



Views and Perspectives of Springfield Hispanic Residents Towards the MGM Casino, their Homes, Community and Neighborhoods

A Report to the Massachusetts Gaming Commission

Neighbor to Neighbor Community Research Team

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Executive Summary

The goal of the study was to determine the impact of a casino on housing-related issues in Springfield, Massachusetts, with a focus on the impact on the Hispanic/Latino community.

A Community Research Team (CRT) consisting of 11 residents, N2N staff, and JSI technical assistance providers guided the research strategy. In alignment with the principles of community-based participatory research, N2N did not prescribe a specific methodology. Instead, the CRT chose from a range of options, including survey research, key informant interviews, focus groups, and participant observations.

The study was conducted in four phases: Discovery, Community Engagement, Data Collection and Analysis, and Dissemination. During the Discovery phase, contractual negotiations were finalized, a kickoff meeting was held, program staff were hired, IRB approval was obtained, and key stakeholders were identified. The research protocol and technical assistance plan for data analysis were also developed during this phase.

The Community Engagement phase included the recruitment and training of the CRT on the basics of research, (role playing) the creation of a governance structure, an introduction to housing issues in Springfield related to the presence of the casino, and the finalization of research questions.

During the Data Collection and Analysis phase, the CRT used a range of data collection strategies, including a web-based survey, and in-depth interviews and/or focus groups. Quantitative data were analyzed using basic descriptive statistics and examined for variations by demographic variables. Qualitative data from interviews and focus groups were transcribed, coded, and analyzed for themes.

The Dissemination phase involved the presentation of findings to the community through data visualization charts and other means. Recommendations for addressing housing-related issues in Springfield were also developed and shared with relevant stakeholders.

In total, 290 community members participated in our survey. The typical participant in this study is Spanish-speaking, Hispanic, born in Puerto Rico, aged 46.2 years and living in a rental apartment in zip code 01105. About 98% identified as Hispanic or Latino and about 72% were born outside of the continental USA, including 58% born in Puerto Rico. The vast majority speak Spanish and have been living in Springfield for at least six years. Most participants live in zip code 01105. First, homeowners thought social problems got better after the arrival of the casino, while renters tended to see things as staying the same. Community members living in zip code 01105 thought social problems got better, while those living in 01103 thought problems got worse. Long-term residents (over 20 years) also thought problems got better, while those living in Springfield between 6 and 20 years felt more neutral overall. Finally, birthplace was not significantly associated with perceptions of social problems. We also took an in-depth look at whether those perceptions varied along neighborhood perceptions. Neighborhood indicators were positively and

significantly related to improved social conditions (knowing your neighbors was an exception). In other words, those with a high perception of safety, quality of life, and rental affordability were more likely to report improvements in social conditions before and after the casino opened (see Table 2). Finally, over 60 interviews were conducted with neighbors of the casino. Emerging themes include the increase in housing and rental markets, concerns about gentrification, acknowledgment that crime has shifted to other areas, as well as a nuanced perspective, one that highlights positive (job creation, entertainment, improvement in physical appearance of the neighborhood) and negative aspects of the casino (e.g. crime shifts, and concerns about criminalization).

Introduction

The presence of a casino can have significant impacts on a community, including both positive and negative effects on the local economy, employment, and social and cultural life. However, one area that has received relatively little attention in the literature is the impact of a casino on housing-related issues. This is particularly relevant in Springfield, Massachusetts, where the opening of a new casino in 2018 has raised concerns about the potential impact on the local housing market and on the affordability and availability of housing for low- and moderate- income residents.

To address this gap in the literature and inform policy and practice, the present study aims to investigate the effects of the presence of a casino on housing-related issues primarily among Hispanic residents in Springfield. A Community Research Team (CRT) consisting of 11 local residents, staff from N2N (a community-based organization), and technical assistance providers from JSI which guided the research strategy. In alignment with the principles of community-based participatory research, N2N did not prescribe a specific methodology. Instead, the CRT chose from a range of options, including survey research, key informant interviews, focus groups, participant observations.

Community Research Team (CRT)

Community engagement in research benefits both academic researchers and community organizations. For academic researchers, it can increase the validity of a study by improving the accuracy of measurements and allow for the creation of research that can be implemented in partnership with the studied communities. It can also lead to the development of culturally and linguistically appropriate community interventions. Community organizations can use community engagement in research to ask questions that are meaningful to their community members, develop and evaluate effective programs for their clients, and increase the legitimacy of their work among funders, policymakers, and other stakeholders.

One type of community engaged research is community-based participatory research (CBPR), also known as participatory action research and community-partnered participatory research. This approach is based on the principles of equity, justice, and fairness and aims to ensure that all partners in a research project receive what they need from the project. The principles of CBPR include focusing on public health issues relevant to the community, disseminating results to all partners and stakeholders, building on the strengths and expertise within the community, facilitating an equitable partnership, recognizing the community as a unit with shared experiences, fostering co-learning and capacity building among all partners, committing to a sustainable investment in the partnership, and integrating a balance between knowledge generation and action.

Who is Neighbor to Neighbor?

Neighbor to Neighbor (N2N) is a community action organization based in Massachusetts that focuses on issues of social justice, such as housing, voting rights, and employment. The organization has chapters in four cities in Massachusetts: Boston, Lynn, Holyoke, and

Worcester. N2N has a long history of engaging with working class communities of color and has developed a permanent deep canvassing outreach program. In 2020, N2N conducted outreach to over 86,000 people and engaged with over 6,000 voters through phone calls. The organization is currently focusing its outreach efforts on issues such as climate change and housing. N2N is led by a diverse staff with 8 out of 10 staff members identifying as Black, Afro-Latino, Latinx, or mixed. The organization's board members are predominantly Black and Latino and come from N2N's membership base. N2N's mission is to "build power to transform the institutions that govern our lives" and to "seed" the new alternatives that put power and decision-making in the hands of those directly affected." The organization works to address issues of income inequality, environmental degradation, and racism in Massachusetts.

Neighbor to Neighbor (N2N) partnered with JSI Research & Training Institute, Inc. (JSI) in the Massachusetts Gaming Commission-funded research on the life context of Latinx residents in Springfield, to gather information on how the presence of the casino influences one of the chief priority areas: housing. N2N aims to add to the development and implementation of housing related policies that are informed by the lived experience of vulnerable communities. It will also assist the SEIGMA Team in the development of research questions from the perspectives of community residents.

Why is this study important?

This study on the effects of the presence of a casino on housing-related issues in Springfield, Massachusetts is important for several reasons. First, the impact of a casino on the local housing market and on the affordability and availability of housing for low- and moderate-income residents has received relatively little attention in the literature. This study aims to address this gap and inform policy and practice in Springfield and other communities with similar concerns.

Second, previous research on the impact of the MGM casino in Springfield has found conflicting results, with quantitative data indicating a strengthening real estate market, but qualitative data and interviews with key informants suggesting rising rental costs and evictions. This study seeks to explore these conflicting findings and provide a more comprehensive understanding of the impact of the casino on housing-related issues in Springfield. In 2019 SEIGMA researchers conducted a mixed-methods study on the impact of the MGM casino on the real estate market in Springfield¹. This study involved analyzing housing data, economic indicators, and interviews with five key informants representing city government, housing advocacy, economic justice, environmental and land use sectors. Quantitative findings led researchers to conclude that "Greater Springfield is experiencing a strengthening real estate market associated with economic recovery and more robust economic conditions statewide" (page 4) and that "the real estate market is recovering from a long period of economic distress preceding and exacerbated by the Great Recession" (page 29). In sharp contrast, the key informants interviewed for this study expressed concerns about rising rental costs and evictions. Recent housing studies showing a rise in the number of evictions in Springfield support these observations. In 2020, there were 487 evictions in Hampden County with 60% of those in Springfield MA², yet, according to the US Census 2020, the city accounts for only 33% of the county's population.

Third, homelessness is a significant issue in Springfield. Rising rental costs and evictions are directly related to homelessness.³ Analysis of a 2017 report on homelessness in Massachusetts.

indicated that Springfield has the largest number of homeless individuals (4.94 residents of every 10,000) outside of Boston, with Springfield ranking 10th in homelessness among smaller cities throughout the nation. In that report, Springfield ranked second in the number of homeless families and children in the country. Investigating the potential role of the casino in contributing to housing-related issues such as rising rental costs and evictions may provide valuable insights into addressing homelessness in Springfield.

