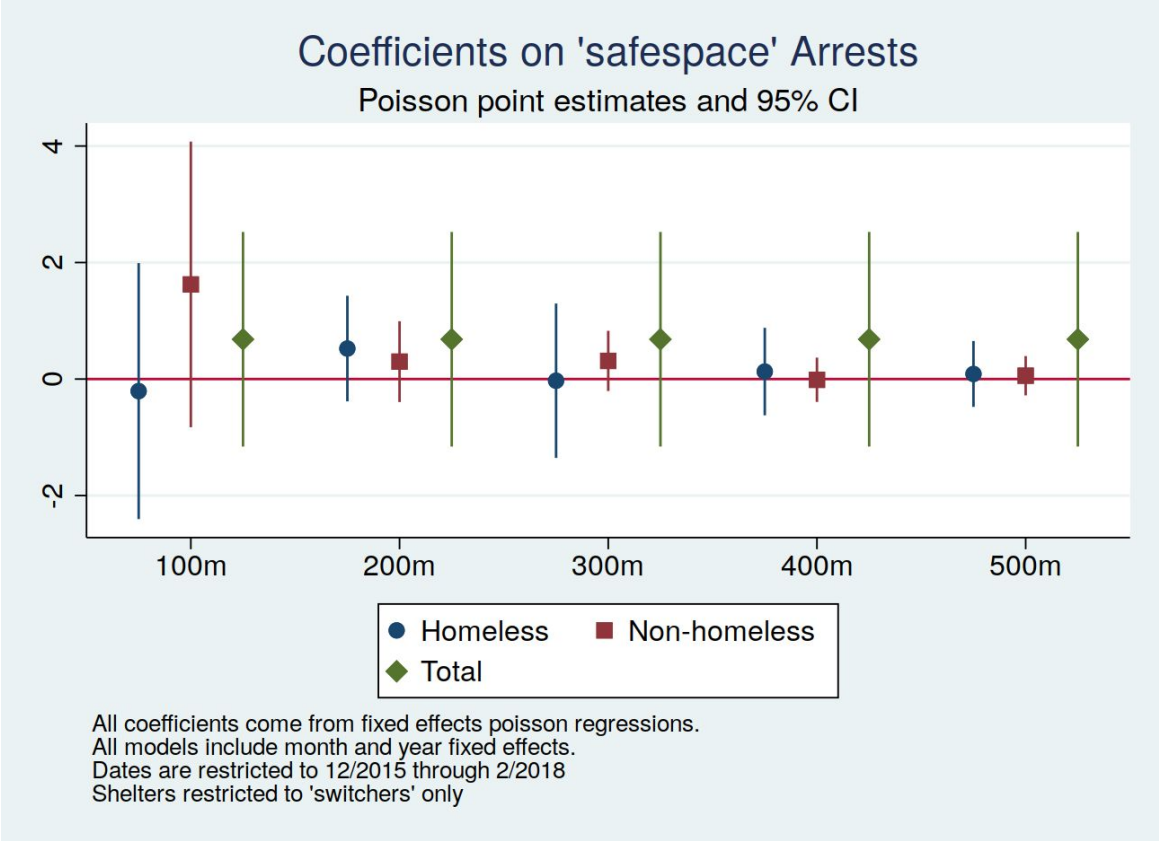
Figures 1 through 4 provide the coefficients plots for the Arrest records and calls for service analyses respectively. The coefficients estimate the effect of a church hosting Safe Space, on arrests or calls for service, at the designated distances from the church. If the confidence interval (the vertical lines) associated with the coefficient crosses the 0 line, this means the effect is not statistically different from 0, or in other words, that the effect of hosting Safe Space does not have a statistically significant effect on arrests or calls for service.

Figure 1 Arrests for all Safe Space locations, rotating and fixed



As we can see in Figure 1, whether a church hosted Safe Space did not have a statistically significant impact on either total arrests, or arrests of people experiencing homelessness, at any of the specified distance intervals. In other words, none of the effects of hosting Safe Space are statistically distinct from 0, or “no effect”.

