Causes for Eviction Notices in Assorted Neighborhoods of San Francisco

Aitken, Connor
connor.aitken500@gmail.com

Cheung, Leon
leonjcheung@gmail.com

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Abstract

In recent years, the gentrification of San Francisco has become an increasingly controversial topic for those living in the Bay Area. We have set out to investigate whether the evictions we hear about in the news are morally justifiable or a result of landlords looking to generate greater revenues on their property, due to the great demand for housing. We pulled data from the city's open database initiative *dataSF* and used the C++ Programming Language to statistically analyze the data. We found that there is a veritably greater rate in evictions that we perceive to be motivated by greater potential profits, especially in neighborhoods which are exploding due to the rise of tech companies wishing to maintain offices in San Francisco. With this result in mind, we gain a greater perspective on the objective state of the state of housing in San Francisco.

1 Data Collection

We downloaded data on eviction statistics from SF OpenData and counted each of the reasons for eviction with a program we designed and created using C++. For some of these expected counts, the data was less than five so we were unable to incorporate it in our testing. After separating the data into eleven districts based off location, we performed χ^2 Data Tests for Homogeneity using the valid counts.

2 Data Context

here we explain what the various eviction reasons are, and show maps of San Francisco containing all the neighborhoods split up into regions

Categories:

Tenant Action	nonpayment, breach, nuisance, illegal, unapproved subtenant, latepay
Landlord Action	failsignrenew, owner move in, capital improvement, substantial rehab, roommate same unit
Development	demolition, ellis act withdrawal, condo conversion
Just Cause	nonpayment, latepayment, breach of lease, ownermovein, capitalimprovement, ellisactwithdrawal, nuisance, illegal, demolition

3 Analysis

3.1 Summary Statistics

This table and section is for testing.

4 Inferential Procedures

4.1 District 1

Neighborhoods	Inner Richmond, Lone Mountain, Outer Richmond

Reason	χ^2	df	p-Value
Tenant Action	15.1570	10	0.1264
Landlord Action	10.4669	6	0.1062
Development	0.9854	2	0.6110
Just Cause Removal	39.9610	16	0.0008

For District 1, there was homogeneity shown in tenant action, landlord action, and development, however there was not homogeneity shown in just cause removal.
how to illustrate p values, df, chi statistic in beautiful way

4.2 District 2

Neighborhoods	Seacliff, Presidio Heights, Marina, Russian Hill, Pacific Heights

Reason	χ^2	df	p-Value
Tenant Action	45.4120	15	0.0001
Landlord Action	11.8037	6	0.0665
Development	0.3398	6	0.9993
Just Cause Removal	127.1146	24	0.0000

4.3 District 3

Neighborhoods	North Beach, Nob Hill

Reason	χ^2	df	p-Value
Tenant Action	8.0298	5	0.1955
Landlord Action	2.2699	3	0.7037
Development	0.0000	1	1.0000
Just Cause Removal	19.6549	8	0.0117

4.4 District 5

Neighborhoods	Haight Ashbury, Hayes Valley, Western Addition

Reason	χ^2	df	p-Value
Tenant Action	32.491	10	0.0003
Landlord Action	10.671	6	0.0991
Development	0.9271	4	0.9206
Just Cause Removal	111.3054	16	0.0000

4.5 District 6

Neighborhoods	Tenderloin, South of Market, Financial District/South Beach, Mission Bay

Reason	χ^2	df	p-Value
Tenant Action	46.9304	4	0.0000
Landlord Action	0.0000	-2	1.0000
Development	0.0000	-2	1.0000
Just Cause Removal	63.8182	4	0.0000

4.6 District 8

Neighborhoods	Noe Valley, Glen Park, Twin Peaks

Reason	χ^2	df	p-Value
Tenant Action	10.5992	2	0.0050
Landlord Action	1.1193	0	1.0000
Development	1.1314	0	1.0000
Just Cause Removal	37.6297	6	0.0000

4.7 District 9

Neighborhoods	Portola, Bernal Heights/ Bernal North/ Bernal South, Mission/ Inner Mission		
Reason	χ^2	df	p-Values
Tenant Action	12.4686	6	0.0523
Landlord Action	1.3052	2	0.5207
Development	19.1170	0	1.0000
Just Cause Removal	133.8546	12	0.0000

4.8 District 10

Neighborhoods	Visitacion valley/Bayview Heights, Bayview Valley, Huner's Point, Portero Hill		
Reason	χ^2	df	p-Value
Tenant Action	3.8906	4	0.4210
Landlord Action	1.5766	1	0.3173
Development	0.0000	-1	1.0000
Just Cause Removal	8.6997	5	0.1640