Finally, the study engages the community in the research process through the use of a Community Research Team (CRT) consisting of local residents, staff from N2N, and technical assistance providers from JSI. This approach allows for the inclusion of the lived experience of community members in the research process and helps to ensure that the findings are relevant and applicable to the local context.

The relation between problem gambling and homeless has been established with multiple factors shaping the relationship between the two: bankruptcy, poverty, unemployment, and evictions among others⁴. In Springfield, problem gambling prevalence has been estimated at 2% of the total population with 8% of the population at risk for problem gambling. In a city of 155,000 inhabitants these estimates suggest that between 1,550 and 12,400 residents are being affected by gambling.⁵

¹ Peake, T., Breest, K., Aron, E., Dinnie, I. (2021). SEIGMA Commercial Real Estate Report. Hadley, MA: University of Massachusetts Donahue Institute, Economic and Public Policy Research Group.

² Knight, Taylor. "I-Team: Evictions Piling up Now That State Moratorium Has Ended." *WWLP*, WWLP, 19 Dec. 2022, <https://www.wwlp.com/news/i-team/i-team-evictions-piling-up-now-that-state-moratorium-has-ended/>.

³ Sharman, S. Gambling and Homelessness: Prevalence and Pathways. *Curr Addict Rep* 6, 57–64 (2019)

⁴ *Ibid.*

⁵ Volberg, R. A., Williams, R. J., Stanek, E. J., Houpt, K. A., Zorn, M., Rodriguez-Monguio, R. (2017).

Methods

Ms. Zulmalee Rivera served as the project director for the study. She oversaw all research activities and was responsible for working closely with the Massachusetts Gaming Commission, developing and monitoring the project work plan and budget, approving expenses and consultant agreements, and preparing required reports. The program manager supported Ms. Rivera in the execution of day-to-day activities, including organizing and coordinating CRT activities. A program support person assisted in arranging meeting logistics and provided clerical and administrative support.

The research strategy for this study was guided by a Community Research Team (CRT) comprised of 11 residents, N2N staff, and JSI technical assistance providers. In alignment with the principles of community-based participatory research, N2N did not prescribe a specific methodology. Instead, the CRT was presented with a range of research options including survey research, key informant interviews, focus groups, and participant observations. The study was implemented in four phases: Discovery, Community Engagement, Data collection and analysis, and Dissemination.

During the Discovery phase, contractual negotiations were finalized, a kickoff meeting was held, program staff were hired, IRB approval was obtained, and key stakeholders were identified. This phase also included the identification of available and accessible databases, the development of the research protocol, and the creation of a technical assistance plan for data analysis led by JSI.

The Community Engagement phase consisted of three steps: recruitment and training of the CRT on the basics of research, the creation of a governance structure, and the introduction of the CRT to housing issues in Springfield related to the presence of the casino. The research questions were also finalized during this phase.

For data collection and analysis, the CRT chose to utilize a combination of strategies including a web-based survey, paper survey, and in-depth interviews and focus groups. A paper survey was developed and created with the assistance of JSI in addition to an online survey available through SurveyGizmo. Quantitative data was analyzed using basic descriptive statistics and examined for variations by demographic variables. Qualitative data from interviews and focus groups was transcribed, coded, and analyzed for themes. Any data collected from individuals was kept confidential and stored in a secured, restricted-access file. Findings were presented to the community using data visualization charts.

The Dissemination phase involved the presentation of findings to the community and the development of recommendations for addressing housing-related issues in Springfield.

Life circumstances of a Hispanic resident in Springfield, MA

The following quotation, presented in its Spanish original and English translation, is presented in a separate textbox to highlight the life conditions of a low-income family living near a casino. The interviewed resident is the caregiver for a daughter with disabilities and she also has a chronic health condition. She can barely pay her utilities and is terrified of driving and parking in the city for fear of having her vehicle towed. She does not blame the casino, but she does understand that the casino is part of a bigger economic system that makes her life tough. While narrating her tale, she emphasized that she is not the only one experiencing this, as her neighbors, friends, and family members are also experiencing a similar circumstance.

Spanish (Original)

Si, se me ha hecho difícil. Ahora mismo en estos momentos yo tengo un "bill" de luz de \$71 cuando yo antes solo pagaba entre \$40 a \$50 dólares y yo no uso ice, solamente abanico y tengo pocos electrónicos en la casa y me vino un "bill" de \$71 dólares. Y eso que me dan descuentos por yo ser una persona deshabilitada. Y sabes que, ellos me dicen que no me va a ayudar que pague como pueda o que no pague en otras palabras que me quede sin luz. Yo tengo una hija deshabilitada con una enfermedad crónica, psoriasis, eso es lo que ella tiene y beber médicamente. Yo también soy deshabilitada después que tuve una cirugía personal pues yo quedé deshabilitada y no puedo trabajar más nada solo con ayudas de SSI. Entonces me ha afectado mucho y a muchas personas también como yo. Todo ha subido. Yo no le hecho toda la culpa al Casino, pero si tiene que ver mucho porque todo aquí ha aumentado de precio y en los Downtown yo no puedo ir y parquear un carro mío que tengo porque si no te llevan el carro. Y donde quiera es un problema. En verdad, a todas las personas que yo conozco le ha afectado todo esto porque todo es dinero. Y bastante mucho. ¿Sabes porque yo lo digo? porque estoy molesta, estoy pasando por estos momentos ahora mismito por esta situación en mi familia, yo y muchas personas que yo conozco, vecinos, amigos y todo eso.

English Translation

Yes, it has been difficult for me. Right now I have an electricity bill of \$71 when before I only paid between \$40 and \$50 dollars and I don't use ice, I only use a fan and I have few electronics at home and I got a bill of \$71 dollars. And that they give me discounts for being a disabled person. And you know what, they tell me that it is not going to help me to pay however I can or not to pay, in other words, that I run out of electricity. I have a disabled daughter with a chronic disease, psoriasis, that's what she has and she drinks medically. I am also disabled after I had a personal surgery because I was disabled, and I can't work anymore with only SSI assistance. So it has affected me a lot and many people like me too. Everything has gone up. I don't blame the Casino entirely, but it has to do with a lot because everything here has increased in price and in the Downtowns, I can't go and park my car that I have because if they don't they will take your car. And wherever it is a problem. In truth, everyone I know has been affected by all this because everything is money. And pretty much a lot. Do you know why I say it? because I'm upset, I'm going through these moments right now because of this situation in my family, me and many people I know, neighbors, friends and all that.

Results

In total, 290 community members participated in our survey. The typical participant in this study is Spanish-speaking, Hispanic, born in Puerto Rico, aged 46.2 years and living in a rental apartment in zip code 01105. This profile emerges from the sociodemographic characteristics shown in Figure 1.

