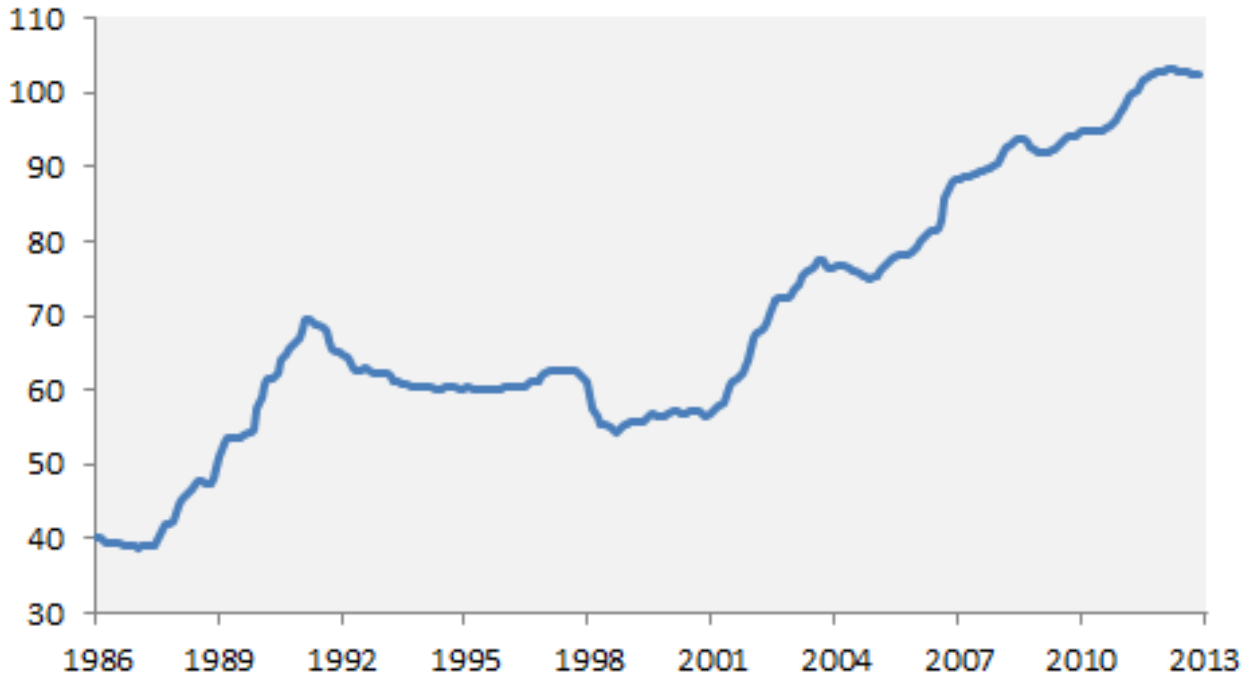
PROPERTY PRICES IN SEOUL

GROUP: INSTA
YUNSUNG JUNG, YUNA LEE, SUNGWON LEE

PROPERTY PRICES IN SEOUL

Seoul's property price keeps increasing



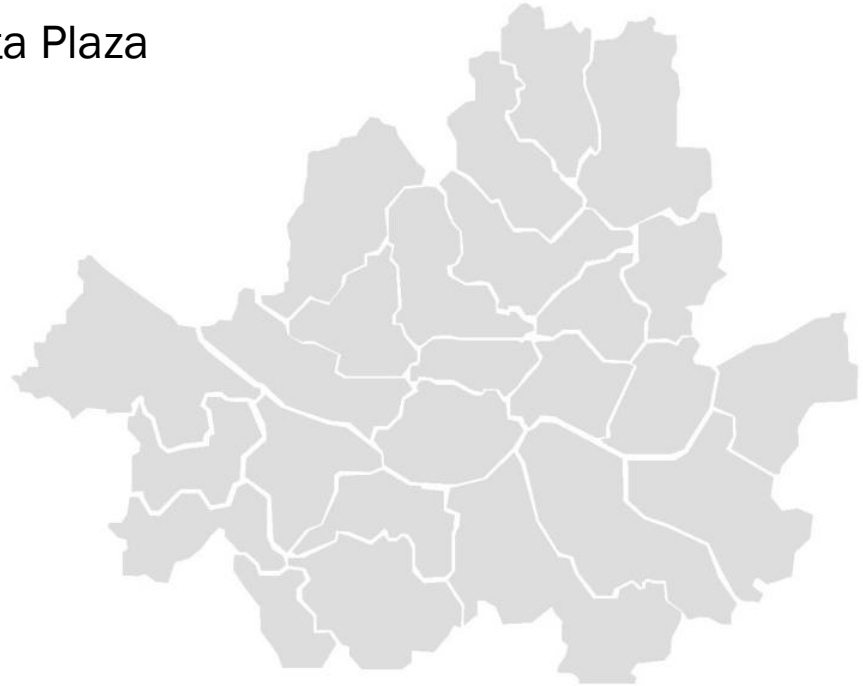
Which variables affect to the Property prices in Seoul