Figure 2 Arrests for all Safe Space locations, rotating churches only



Excluding fixed locations (such as the Jesus Center) does not affect the results; hosting Safe Space does not significantly impact arrests of either homeless or housed individuals.

Figure 3 Calls for Service all Safe Space locations

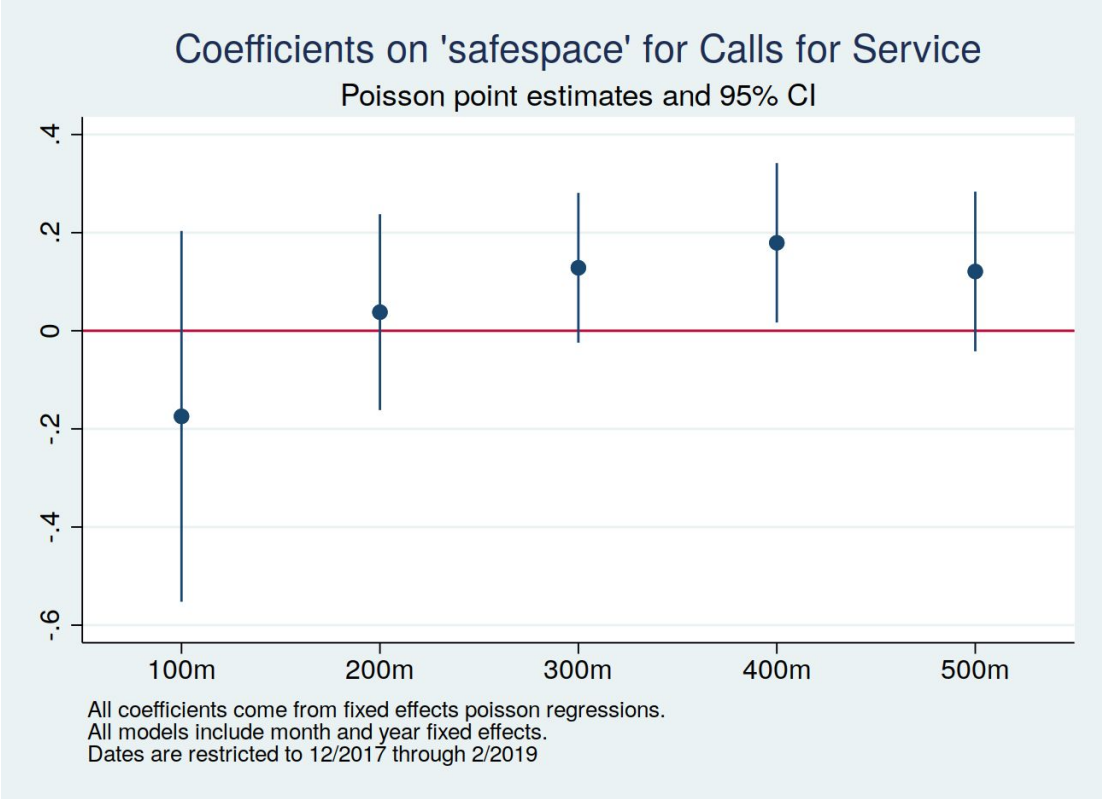
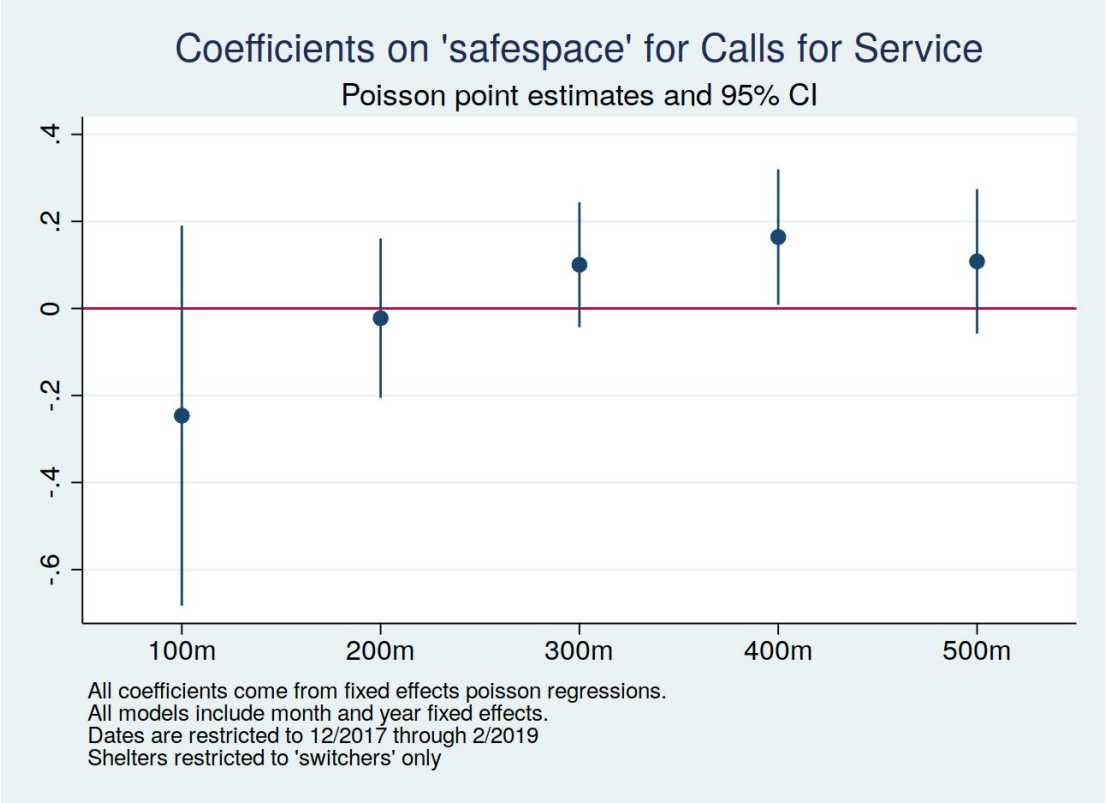