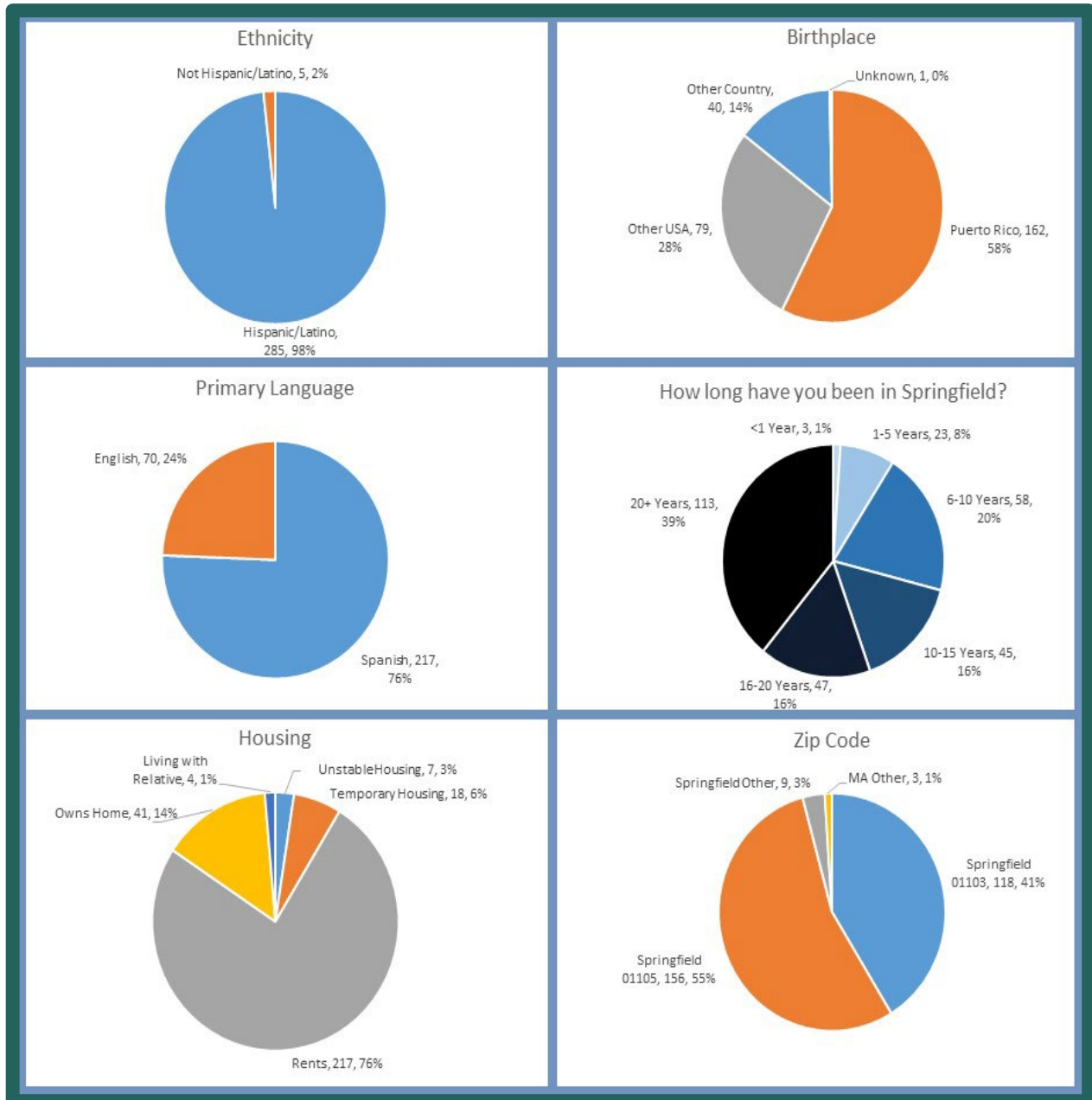


Figure 1. Demographics of Survey Participants.

Aggregate analysis of neighborhood conditions

We also collected data on how community members viewed their neighborhood (See Figure 2). The aggregate data shows that participants expressed a strong sense of belonging. Most feel safe in their home. They rated the quality of life as good or neutral. Most participants reported that they know their neighbors at least a little.

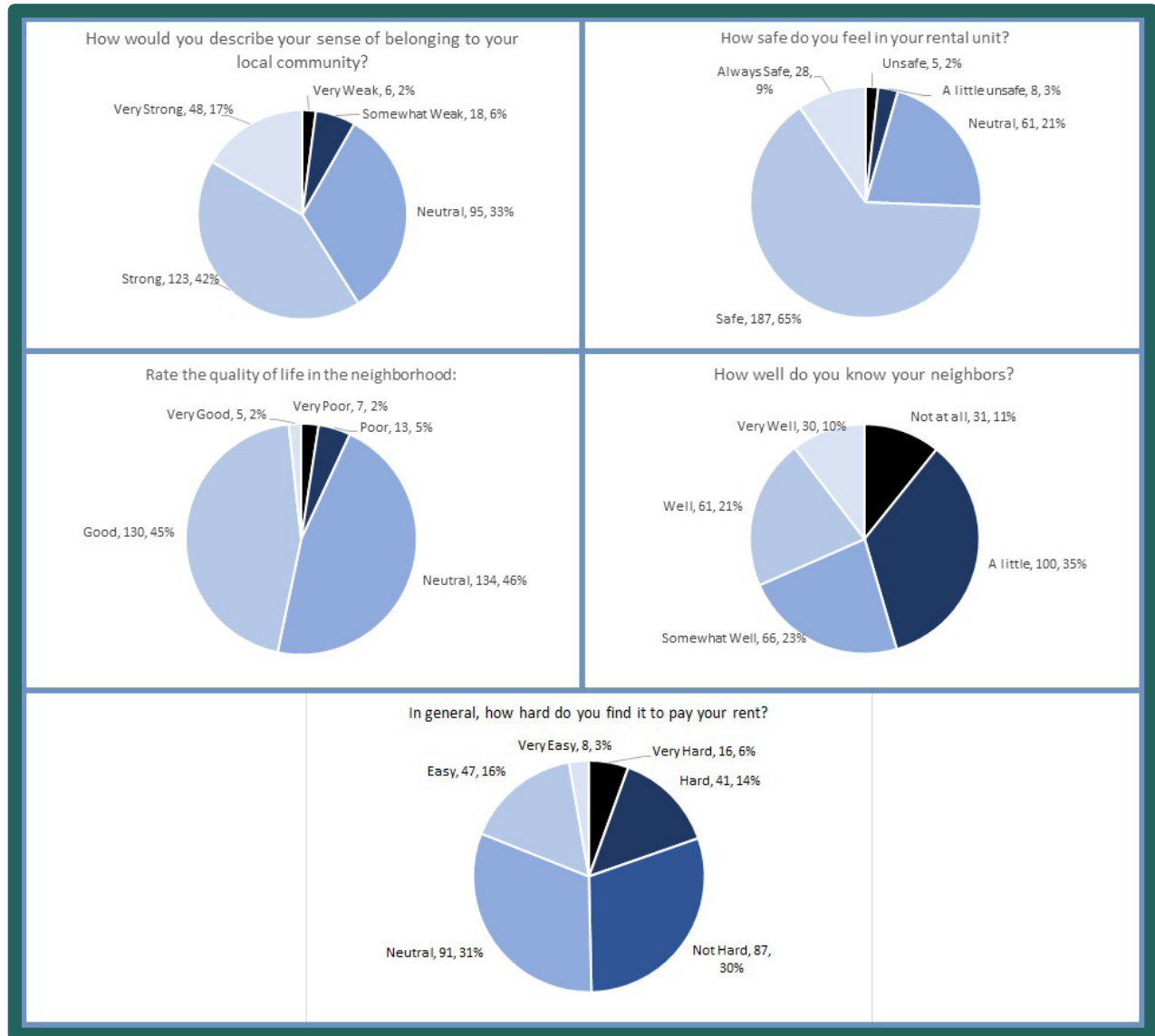


Figure 2. Neighborhood Conditions (all participants).

Perception of Social Problems Before and After the Casino

We asked participants to ascertain whether social indicators related to community living changed before and after the casino was established in 2018. To ensure the validity of the ratings, we removed those participants that have been living in Springfield 5 years or less since the casino was established only 4 years before the data was collected). After removing short-term residents, the sample size decreased to 263. Demographics did not differ when residents of less than 6 years were removed from the sample. (See Figure 3; mean age for longer term residents was 46.7 years compared to an average of 46.2 years across the entire study.)

Participants were asked to rate the severity of various social problems before the casino and after the casino. “Not a problem” was coded as 1, “Minor problem” was coded as 2, and “Major problem” was coded as 3. The difference was calculated as Before – After. Results were interpreted in the following way: -2 (problem got much worse), -1 (problem got worse), 0 (problem stayed the same), 1 (problem got better), 2 (problem got much better).