Sampling

Data from Seoul Open Data Plaza
based on price of lands

1. Classify the
property price by borough
Korean name: Gu

2. Make an average of
each Gu's property price



Measure main factors: Five factors which influence Seoul's property price

Transportation

The number of transfer stations (2015)

Education

The number of high education achievement high schools (2013)

Welfare

Park, Facilities for handicapped, Nurssery facilities (2015)

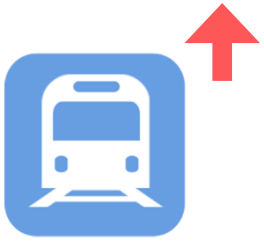
Crime Accidents

The number of major crimes (2014)

Income

Average income of each 'Gu' by month

Hypothesis: In high property price area



Transportation

More transfer stations

Education

More high education achievement schools

Welfare

More Welfare facilities

Crime Accidents

Less crime accidents

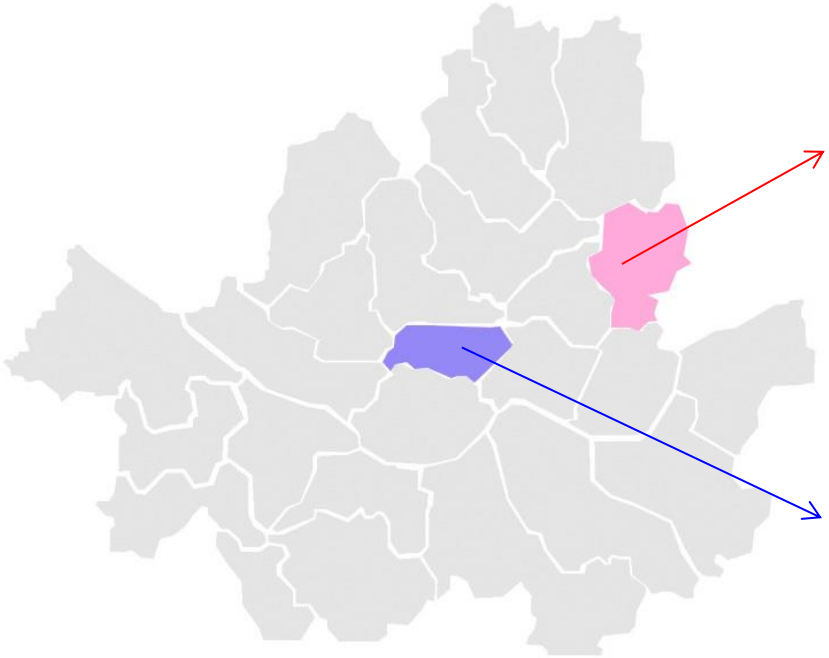
Income

More financial income

The property price of ‘Gu’

The property price of ‘Gu’ = Won of 1㎡

Almost of them gather between ₩2,500,000 ~ ₩3,500,000.



Jungnang-gu: Minimum
(₩1,876,427).

Jung-gu: Maximum
(₩6,409,498)

T-test with a null hypothesis

	mean	t-value	df	p-value
Gangbuk	3,038,842	-0.6567	20.588	0.5186
Gangnam	3,279,915			

The price of two regions has no significant difference

The property prices of Gangbuk area are marked with *

Gu	Price	Gu	Price	Gu	Price
Gangnam	4,182,722	Dobong*	2,696,825	Songpa	3,710,737
Gangdong	2,701,596	Dongdaemun*	2,523,271	Yangcheon	2,301,531
Gangbuk*	2,627,384	Dongjak	3,472,655	Yeongdeungpo	2,611,703
Gangseo	2,918,286	Mapo*	3,067,527	Yongsan*	4,035,095
Gwanak	3,704,778	Seodaemun*	2,617,948	Eunpyeong*	2,024,626
Gwangjin*	2,713,902	Seocho	4,173,793	Jongno*	4,267,212
Guro	3,080,530	Seongdong*	2,791,784	Jung*	6,409,498
Guemcheon	3,220,735	Seongbuk*	2,144,723	Jungnang*	1,876,427
Nowon*	2,747,567				

