HOUSING AFFORDABILITY

AN ANALYSIS ON THE HOUSING CRISIS OF OAKLAND, CALIFORNIA

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*Independently made heat-map on Python with data from Oakland Data Portal [10]

INTRODUCTION

Rental rates have risen drastically in recent years in major urban areas across the United States. In the Bay Area, 3 major cities have been hit with an affordable housing crisis – San Francisco (SF), San Jose (SJ), and Oakland. This report will provide a detailed insight on the crisis as it pertains to Oakland. Through key literature takeaways, city government summaries, and data analyses this study will look to use the *Urban Informatics Ecosystem* to explain how Oakland got to where it is today, who is affected by the crisis, and what actions are needed to remedy the situation [6].

CITY QUESTION

This report proposes that Oakland concerns itself with two main questions when dealing with this issue – 1) Can Oakland provide affordable housing to its residents? And 2) How can they prevent people from being evicted/displaced.

BACKGROUND

To first gage the extent of the problem, the city (from here on, any mention of "the city", will refer to the mayor's office) needs to measure the current state. Key factors of affordable housing include rental rates, median income, and housing availability among others. Based on market data from "Apartment Rental and Search Engine" website *Rent Jungle,* Oakland rent for a one-bedroom apartment has more than doubled since January 2011 to present day. In the last eight years, the increasing rent trend is noticeable (refer to Figure 1) [4]. Unfortunately, the median income of an individual hasn't kept up increasing rent prices, jumping 20% from about $64K to $78K [3]. While a 20% spike in income is significant, the increase is not wholly due to those who stayed in Oakland these past 8 years but from an influx of people who have moved there due to the recent tech boom. As prices surged in nearby SF, the spillover effected Oakland, the next closest major city.
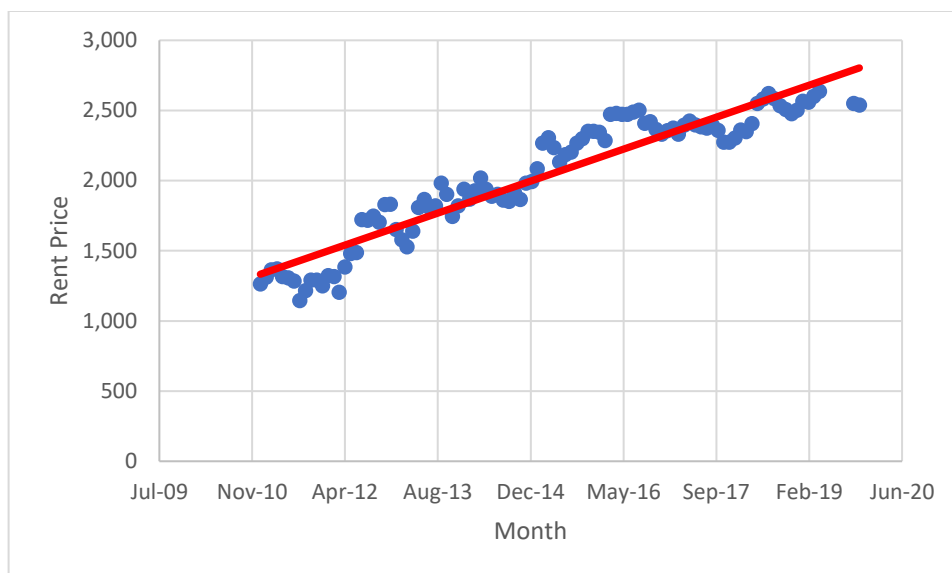
Figure 1: One-Bedroom Rental Price in Oakland, California[4]

Data is also necessary to figure out who is affected by the issue. Currently, Oakland measures demographic trends for housing issues dealing with eviction notices, overcrowding, loan denial, and homeownership. Eviction notices allows the city to understand which demographic of the population (and to what extent) is getting kicked out of their living situation. Overcrowding is defined is more than one and a half individuals per room [1]. This metric leads to general assumptions that certain houses could have more than one family living in them, potentially to ease rent burden. Measuring loan denials allows Oakland to tailor laws and economic policy to give individuals a fighting chance to earn an income that enables them to stay in the city [1]. The last metric, homeownership, might be the most telling metric. Most people who suffer from the housing crisis are renters, and as such, don't own property – leaving them more vulnerable than those who own their house. While Oakland is only measuring these trends across racial demographics, housing affordability is an issue that affects millennials and old people alike [1]. Some reports estimate that almost 40% of the population in year-round shelters are seniors [9]. Solving this issue will be beneficial to young and old and working and non-working populations alike.