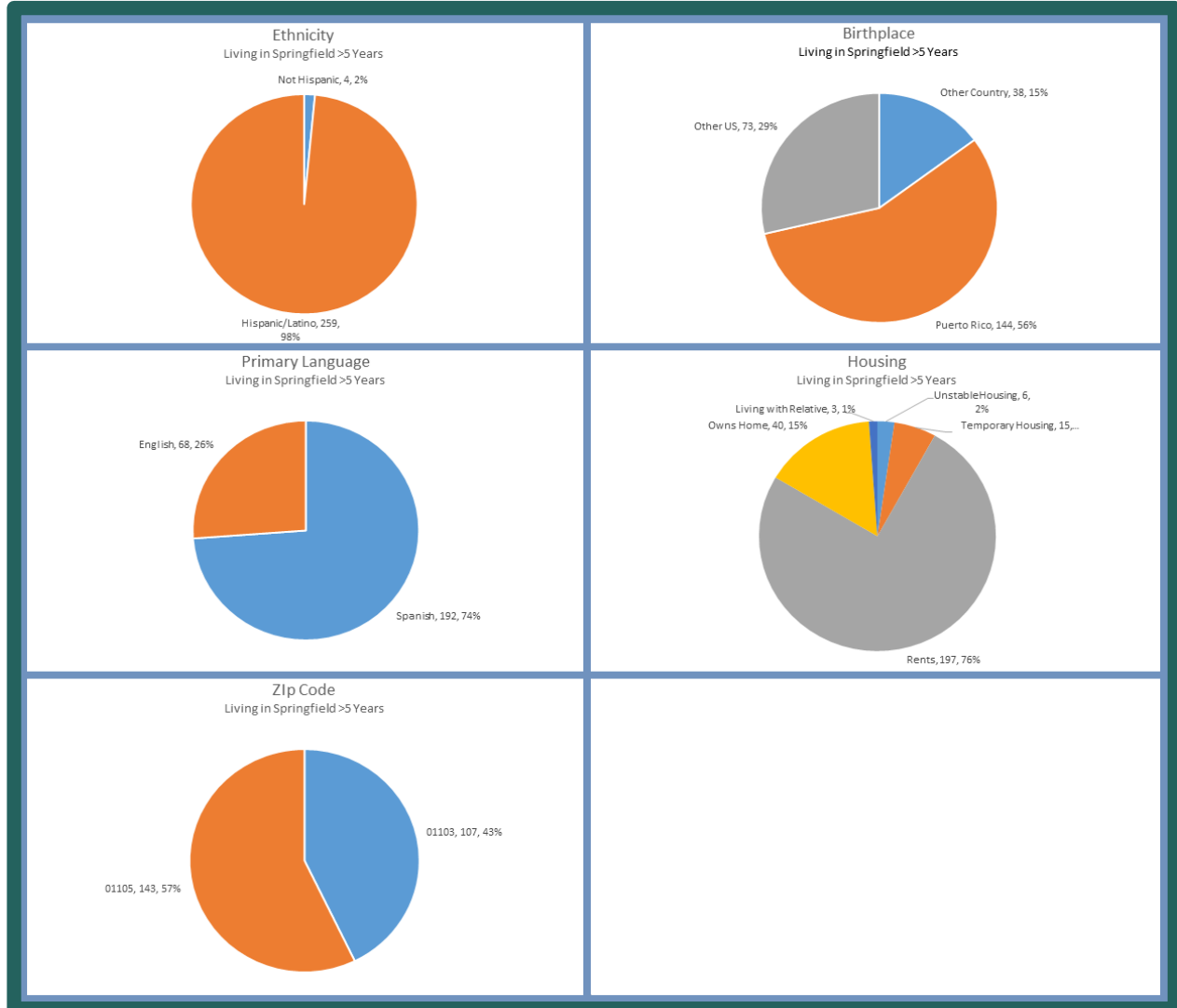


Figure 3. Demographic Profile for Participants Living in Springfield for > 5 Years.

Perception of Social Problems Before and After the Casino – Sociodemographic Indicators

We took an in-depth look at whether those perceptions varied along sociodemographic indicators: home ownership (own vs. rent), zip code (01105 vs. 01103), birthplace (continental US vs. elsewhere), and time living in Springfield (over 20 years vs. 6-20 years). Mann Whitney U tests were conducted to determine whether there were differences in how different groups perceived social problems (or more precisely, to determine whether responses were distributed equally across groups). All statistical analyses were conducted using SAS 9.4. Results are summarized in Table 1. Z statistics include a continuity correction of 0.5. The two-sided, Normal approximation p-value is reported. Statistical significance was set at $\alpha = 0.05$.

Difference In (Before - After)	Home Ownership			Zip Code			Birthplace			Time in Springfield		
	U	Z	p-value	U	Z	p-value	U	Z	p-value	U	Z	p-value
Afterschool Programs	5551	2.506	0.0122	10189	-5.737	<0.0001	9276.5	0.089	0.9292	16128	3.201	0.0014
Disorderly Conduct	5474	2.253	0.0243	9861	-6.296	<0.0001	9080.5	-0.247	0.8048	15888	2.460	0.0139
Drug Selling	5815	3.067	0.0022	10142	-6.583	<0.0001	9505	0.420	0.6745	16409.5	3.141	0.0017
Drug Use	5650	2.673	0.0075	10785	-5.477	<0.0001	9096	-0.465	0.6419	16601	3.630	0.0003
Fighting	5681	2.647	0.0081	10144	-6.476	<0.0001	9175	-0.277	0.7815	16265.5	2.831	0.0046
Gang Activity	5707.5	2.771	0.0056	9886.5	-6.850	<0.0001	9407.5	0.285	0.7759	16337	3.170	0.0015
Gun Violence	5804.5	3.056	0.0022	9812	-6.731	<0.0001	8958	-0.317	0.7513	16090	2.972	0.0030
HIV/AIDS	5413	2.005	0.0449	9885.5	-6.207	<0.0001	9150	0.164	0.8702	16129	2.882	0.0040
Loitering	5320	2.030	0.0424	10755	-4.814	<0.0001	9029	-0.101	0.9194	15548	2.058	0.0396
Prostitution	5861.5	3.126	0.0018	9945	-6.792	<0.0001	9528.5	0.459	0.6466	16712	3.614	0.0003
Resources for Youth	5632.5	2.542	0.0110	10538	-5.775	<0.0001	9219.5	-0.186	0.8523	16329	2.981	0.0029

Truancy	5521.5	2.168	0.0302	10037	-6.586	<0.0001	9654.5	0.718	0.4726	16052	2.400	0.0164
Underage Drinking	5520	2.391	0.0168	9616.5	-6.506	<0.0001	9303	0.302	0.7630	16145.5	3.321	0.0009
Vandalism	5484	2.105	0.0353	10471	-5.872	<0.0001	8830	-1.007	0.3137	16433	3.155	0.0016
Weapons	5654	2.709	0.0068	9634	-6.857	<0.0001	9372.5	0.291	0.7712	15787.5	2.284	0.0224

Table 1. Mann Whitney U Tests between Zip Code, Time in Springfield, Birthplace, and Home Ownership and Perceived Severity of Social Problems, Survey Participants Living in Springfield >5 Years.

The Mann Whitney U test only detects differences in distribution across groups; it does not indicate *how* the groups differ. Nevertheless, looking at the frequencies of responses within each group, we see a few clear trends (see Figure 4). First, homeowners thought social problems got better after the arrival of the casino, while renters tended to see things as staying the same.

Community members living in zip code 01105 thought social problems got better, while those living in 01103 thought problems got worse. Long-term residents (over 20 years) also thought problems got better, while those living in Springfield between 6 and 20 years felt more neutral overall. Finally, birthplace was not significantly associated with perceptions of social problem

Difference in Loitering living in Springfield >5 Years

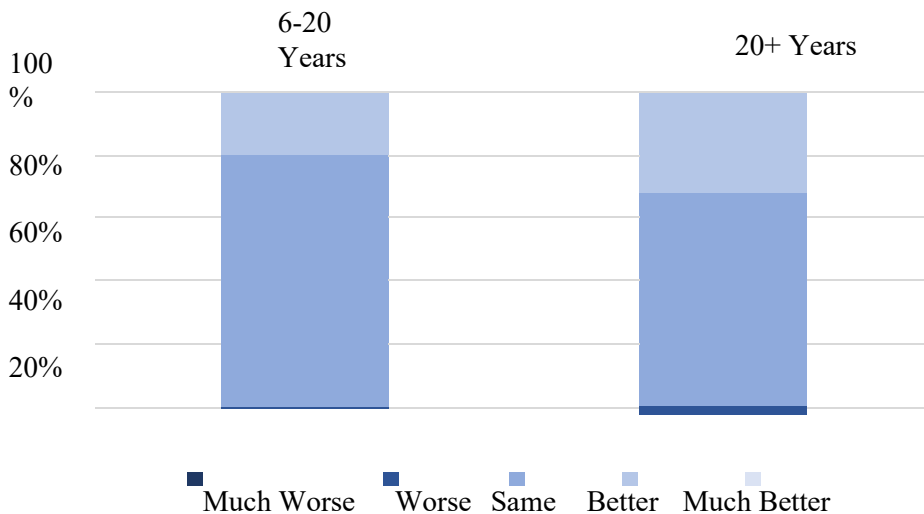


Figure 4. Perception of loitering before and after the casino, by time living in Springfield.