4.9 District 11

Neighborhoods	Oceanview/Merced/Ingleside, Outer Mission, Excelsior

Reason	χ^2	df	p-Value
Tenant Action	23.1291	8	0.0032
Landlord Action	2.2277	2	0.3283
Development	3.8359	2	0.1469
Just Cause Removal	30.6304	14	0.0062

4.10 District 3 vs. District 6

Neighborhoods	North Beach, Nob Hill, Tenderloin, South of Market, Financial Ditsrict/South Beach

Reason	χ^2	df	p-Value
Tenant Action	50.260	8	0.0000
Landlord Action	na	na	na
Development	na	na	na
Just Cause Removal	341.925	12	0.0000

The Landlord Action and Development categories yielded no results because we were unable to perform the test, due to the expected counts condition. We were successful in running a test that produced clear results for the Tenant Action and Just Cause Removal categories, however. The greatest component of the Tenant Action category was the Non Payment reason for District 6, which we think is likely due to rising rents in the Tenderloin neighborhood.

We saw clear non-homogeneity in the Just Cause Removal test, where the p-Value approached zero. Here, the largest components for both District 3 and District 6 were due to the Ellis Act Withdrawal eviction reason, with components of 144.9395 and 81.4898, respectively. This indicates that an immense amount of landlords are removing their property from the rental market for other uses.

4.11 District 1 vs. District 4

Neighborhoods	Outer Richmond, Inner Richmond, Lone Mountain/USF, Sunset/Parkside

Reason	χ^2	df	p-Value
Tenant Action	13.3248	12	0.3459
Landlord Action	8.6267	6	0.1957
Development	78.7158	3	0.0000
Just Cause Removal	106.561	24	0.0000

Between these two districts, we see that the evictions due to renter and landlord action occur at relatively the same rate relative to the size of each district. It may be interesting to note that for the Landlord Action category, much of the statistic was made of one component: the Capital Improvement reason for District 4 at 5.2804, which suggests that in the Sunset/Parkside neighborhood landlords are more likely to make significant improvements on their apartments, which temporarily evict tenants from their rooms.

For reasons which we grouped under Development, these produced components with large values. The greatest contributor to the Development reason was from the Demolition reason from District 4 at 39.8452. This altogether may not be too unexpected, because, from anecdotal experience, there are many buildings which have fallen into disarray or may not be within building code in the first place.

When we study the Just Cause Removal test, we find more clear differences between these two districts. Both of the largest components of the test statistic resulted from District 4, in the Demolition and Ellis Act Withdrawal reasons, at 47.078 and 15.015 respectively.

4.12 District 3 vs. District 5

Neighborhoods	North Beach, Nob Hill, Haight Ashbury, Hayes Valley, Western Addition

Reason	χ^2	df	p-Value
Tenant Action	9.7614	16	0.8788
Landlord Action	0.9936	8	0.9983
Development	0.5791	4	0.9654
Just Cause Removal	117.5088	28	0.0000

Upon examining the p-Values for each of these tests, it is immediately apparent that these two districts are quite homogenous to each other, at p-Values above 0.85 for Tenant Action, Landlord Action, and Development. However, we see a departure from homogeneity in the Just Cause Removal test, which we could see as a unification of all three of these tests.

As we parse the components of the Just Cause Removal test, we find that three key components make up the bulk of the test statistic. For District 3, it is the Ellis Act Withdrawal reason, at a value of 39.0179, and for District 5, it is the Owner Move In and Capital Improvement reasons at 30.4084 and 21.7573 respectively that contribute the most. Perhaps District 5 is an attractive place for landlords to find to live in their apartment property, and it is possible that

in District 3, landlords are liquidating their property in anticipation of higher profits outside of the rental market.

4.13 District 5 vs. District 6

Neighborhoods	Haight Ashbury, Hayes Valley, Western Addition Tenderloin, South of Market

Reason	χ^2	df	p-Value
Tenant Action	45.3672	10	0.0000
Landlord Action	na	na	na
Development	na	na	na
Just Cause Removal	407.8489	20	0.0000

For Landlord Action and Development, we could not run the tests because we had expected counts less than 5.

In the Tenant Action test, we find a clear departure from homogeneity between District 5 and District 6, suggesting a difference in the type of renters between these two areas. Indeed, we can see that District 6 contributes much to the final test statistic, with the two reasons Non Payment and Nuisance at 16.0512 and 21.4209 respectively, suggesting that it may not be advantageous for landlords to hold a property in this area relative to District 5.

In the Just Cause Removal test, the largest departures from homogeneity are revealed in the components Owner Move In of District 5, and Nuisance and Owner Move In of District 6, at 133.2342, 68.6161, and 61.3065.

5 Conclusion

sdfsdafasdf

A Source code

```
#include <iostream>

int main()
{
    std::cout < S"dF" << SDF"";;endl;
}
```

B Data source