Figure 3 provides the calls for service regressions, at the five distances from Safe Space locations. For four of the five distances, hosting Safe Space has an insignificant effect on the number of calls for service around the church. The exception is at 400m, a distance slightly larger than a city block. This is slightly positively significant, evidenced by the confidence interval just above 0 (.009, .319). Interestingly, the Safe Space coefficient is not significant at 500m. The slightly significant result at 400 meters and this specification is likely an outlier in the data, given the consistent pattern of insignificant findings in the rest of the results.

Figure 4 Calls for Service, rotating churches only



Similarly, four of five Safe Space coefficients are insignificant in predicting calls for service. The exception is at 400 meters, with a very slightly positive effect. Again, given the insignificant results at every other distance, this is likely an outlier in the data.

Discussion

With an increasing number of individuals experiencing homelessness, our community continues to explore options for shelters and housing, including a fixed or permanent low-barrier shelter. The research in this report analyzes the temporary low-barrier shelter, Safe Space, that has operated in Chico since 2013 during winter months, and rotating to different church locations during the winter season. These analyses indicate that the location of this temporary low-barrier shelter does not affect or change crime rates around the shelter locations.

Like all research, this study has limitations that preclude broader generalizations. The first limitation is simply that we cannot say that a low-barrier shelter in a fixed location will not affect crime, given that the analysis explored a rotating low-barrier shelter. Chico does not currently have a fixed location low-barrier shelter, so we analyzed the available data with respect to the rotating low-barrier shelter which suggests no change in crime rates. If a fixed-location, low-barrier shelter, becomes available in the community, we can design or consult on a design to evaluate the effect of the shelter on crime.

Second, it is impossible to completely measure all crime. Crimes may not be reported, or result in an arrest, and would thus not be reflected in our data. The data included in this report is as complete a measure of crime as is currently possible. Additionally, all crimes are treated as equal in the analysis; we do not create a hierarchy of crime or code crimes into categories.

Finally, confidence in our results would be increased with more data. While many observations of arrests and calls for service were analyzed, given data limitations, we were only able to explore 2-3 years of Safe Space. The results in this study thus focus on the short term effects of a church hosting Safe Space. Again, longer term effects could be estimated through evaluation of a fixed location, low-barrier shelter, should one be created in the community.

Works Cited

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