Perception of Social Problems Before and After the Casino – Neighborhood Indicators

We also took an in-depth look at whether those perceptions varied along neighborhood indicators. Neighborhood indicators were positively and significantly related to improved social conditions (knowing your neighbors was an exception). In other words, those with a high perception of safety, quality of life, and rental affordability were more likely to report improvement.

Difference In (Before - After)	Sense of Belonging		Safety		Quality of Life		Know Neighbors		Affordability	
	Corr. Coeff.	p - valu e	Corr. Coeff.	p - value	Corr. Coeff	p - value	Corr. Coeff.	p - value	Corr. Coeff	p - value
Afterschool Programs	0.2034	0.0010	0.3151	< 0.0001	0.3 690	< 0.0001	-0.0314	0.6162	0.275 5	<0.0001
Disorderly Conduct	0.1536	0.0134	0.3160	< 0.0001	0.3 715	< 0.0001	-0.1020	0.1028	0.251 5	<0.0001
Drug Selling	0.2309	0.0002	0.3432	< 0.0001	0.4 009	< 0.0001	-0.0549	0.3777	0.269 0	<0.0001
Drug Use	0.1657	0.0072	0.3207	< 0.0001	0.4 142	< 0.0001	-0.0490	0.4313	0.284 1	<0.0001
Fighting	0.1377	0.0258	0.2751	< 0.0001	0.3 710	< 0.0001	-0.1122	0.0710	0.262 1	<0.0001
Gang Activity	0.1659	0.0073	0.3096	< 0.0001	0.3 676	< 0.0001	-0.1200	0.0542	0.277 5	<0.0001
Gun Violence	0.1728	0.0052	0.3060	< 0.0001	0.3 895	< 0.0001	-0.1086	0.0818	0.239 8	<0.0001
HIV/AIDS	0.1529	0.0138	0.2793	< 0.0001	0.3 473	< 0.0001	-0.1317	0.0348	0.232 0	<0.0001
Loitering	0.1573	0.0112	0.2333	0.0002	0.3 265	< 0.0001	-0.0435	0.4880	0.182 1	<0.0001
Prostitution	0.1755	0.0044	0.2991	< 0.0001	0.3 632	< 0.0001	-0.0810	0.1927	0.282 2	<0.0001
Resources Young	0.1962	0.0014	0.3016	< 0.0001	0.3 841	< 0.0001	-0.0635	0.3077	0.280 5	<0.0001
Truancy	0.1918	0.0018	0.2762	< 0.0001	0.3 447	< 0.0001	-0.0724	0.2446	0.237 1	<0.0001
Underage Drinking	0.1965	0.0015	0.3115	< 0.0001	0.4 022	< 0.0001	-0.0839	0.1809	0.277 0	<0.0001
Vandalism	0.1384	0.0251	0.2421	< 0.0001	0.4 241	< 0.0001	-0.0686	0.2704	0.238 3	<0.0001
Weapons	0.1773	0.0042	0.2617	< 0.0001	0.3 499	< 0.0001	-0.0988	0.1143	0.255 3	<0.0001

Table 2. Relation between perceptions of social problems before and after the casino and neighborhood indicators.

Findings: In-depth interviews

The Community Research Team conducted 63 interviews with Hispanic residents of Springfield, MA. Table 3 shows the residential zip codes of the participants. It is worth noting that the majority of these interviews took place on Springfield's streets and in homeless shelters. It was common for interviewers to offer food and drinks, but people did not have to take part in the interviews to enjoy them. The interviews lasted from 20 to 30 minutes each and were conducted in Spanish. The guideline questions are attached (See Appendix). All interviews were recorded and transcribed.

Two people from the Community Research Team and Dr. Vega, a research consultant, coded and analyzed the transcripts. Three transcripts were looked at separately and then all together to ensure coding agreement. The themes that emerged from the analyses can be categorized into the following areas: Housing, Police, Casino, and Crime. Interestingly, there was no agreement in any of the areas as each point of view was countered by another. Some participants stated that the community is safer, others felt that crime has increased, and some thought that the casino made things better, while others thought it made things worse. Housing was the only topic in which people expressed agreement: Housing and rental prices have increased. The table below depicts the findings organized by themes.

Zip Code	# of interview participants
01103	14
01104	1
01105	26
01108	1
Not reported	21

Table 3. Participant Zip Codes

Theme 1: Views about the housing market

There was almost consensus that housing rentals and home prices have increased. Participants pointed to the increase in rental prices and that now, it is more difficult to afford a home. Related to the increases in housing prices was the concern about gentrification and the fear that they will be priced out of the housing market.

Sub-theme	Quote
Housing prices increased	<p><i>Because home values are going up.</i></p> <p><i>It's just that the properties have gone up and, as far as you can see, there is nothing that has gone down.</i></p> <p><i>Home prices skyrocket as well because of the pandemic.</i></p>

Sub-theme	Quote
Rental costs increased	<p><i>All the rents went up. Right now I can't afford that and I'm living in a homeless shelter.</i></p> <p><i>Well because in my mind they're displacing everybody and everybody has nowhere to go now because prices are going up and that can't be good for the market, right?</i></p> <p><i>Yeah. For the Casino they [rental prices] have risen a lot.</i></p> <p><i>The rent is too much. The citizen who is going to rent must get about \$3,000 pesos out of his pocket to have just one room and I consider that a very high thing. These people cannot pay that amount in one fell swoop and most of these people are older people.</i></p> <p><i>I disagree because it is as I told you before, I live near the area and what they have brought is the impact of more spending. The rent goes up to the account of the Casino. I understand that they have not brought things as such that impact... as I can explain to him... that gives a good vision to the people who surround themselves around him.</i></p>
There are concerns about gentrification	<p><i>Well because in my mind their displacing everybody and everybody has nowhere to go now because is going up prices and can't be good for the market, right? Very negatively. The Casino has caused a lot of gentrification in Springfield in the downtown area because its right to downtown in Main Street.</i></p>

Theme 2: Crime and safety

Crime and safety has been a concern of Springfield residents decades before the Casino opened its doors. Some residents worry about the number of outsiders that the casino attracts to their neighborhood. Others feel more secure due to the increased foot traffic in the street. Some indicated that crime has now moved away and shifted to other places in the community⁶. Gun-related incidents remain a concern. In terms of the police presence, some residents felt more secure because of the increased police presence in the neighborhood whereas others felt less secure.

Sub-theme	Quote
Crime was a concern before the casino opened its doors	<p><i>... There were problems before the Casino came. Problems are still the same.</i></p>

⁶ This notion was further explored by analyzing a geographic data set of gun violence incidence during an 11-year period in Springfield (2010-2020). Findings from a preliminary analysis shown in the Appendix shows that crime related to gun violence has indeed shifted.

Sub-theme	Quote
	<p><i>I am going to tell you the truth, the 31 years that I have been living here and this area is one of the poorest. I live in the historic area, which is just a little bit. But around where I live, which is Union St, which is School St, I haven't seen a big change in terms of crime. There have always been prostitutes on the corner for the 31 years that I have been here. There have always been drug dealings and the police have their time to clean up all that and there is time when you have to fight with the police so that they come back to clean up again.</i></p>
<p>Casino makes residents feel more secure because of the abundant lighting, and high foot traffic</p>	<p><i>They are fixing the streets, they are putting up more lights, they are fixing the light bulbs that are blown, they are cutting poles, they are fixing... although they raised the rent more, but they are fixing the streets.</i></p>
<p>Gun-related crime remains a concern</p>	<p><i>I think it is all the same. I don't think the Casino bringing more people with guns to the area. But the guns are here lately. Where before or be here after.</i></p>
<p>Crime has increased</p>	<p><i>Crime is down a bit. He is calmer, before he was more rowdy Crime has gone up, yes, but I don't think it was because of the Casino. I think it's just the rudeness that these "kids" have today.</i></p>
<p>Crime has decreased</p>	<p><i>They surround much more than before, there are more patrols, more officers making rounds. They walk by, on bicycles. There is more security. Better. Better. Look, the streets are cleaner now and there is more respect and there are more police officers on patrol.</i></p>
<p>Crime has shifted to locations away from the casino</p>	<p><i>In a certain sector a change has been seen but after a certain street the changes are the same thing that happened, the same thing that happens. I believe that the police have to be involved in each place, they are in relation to each place and not only in a sector of the community known as where all the businesses are.</i></p>
	<p><i>It's the same before it was the Casino. I think the people that are around the Casino, the businesses, are more likely to have more police supervision than the neighborhoods that are after a certain street, north or south. We need to have a little more police character in this type of community.</i></p>
	<p><i>I think it's more... the same thing. It's like an island. In the general area there is less crime in the Casino but if you go down to Main street to Saratoga you see more crime. You see more people, more homelessness. I think the Casino keeps maintaining.</i></p>