Unit : Won/㎡

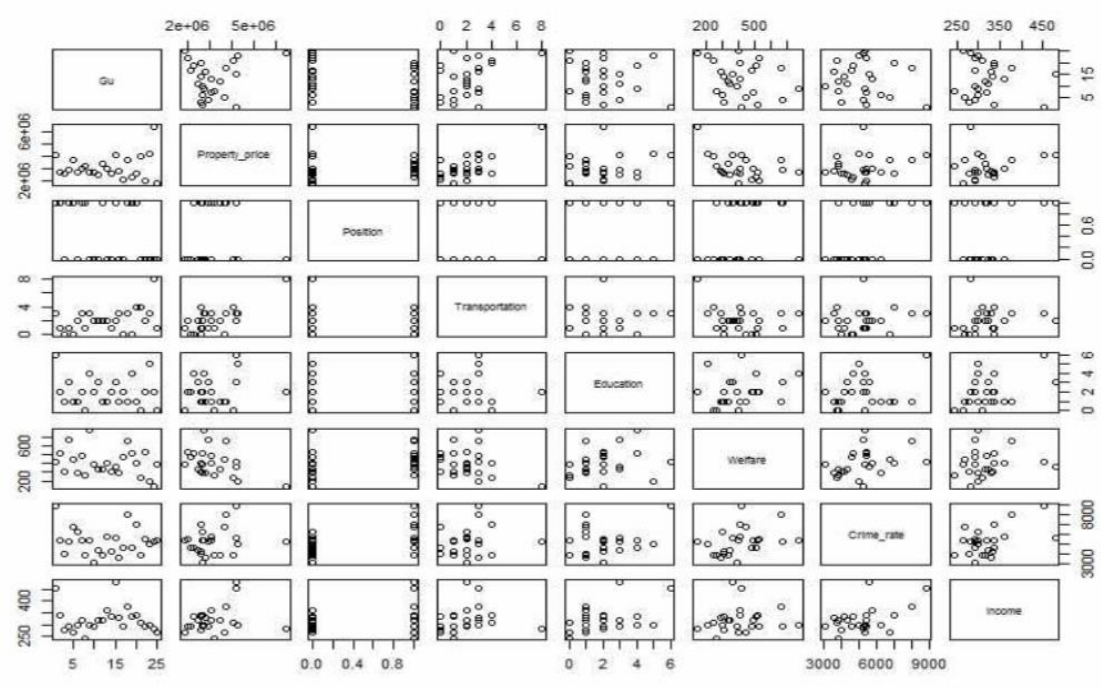
Erase the data of outlier ; Jung-gu

	mean	t-value	df	p-value
Gangbuk	2,779,561	-1.8541	21.886	0.07725
Gangnam	3,279,915			

The price of two regions has significant difference

Result's analysis

There is no significant relation between independent variables.



Result's analysis

The multiple regression model explain the property price at 62.16%

Transportation, Welfare facilities: reject the null hypothesis

Education, Crime accidents, Income: no significant effect

	Estimate	Std. Error	t value	Pr(>|t|)
Intercept	2303768.6	925838.1	2.488	0.02228
Transportation	312638.6	87716.3	3.564	0.00207
Education	96734.0	101972.3	0.949	0.35472
Welfare facilities	-2304.4	1083.2	-2.127	0.04670
Crime accidents	133.1	124.8	1.066	0.29964
Income	702.0	3128.0	0.224	0.82481

R^2 = 0.6216, Adjusted R^2 = 0.5221

F-statistic = 6.243, df = (5,19), p-value = 0.001383

Result's analysis

Transportation has a significant relationship with the property price. (p-value<.05)

Hypothesis 1 'The region with more transfer stations is richer than less' is accepted