As part of its ongoing effort to become a more resilient city, Oakland has also started measuring four major equity indicators – Housing Quality among them. Unfortunately, their current score is 36.8 (on a scale of 1 – 100). In their equity assessment, Oakland also measured Displacement, which was their worst performing metric – receiving an abysmal score of 29. As such, this report will summarize current plans and propose suggestions to help alleviate the issue [1].
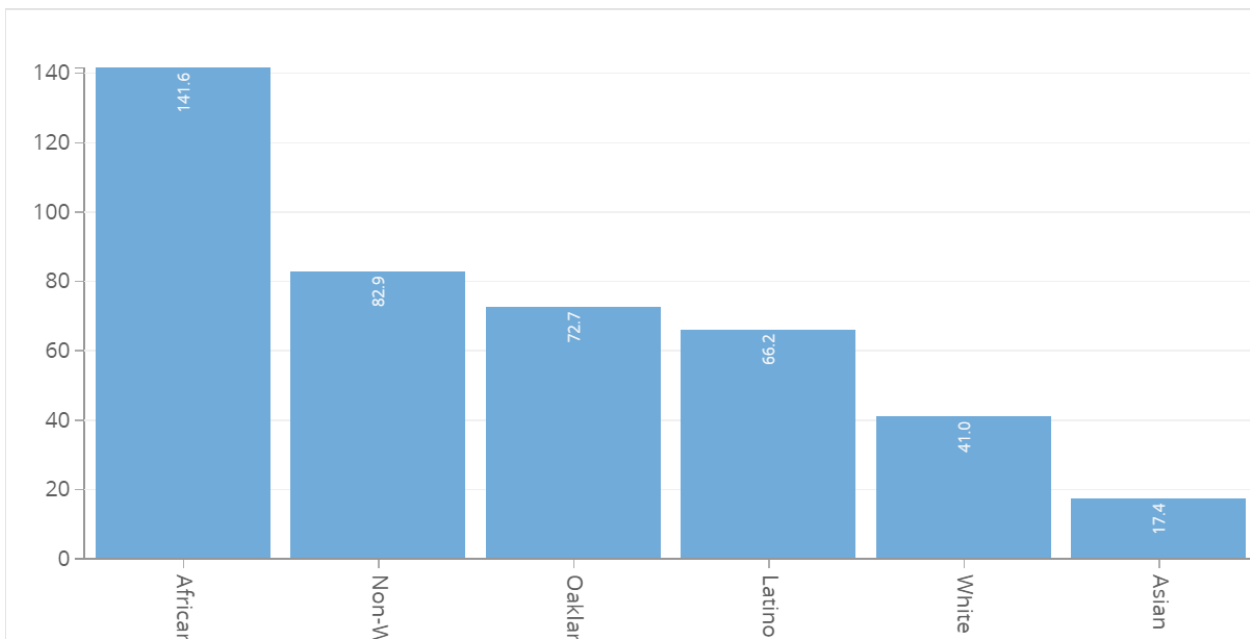

Figure 2: Eviction Notice Filings per 1000 Households by Race [11]

Along with understanding the data, Oakland must also communicate with city leadership/representatives and listen to its citizens to glean an understanding of the emotional reality of the problem. Data alone is not enough to guide a project; the city needs to use real input from its citizenry to task analytics teams on how to target the problem.

ANALYTICS QUESTION

From understanding the data, the city can now pose an analytics-based question. Again, this presents itself as a two-part question, to address both city questions. First, to address affordable housing, the city can ask -- where are the areas that are the most effected and can existing

infrastructure be used to provide housing? Secondly, for displacement, Oakland can ask -- what are the features of the people and the neighborhood that reveal which populations might be at greater risk of suffering displacement?

SCOPE

Now that both the city and analytics questions have been proposed, the scope of the project is clearly defined [8]. To solve this problem, Oakland needs to mobilize an analytics effort by working towards the questions posed in the analytics front, to then influence policy and action to answer the questions posed from the city scape. Essentially, the goal is for the analytics team to build accurate models that can help find high-risk areas and at-risk individuals that will suffer from eviction/displacement and the city can identify trends in the underlying features on a case-by-case basis. The project displays characteristics of two analytics projects – *Find the Needle in the Haystack* and *Flag Stuff Early* [7].

DATA

Oakland's data portal has metrics on many issues that relate to affordable housing. Some of which, discussed earlier in the report, allow the city to gage an understanding of the problem. For the Analytics team, however, further exploration and specialization is needed. Specifically, the analytics team will need to look at displacement and affordability trends among the population and figure out what information can be considered indicators.

Unfortunately, Oakland does not maintain a lot of datasets that contain geospatial data relating to affordable housing. In the future, Oakland should start tracking the geospatial references of where evictions occur as well as where houses are considered the most overcrowded. If this can be done, the issue can be studied with more depth and policy can be crafted based on trends that the various neighborhoods experience.