Sub-theme	Quote
	<i>the area but it's always impacted like two blocks over or the whole city in general.</i>
Police presence makes residents feel safer.	<i>I understand that since we are close to the Casino, it has been more beneficial for this community because the police are around the Casino and protecting what is around the Casino and we are around the Casino. Crime on our side is going to affect the Casino and they are not going to like it.</i>
Increased police presence makes residents feel less safe.	<p><i>When they over-police it criminalizes people for every little thing. We know we don't have good communication with the police.</i></p> <p><i>So it's interesting because we are supposed to feel safer because the Casino brought more cops and you don't feel safer. The fact we have more doesn't make you feel safer</i></p> <p><i>No, I feel it's more cops here. Cops don't make me feel safe because even if they are supposed to, they are not usually good at bringing down a situation?</i></p>

Theme 3: General perceptions of the MGM casino

Respondents expressed a variety of positive views about the casino. They were appreciative of the number of job opportunities created and the vast improvement of the physical environment surrounding the casino. There are cleaner streets and a building that is “nice to look at.” There is more entertainment and more healthy places to eat. Other respondents did not express such positive feelings. They attribute to the casino the increase in rental and housing prices, a higher police presence that might lead to criminalization, and pointed out that the police tends to prioritize responses to incidents in the casino over what occurs in the community. Others had a more nuanced response and were able to weigh both the positive and negative views of the casino.

Sub-theme	Quote
Job opportunities	<p><i>I think so because remember that this is for work. They brought work here. Here before there was not much work.</i></p> <p><i>I think it's both. I think it's open job opportunities for people who are in need but I also feel like it's a negative attraction for those who act like fools (it is not understood by the wind).</i></p> <p><i>Well, it has had a good impact, take a look. Because a lot of people are working in the Casino, take a look. Because they caught more than 3,000 people.</i></p>
	<p><i>Yes, more than 3,000 look because that is good for people because work was really scarce.</i></p> <p><i>It impacted like I said by providing jobs, you know, stable income, providing for the families to pay bills, you know if they were to build it somewhere else, they could've built the lower income housing and persuade their workers that work for them to live there.</i></p>
Cleaner streets and a building that is "nice to look at."	<p><i>They are fixing the streets, they are putting more lights, they are fixing the light bulbs that are blown, they are cutting poles, they are fixing... although they raised the rent more, but they are fixing the streets.</i></p>
More entertainment	<p><i>I would say it's a little better. Gets people another option to entertainment and whether that is the gambling, there's the show, there are the concerts that they bring, there's the investment they have in that side. That's all they promise.</i></p>
More security	<p><i>Because there is more security. Since there is more movement of police officers, they feel better quality in that sense</i></p>

Casino presence linked to gambling problem

Sub-themes	Quote
<p>Concerns about problem gambling</p>	<p><i>[There are...] a lot of gambling issues, gambling addiction in Springfield now. Personally I know a lot of people who were close to insanity at the Casino, so it's a lot of people with gambling issues that are impacted by the Casino and being so close to it made the gambling problem worse.</i></p>
<p>Recognition of Gamesense</p>	<p><i>The first thing when you walk to MGM you go through to the security; when you pass through the security you left there. The program that they have to help for gambling addiction and all that kind of stuff I think is the best place.</i></p> <p><i>... they have a room that they explain to people. Look, they explain to him that the machine is the machine and don't get too carried away by gambling. They have a program there that helps them.</i></p> <p><i>... I remember that and I know they are working with problem gambling. They have a system set up for that. I'm not familiar for everything they promise</i></p>

Discussion

The Neighbor to Neighbor (N2N) Community Research Team (CRT) conducted participatory research to learn how residents in Springfield, MA. perceived the presence of the MGM casino in terms of housing and neighborhood issues. To achieve this aim, the CRT collected 290 surveys, conducted 63 interviews, and analyzed GIS data on gun violence incidents occurring between 2010 and 2020 in Springfield, MA. to engage community members in all phases of the research process and obtain a nuanced and evidence-based understanding of the casino's impact on housing in the community.

The interviews and focus groups showed that people had differing ideas about how the casino affects housing and the neighborhood as a whole. Participants expressed their concerns about community safety, police presence, the allocation of resources, and the potential negative impact of the casino on vulnerable populations. The CRT invested in training and community engagement, which were essential to producing meaningful and impactful research. The study results provide important information on how the casino affects the community, which can be used to make policy decisions and help the community grow.

The study collected information about the participants' age, ethnicity, place of birth, race, language, number of years living in Springfield, MA. and zip code, among other things. The results indicate that most of the respondents thought that social conditions got better after the casino opened, but their opinions varied depending on their home zip code. Participants living in zip code 01103 perceived that social conditions worsened, while those in 01105 perceived social conditions to have improved after the casino opened.

The study also looked at how neighborhood factors affected residents' outlook on changes in social conditions. It found that neighborhood indicators - such as perceptions of safety, quality of life, sense of belonging, and rental affordability - were positively and significantly related to improved social conditions. While some residents feel more secure due to increased foot traffic and police presence, others remain concerned about the potential increase in crime and the influx of outsiders into their neighborhood. The perception that crime has shifted to other areas in the community indicates that there is a need for a comprehensive approach to addressing crime and safety issues in the area. The concern over gun-related incidents also underscores the need for effective gun control policies and enforcement. Overall, the findings suggest that policymakers and community leaders must take a nuanced and multifaceted approach to addressing crime and safety concerns in Springfield.

Some interviewees said having police around doesn't always make them feel safer. This exemplifies the complex relationship between the police and individual safety. Concerns about housing and gentrification were also brought up in the interviews. People said that house and apartment prices had gone up since the casino opened. Perceptions about the relationship between crime and the opening of the casino also varied. Most of the participants acknowledge that crime existed before the casino opened. Still, some participants stated that it has increased, others that it has stayed the same, and a portion feel that crime has

decreased. Some people, including CRT members, thought that crime had moved to other places. To support this assumption, the CRT asked JSI to look at a set of GIS data about gun violence in Springfield, MA. between 2010 and 2020. The results of that analysis confirm that crime incidents cluster throughout the city and that, indeed, over the 10-year period, they have shifted away from the casino.

Overall, the study emphasizes the importance of putting money into community resources like education, recreation, and public safety. It also shows the necessity of being more open about how the casino affects the community and underscores the importance of community engagement in producing meaningful research. The results are important for policy decisions and efforts to improve the community in the area. When making decisions and putting policies in place about the casino and how it affects the community, it is imperative that policymakers and stakeholders consider how different people see things and what worries them.

The research indicates that residents with a strong sense of belonging were happier with the quality of life in their neighborhood because they viewed social circumstances as having improved after the casino's opening. The study found that those residents with a strong sense of belonging were more satisfied with the quality of life in the community and perceived that those social conditions improved after the casino opened its doors. A sense of community membership entails sentiments of inclusion, which result in feelings of social and emotional support. In fact, a feeling of community is associated with better physical and mental health, stronger social networks, and higher life satisfaction.

Based on these results, we suggested that more money be put into resources to increase housing affordability and help build communities, such as education, leisure, and public safety. More resources should be allocated to support the development and preservation of affordable housing units, ensuring that these programs prioritize equitable distribution across diverse neighborhoods affected by the presence of the casino. Politicians and stakeholders should also consider investing in resources that enhance social circumstances in locations where locals view conditions to have deteriorated since the casino's opening, such as zip code 01103. The following are some examples of educational and communal spaces that benefit the community:

Community centers are places where people can gather for social, educational, and recreational activities. They can offer various programs and services, such as after-school programs, sports leagues, fitness classes, and job training.

Libraries are important educational resources that provide access to books, technology, and educational programs. They can also serve as a community hub for events, meetings, and discussions.

Parks and recreational spaces provide physical activity, socialization, and relaxation opportunities. They can include playgrounds, sports fields, hiking trails, and picnic areas.

Youth programs offer opportunities for young people to develop skills, explore interests, and connect with peers. Examples include after-school programs,

summer camps, and mentorship programs.

Adult education programs offer lifelong learning and skills development opportunities. They can include classes on topics such as computer skills, language learning, and financial literacy.