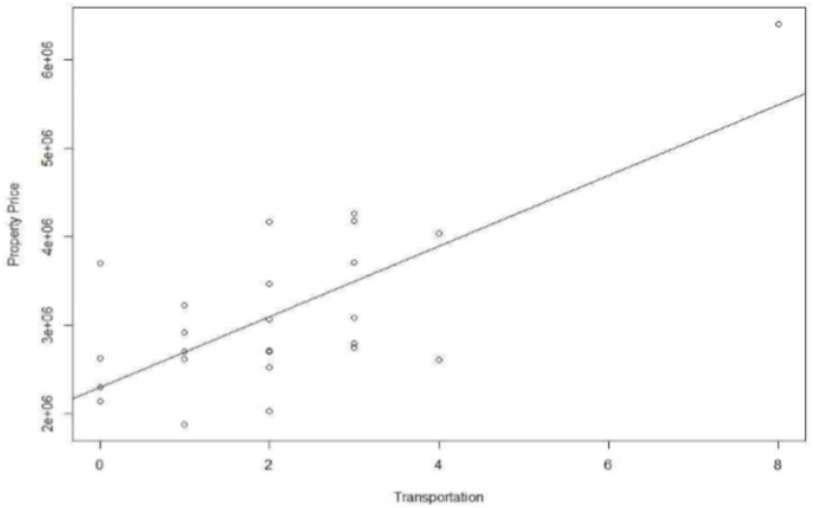
<Table 1>

	Estimate	Std.Error	t value	Pr(>|t|)
Intercept	2298458	223123	10.301	4.35e-10
Transportation	399272	82469	4.842	6.91e-05

R^2= 0.5047, Adjusted R^2 = 0.4832

F-statistic = 23.44, df = (1,23), p-value = 6.913e-05

Correlation = 0.7104499



Result's analysis

Education does not have a significant effect on the property price.

Hypothesis 2 'The region with more high education achievement high schools is richer than less' is rejected.

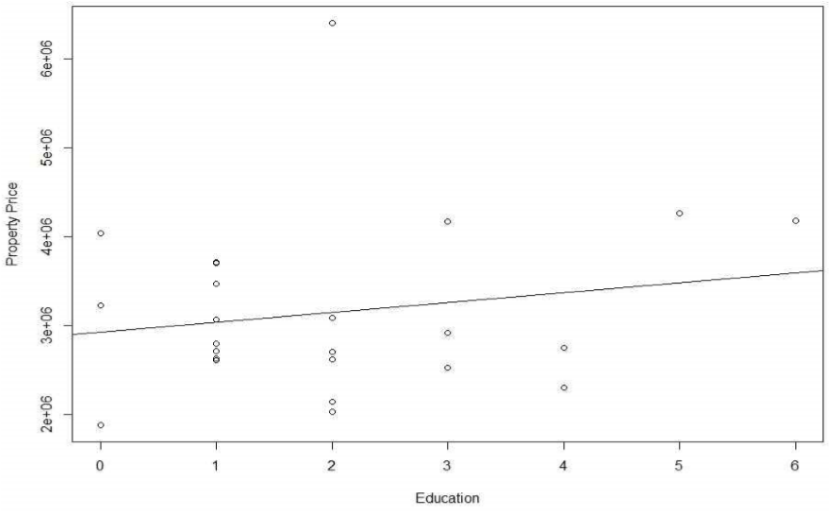
<Table 2>

	Estimate	Std.Error	t value	Pr(>|t|)
Intercept	2920590	323540	9.027	5.08e-09
Educatation	112162	129520	0.866	0.395

R^2= 0.03158, Adjusted R^2 = -0.01053

F-statistic = 0.7499, df = (1,23), p-value = 0.3954

Correlation = 0.177697



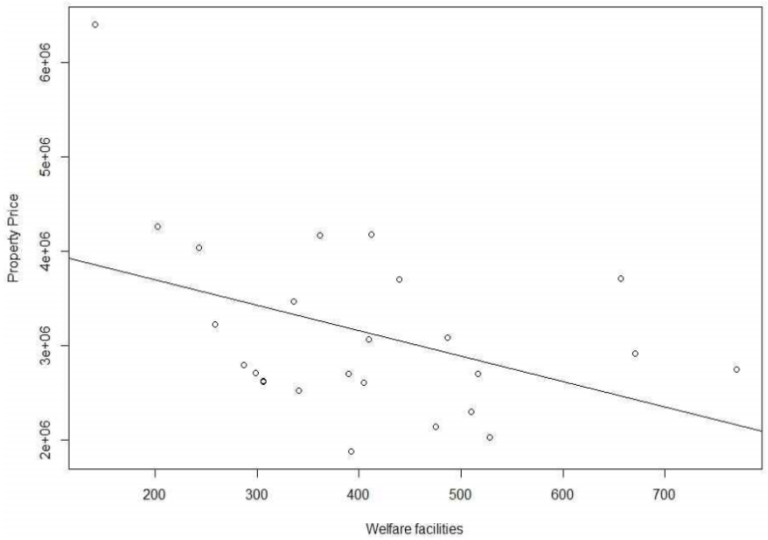
Result's analysis

Welfare facilities has a significant relationship with the property price. (p-value<.05)
This result is different from our hypothesis 3,
because we thought welfare facilities have positive relation with the property price.