Outside of existing datasets, Oakland should start measuring displacement rates – where are people being displaced, where are they going, and what is the cause for being displaced. The last component is necessary for many metrics – the cause for why they fall into a statistic is necessary to create effective policy.

ANALYSIS

Illegal dumping is a key metric that the team can use to help the city flag stuff early. Oakland keeps track of illegal dumping service requests, with the dataset consisting of requests as well as geospatial references to latitude and longitude as well as council district [10]. This is important for two main reasons – it gives insight to which neighborhoods have more occurrences of it and it lets city council representatives where to focus on improvement efforts in their neighborhoods.
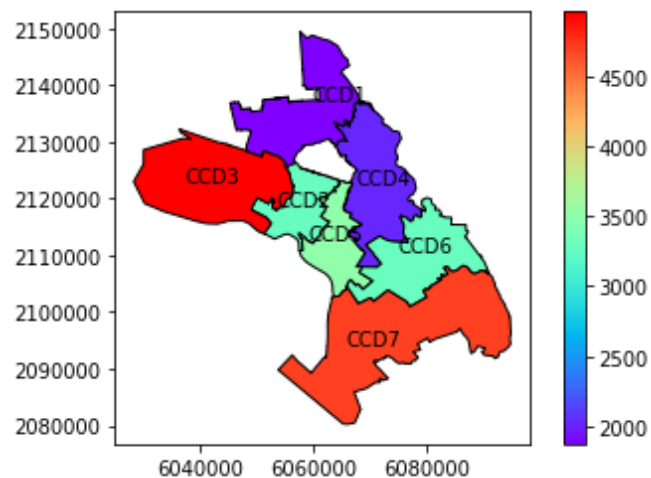
Figure 3: Heatmap of Illegal Dumping Requests in Oakland from 2016-2017*

Figure 3 shows that Oakland is split into 7 different city council districts (CCD). The map reveals that CCD3 (encompassing West Oakland) and CCD7 (encompassing East Oakland) experience the most amount of service requests. This aligns with some of the demographic trends seen during the

*Independently made heat-map on Python with data from Oakland Data Portal [10]

exploratory phase of the project as West and East Oakland are both home to large populations of African-American and Hispanic populations – which have a history of being disadvantaged in Oakland [1].

Another telling piece of information the illegal dumping dataset provides is that it tells Oakland what is being thrown out. In Oakland's case, the top 2 contributors (out of 18) are debris/appliances and mattresses/box springs [10]. A future improvement on the dataset could be to find out why these things were dumped. In assessing the top 2 contributors, it would be useful to know if the individual was just moving out or if they were kicked out. Or, were they just lazy and refused to dispose of the object accordingly? Unfortunately, this wish will probably go unfulfilled as it's illegal to dump objects on the street (it's littering!), so an individual would never willingly admit to the act and give out the answer to the question – unless the data was collected anonymously. If the city could get answers to the cause, it would give insight to when and why an individual left their housing and could contribute to better data collection for which instances are due to the affordable housing problem.
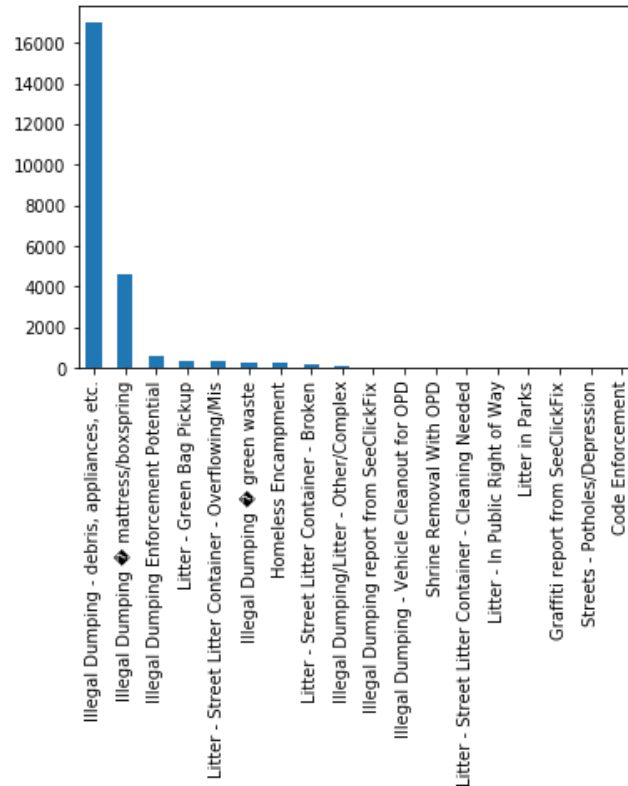
Figure 4: Bar Chart of Illegal Dumping Descriptions [10]

A key dataset that could help play a vital role in solving Oakland's affordable housing crisis is the Loan Eviction dataset. Currently, like most other equity metrics Oakland is tracking, it only measures the demographic breakdown. While this is important, it is necessary to have more information that can be applied in a practical manner. A task force could better use this dataset if the city tracked the loan amount, current address and address of the unit the loan is for. With these components along with age and demographics the city can properly assess which groups of people are being denied loans and why. However, there is a possible concern that the dataset could violate privacy requirements, which could mean that the metric should no longer be public or certain elements be redacted when published publicly.