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Many of these spaces offer resources for physical and mental health, such as exercise classes, counseling services, and nutrition programs. Investing in these types of educational and community spaces can help improve social conditions and quality of life for residents in the Springfield, MA area.

In addition to communal spaces and resources, the study underscores the importance of community engagement in producing meaningful research. The Community Research Team engaged community members from the discovery phase to the dissemination phase, which was essential in obtaining a nuanced and evidence-based understanding of the casino's impact on housing in the community. Policymakers and stakeholders should prioritize community engagement when conducting research or implementing policies that impact the community.

The study suggests that the MGM casino had an impact on housing in the community, particularly in terms of rental affordability and gentrification. Participants expressed concerns that house and rental prices have increased since the casino opened, making it harder for some community members to afford to live in the area. This could have implications for housing stability and could lead to displacement if residents are priced out of the area. The study underscores the need for policymakers to consider the housing implications of casino development and to ensure that affordable housing remains available to community members. Additionally, the study highlights the importance of community engagement and transparency in understanding the impacts of casino development on the local housing market.

Finally, the study emphasizes the need for policymakers and stakeholders to consider taking into account the differing perceptions and concerns of community members when making decisions and implementing policies related to the casino and its impact on the community. The study found that perceptions of the impact of the casino differed based on the zip code of residence and that knowing one's neighbors was not found to be related to perceived changes in social conditions. Policymakers and stakeholders should conduct further research and engage with community members to obtain a more comprehensive understanding of the impact of the casino on the community and ensure that policy decisions and community development efforts address the needs and concerns of all residents.

Limitations

There are several limitations to note when considering this analysis. First, survey participants were asked to report how they felt about a problem in the past. This introduces a possibility of recall bias, as participants may not accurately remember how they felt at the time. Second, there is a possibility of some of the variables being correlated. For example, someone who thinks gang violence is a problem may also consider fighting, gun violence or drugs to be a problem, as these are activities often associated with gangs. Finally, the number of statistical tests conducted increases the possibility of Type I error, or false positives.

The study was also conducted after the Covid-19 pandemic which may have impacted the community's perception of the casino's impact. It is unclear how the pandemic may have affected the study's findings. Finally, the study focuses on the impact of the casino on housing and social conditions and does not examine other potential impacts, such as economic or environmental impacts.

Appendix 1

Interview Guide

Hello. My name is [] and I am part of a community research team associated with N2N, and John Snow Inc., a Boston-based public health consulting company. The MA Gaming Commission sponsors our study. Our interest is to know how the presence of the casino has affected our quality of life, our housing, our community, our people. We're talking to community members like you to ask some questions about how the presence of the casino has impacted our community, our neighborhood. As a token of appreciation, we will give you \$20. The interview will take between 15 and 35 minutes. Please note that I will do my best to protect your privacy. I'm not going to ask for your name. Any personal information will not be disclosed in any publication that may result from the study.

Would it be okay if I recorded our interview? I am going to record our conversation today to avoid taking notes and to put all my attention on our conversation. Once we have the recording written, we will delete the recordings. Saying no to the audio recording will have no effect on the interview. (If they say no - take notes while interviewing) Would it be okay to start with my questions?

General

1. What is your zip code?
2. What language is spoken in your home?
3. How many years have you lived in Springfield?
4. Do you own your home?
5. Have you or a family member worked with MGM?

Community safety

6. One of the areas that we are interested in is crime, community safety. Let's talk about it?
7. In your opinion, how has the presence of the casino impacted crime in the community where you live?
8. Let's talk about domestic violence. Have you heard or read of incidents of domestic violence in your neighborhood? Among your friends? Among your acquaintances?
9. to.
 - i. If you answer yes: Has that been related to the Casino?
 - ii. If they answer No: How about juvenile delinquency? Have they witnessed, or spoken among neighbors about incidents related to young people?
10. What has happened to the police presence since the casino was established in this area?
11. What has happened to juvenile delinquency since the casino opened?
12. to. If you answer yes.
 - i. Has that been related to the Casino?
13. Tell me about the police presence in your community since the casino opened. Have

they been more present in your neighborhood?

Community satisfaction

14. Well, after almost 4 years of being established, what do you think about the Casino, has it benefited the community? Has it done you more good than harm, more harm than good?
15. How satisfied are you with living in this community?
 - i. It doesn't matter how I answer (whether they answer yes or no)
 - i. Ask: How does the casino contribute to the way you feel?
16. How has the casino impacted the quality of life for community residents?
17. How satisfied do you think most area residents are since the casino arrived?

Appendix 2

N2N Casino, housing, neighborhood, community study Survey

DEMOGRAPHICS

AGE: _____

ETHNICITY:

- Hispanic/Latino/a/x/e
- Non-Hispanic

PLACE of Birth: _____

RACE:(check all that apply)

- African-American/Black
- Asian-American
- Caucasian
- Native American Pacific Islander
- Other: _____

LANGUAGE I primarily speak is:

- English
- Spanish
- Sign Language
- Other: _____

ZIP CODE: _____

Home: _____

How long have you been living in the USA: _____

In Springfield, MA: _____

HOUSING:

- In temporary housing
- I own a house, apartment or room
- I rent a house, apartment or room
- Unstable housing
- Other: _____

EDUCATION LEVEL

- Doctoral or professional degree.
- Master's degree.
- Bachelor's degree.
- Postsecondary nondegree award.

- Some college, no degree.
- High school diploma or equivalent.
- Associate's degree.
- No formal educational credential.

EMPLOYMENT:

- Full-time (>35 hours/week)
- Unemployed and looking for work Part-time (<35 hours/week) Student
- Retired
- On Disability
- Military (active)

Problem Gambling Severity Index (Only 4)

Four- point scale from never to almost always. It is asked to all participants of a survey who have gambled at least once in the last 12 months:

'never,' 1 for 'sometimes,' 2 for 'most of the time' and 3 for 'almost always.'

In the last 12 months...				
Have you bet more than you could really afford to lose?	ever	ometimes	ost of the time	lmost always
Have people criticized your betting or told you that you had a gambling problem, regardless of whether or not you thought it was true?	ever	ometimes	ost of the time	lmost always
Have you felt guilty about the way you gamble or what happens when you gamble?	ever	ometimes	ost of the time	lmost always

Survey Questions

1. How would you describe your sense of belonging to your local community?

- Very strong
- Strong
- Neutral
- Somewhat weak
- Very weak

2. In general, how hard do you find it to pay your rent?

- Very hard
- Hard
- Not hard
- Neutral
- Easy
- Very easy

3. How safe do you feel in your rental unity?

- Always safe
- Safe
- Neutral

- A little unsafe
 - Unsafe
4. How would you rate the quality of life in the neighborhood? Is the quality of life:
- Very poor
 - Poor
 - Neutral
 - Good
 - Very good
 -
5. In the past year, how well have police responded to community issues?
- Excellent
 - Good
 - Neutral
 - Satisfactory
 - Unsatisfactory
6. How well do you know your neighbors?
- Not at all
 - A little
 - Somewhat well
 - Know them well
 - Very well

7. Below is a list of potential issues that may exist in your neighborhood. Please indicate whether each is a big problem, a minor problem, or not a problem at all. After each condition that I state, tell me whether it is either a big problem, minor problem or not a problem.

Problem	Before the creation of the casino 1. Big problem 2. Minor problem 3. Not a problem at all	After the creation of the casino 1. Big problem 2. Minor problem 3. Not a problem at all
Prostitution		
Drug selling		
Drug use		
Fighting		
Vandalism		
Gun violence		
Disorderly conduct		
Loitering		
Gang Activity		
Truancy (kids not in school when they should be)		
Underage drinking		
Using weapons		
HIV and AIDS		
Lack of resources for young people		
Lack of afterschool programs		

Appendix 3

Geographical Information Systems Analysis of Gun Violence related incidents occurring in the City of Springfield, MA between 2010 and 2020.

Introduction

This study is analyzing the gun violence data collected over the past 10 years to see where and what the effects could have been from gun related incidences. In particular this study is evaluating whether there were any patterns or statistical relationships between the gun related incidences.

It is known that gun related incidences are a form of, and contribute greatly, to community based toxic stress (Corburn, et al. 2021). This stress within a community can have harmful impacts across the board, but it is important to recognize that stressors like these are not always isolated incidents. In some cities, reports have found that gun related incidents in a community can have serious health related issues, including relationships to birth rates and quality of living (Larsen, et al. 2017). These kinds of incidences have particularly harmful impacts on students and schools in an area (Barboza, 2018).