DEPLOY

Through the *Urban Informatics Ecosystem*, Oakland must then use the models built to interact with both the general populace as well as domain experts and city leadership [6]. Working with those on the frontlines that deal with housing placement and advocacy groups working on the affordable housing issue should result in effective results.

If the city and analytics team were to use this project's proposal of using illegal dumping requests as a key metric in identifying possible eviction or displacement hotspots, they would focus on working with council representatives Lynette Gibson McElhaney and Larry Reid – the individuals whose constituents report the most number of requests [12]. Through deployment, the analytics team can assess if the illegal dumping requests is an actual significant indicator in predicting evictions. If so, the model can be improved to take inputs from a case-by-case basis. If not, the city and team would need to work on acquiring datasets that are more appropriate for solving this problem.

In conjunction with the service requests dataset, the team should also be using the demographics metrics of loan denials and eviction notices to attack the issue from earlier in the process. The dumping service requests dataset is a metric that is reactionary, looking into the loan denials can show the city how to change policy that allows Oakland natives to stay.

Keep Oakland Housed (KOH), is one organization that is dedicated to keeping locals housed and providing services to those at risk or are currently homeless [2]. Through a public-private partnership, the program has received funds from insurance giant Kaiser, which has allowed them to provide financial and legal aid to individuals that need help [2]. The program has a hotline for people to contact them in need of aid, and this project also proposes that those calls be used to create and track data to be used in conjunction with the other metrics tracked in the Oakland Data Portal.

TEST AND VALIDATE

Although this project espouses that data is a main tool in the arsenal to remedy the housing crisis, city leadership and the target crowd (individuals at risk) need to be surveyed to determine if the model is correctly identifying at-risk individuals. In short, domain experts are needed to assess if the model is accurate in deployment [8].

The analytics team can only work with the information and scope provided by city leadership – both the mayor's office as well as city council leaders. As a result, it is these 2 groups that are responsible for assessing the accuracy and utility of the model. Leadership officials can work with advocacy groups to focus on solutions for the problem. If the model fulfills its purpose, then the analytics team has done its job, which should result in answering the analytics questions posed earlier.

After the analytics questions are answered, it's up to policy makers to craft legislation that answers the city questions. Whatever model the analytics team builds, and city decides to use, should influence legislation that is geared to providing services and aid to at-risk individuals that can keep people in their homes as well as mitigate the cost of housing. This can be done in many ways, passing laws that allow for new construction developments, implementing rent control, and easing the loan receivable process on a city-level.

CONCLUSION

This report analyzed the past few years in Oakland's landscape that led to the current housing crisis in Oakland. Understanding that the tech boom caused rents to skyrocket and displace locals is key in crafting policy that enables those not in the tech industry to stay in the city. This is important as cities remain not just economic centers but also cultural capitals of their metro areas. When housing becomes expensive, cultural creators (such as artists, musicians, etc.) become displaced decreasing diversity in the landscape. Focusing on key metrics that the city already measures as well as using them in different

ways (with the methods proposed with the illegal dumping dataset) Oakland can identify trends with eviction and displacement victims and come up with creative solutions towards fixing these problems.

Analytics and data play an instrumental role in this process. It is a tool used in the process of understanding what the current state of the crisis is and is necessary to build models that can be used at predicting who is at risk and where the victims might often be located. Communication is necessary in the entire informatics ecosystem – the analytics team needs to be informed on what worked, what didn't, and what the overall goal of the project is. As recommended in this paper, the analytics questions are typically built off the city questions. Answering the analytics questions allows the city to craft policy that answers the city-scape questions.

RECOMMENDATIONS

Other ways in which cities can gain advantages might be to look at utility and other metrics that are a byproduct of living (gas, electricity, water). Using these surrounding datasets can prove useful, along with requesting access to data owned by private companies and not just relying on open data.

While this research analyzed problems and created suggestions for Oakland, the work done is not limited to one city. The methodologies and suggestions offered can be applied to urban areas nationally and globally. this research recommends that other cities look at loan denials and eviction rates to fixing affordable housing problems. Furthermore, ingenuity in looking at metrics analogous to illegal dumping is needed to create meaningful predictions.

APPENDIX

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