This report aims to evaluate the patterns of gun violence in Springfield, MA, with the intention of clearing whether or not there are patterns of gun violence, and whether those patterns had a statistically relevant change in conjunction with the construction of the Springfield MGM Casino.

Area of Study

The focus area of the study is the city of Springfield, MA, located in Western Massachusetts. This area is of particular interest due to it acting as an outlier to the rest of the nation in gun violence incidents.

Data

The data collected for this analysis is a combination of data from different locations.

IBR Code	Offense Description
13A	Aggravated Assault
120	Robbery
09A	Murder & Nonnegligent Manslaughter

The demographic data, as well as regional distributions of people are collected from the Census Bureau's 2010 census. The Gun Violence incidents are a data set collected and provided by the Springfield Police Department in collaboration with the Massachusetts Gambling Commission. The gun incidents included were police reports that fell into the categories listed in the textbox. The gun violence data collected had distinctions between the types of incidences, but all very distinctively had reports of firearm involvement. (see Table 1), however, we decided not to distinguish between them because a gun incidence has an impact regardless of circumstance.

No distinctions were made between incidence types as all involved gun violence. The initial analysis was done through GIS mapping software on ArcGIS, Google MyMaps, and Tableau, where trends and visual connections were verified to evaluate the methods needed for the process (Investigation 2011). The methods used to statistically analyze those patterns are covered in the analysis section.

Analysis

Geospatial data can be explored in Geographic Information Systems (GIS) based maps, translating numeric data with location information into spatial information with geographic coordinates, providing a spatial representation of community relationships and significant hotspots. GIS and spatial methods are used frequently for crime mapping analysis, to understand spatial patterns and trends that underlie major issues affecting communities.⁷

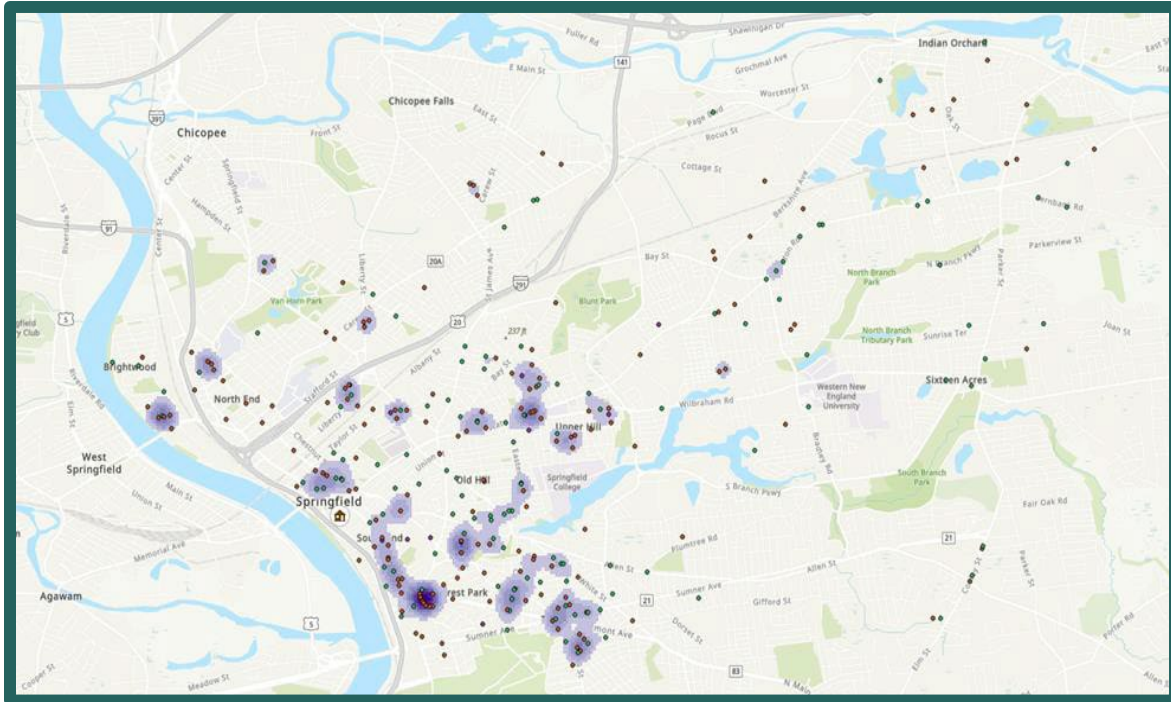
This report used the data set collected and provided by the Springfield Police Department to first display the location of violent crime occurrence by type and year, informing the following spatial analyses. Given the sensitivity of this location data, kernel density maps were produced to calculate the density of point features to approximate the locations of crime incidence through the area. Kernel density estimation is a common 'non-parametric' technique in crime mapping that provides visual estimations and reduces the ability to locate specific incidences, but does not reveal statistically significant patterns.

Therefore, spatial autocorrelation analysis looked at how the pattern of incidence expressed was clustered or dispersed. Global Moran's I is one statistic that measures the overall degree of spatial autocorrelation; it can indicate whether incidents on the map cluster or disperse overall, but does not inform where those specific clusters are. Therefore, optimized hotspot analysis was used to aggregate incidents into weighted features to assess their distribution and determine significant areas⁸. The optimized hotspot analysis used the Getis-Ord G_i^* statistics to evaluate the incidence to produce optimal results, which are then represented in fishnet polygons that are smaller than census blocks.

Results

Kernel density maps displayed the incidence of crime in the area, allowing visualization without specific locations. The following map indicates incidence in 2018, with raw location data shown as well to provide a reference.

No distinctions were made between incidence types as all involved gun violence. The initial analysis was done through GIS mapping software on ArcGIS, Google MyMaps, and Tableau, where trends and visual connections were verified to evaluate the methods needed for the process (Investigation 2011). The methods used to statistically analyze those patterns are covered in the analysis section.



Spatial autocorrelation analysis was conducted for each year and for all years. Although year by year analysis did not yield overall statistically significant clustering, if we consider data across the years, we can determine that there was statistically significant spatial clustering of crime incidence. This means that incidents are not randomly distributed in the area.

The optimized hotspot analysis attempted to identify changes in statistically significant clustering from 2010-2020. For the entire period of 2010-2020, clusters of criminal incidences tend to concentrate around the river and Main Street. However, statistically significant clusters of violent crime start to appear again in 2018 and spread further away from the casino over time.

⁷ <https://www.mdpi.com/2071-1050/11/18/4889/htm>

⁸ <https://pro.arcgis.com/en/pro-app/latest/tool-reference/spatial-statistics/optimized-hot-spot-analysis.htm>

Discussion

The above analysis tells us two important things.

1. Although within each the points are random, when you compare them across the years, the locations of gun related incidences is not random, but patterned.
2. Since 2017, the locations of gun related incidences have become more clustered and have moved further away from the Main Street downtown area.

These findings tell us that the gun related violence in the Springfield area is not random, and since 2017, has been moving away from the Main Street center area. Given the nature of human society and a community as large as the city of Springfield, this could be due to a variety of aspects and variables. This report is being put together with the MGM Casino in mind. In conversations with community members about this data and the work being done, it seems that there is the view that the presence of the MGM casino is coupled with a higher police presence, and as a result gun-based crimes are moving away from the area around the casino, an spreading into other neighborhoods nearby. This is a plausible theory but is not proven or disproven by this particular study. This study simply states that the incidences are moving further away starting in 2017, but not that there is one specific reason.

References

Barboza, G. A Secondary Spatial Analysis of Gun Violence near Boston Schools: a Public Health Approach. *J Urban Health* 95, 344–360 (2018). <https://doi.org/10.1007/s11524-018-0244->

Corburn, Jason, DeVone Boggan, Khaalid Muttaqi, Sam Vaughn, James Houston, Julius Thibodeaux, and Brian Muhammad. 2021. "A healing-centered approach to preventing urban gun violence: The Advance Peace Method." *Humanities and Social Sciences Communication*.

Larsen DA, Lane S, Jennings-Bey T, Haygood-El A, Brundage K, Rubinstein RA (2017) Spatio-temporal patterns of gun violence in Syracuse, New York 2009-2015. *PLoS ONE* 12(3): e0173001. <https://doi.org/10.1371/journal.pone.0173001>