<Table 3>

	Estimate	Std.Error	t value	Pr(>|t|)
Intercept	4244870	528399	8.033	3.99e-08
Welfare facilities	-2710	1225	-2.212	0.0372

R^2= 0.1755, Adjusted R^2 = 0.1396
F-statistic = 4.894, df = (1,23), p-value = 0.03715
Correlation = -0.4188744



Result's analysis

Crime accidents have no relation with the property price.

Hypothesis 4 'The region with less crime accidents is richer than less' is rejected.

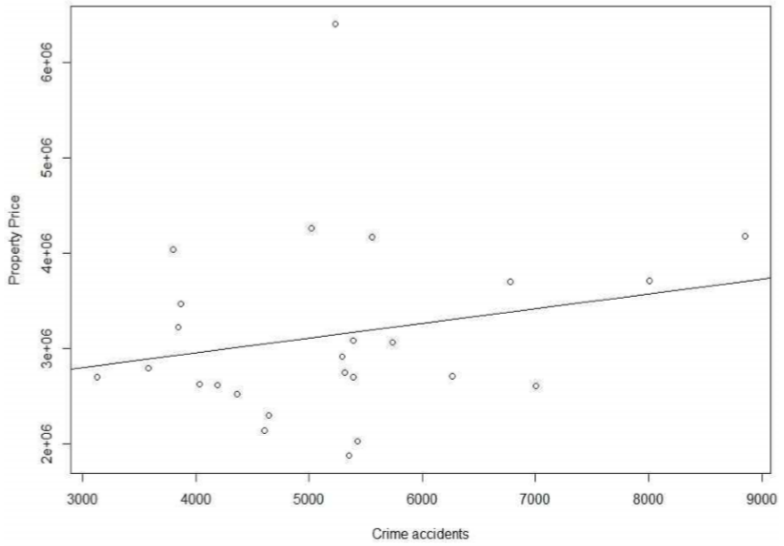
<Table 4>

	Estimate	Std.Error	t value	Pr(>|t|)
Intercept	2343878	773829.2	3.029	0.00597
Crime accidents	153.3	143.4	1.069	0.29631

R^2= 0.04731, Adjusted R^2 = 0.005884

F-statistic = 1.142, df = (1,23), p-value = 0.2963

Correlation = 0.2174987



Result's analysis

Income has no significant effect to the property price.

Hypothesis 5 'The region with more financial income is richer than less' is rejected.

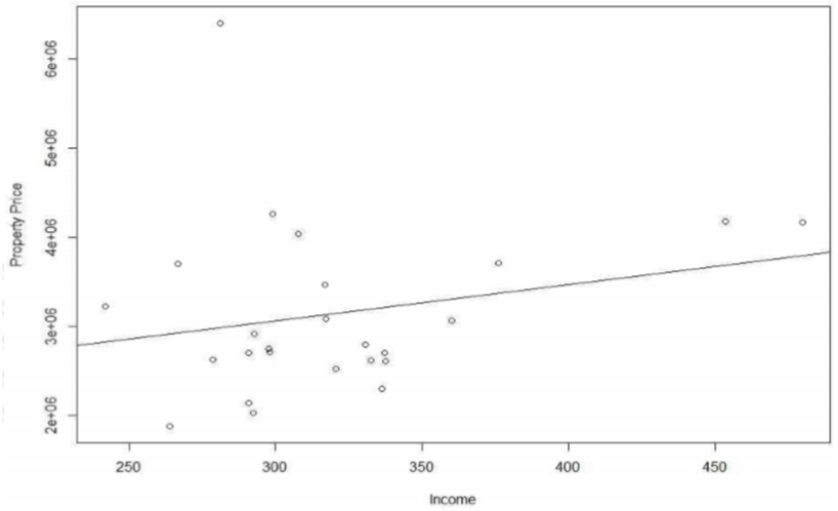
<Table 5>

	Estimate	Std.Error	t value	Pr(>|t|)
Intercept	1841285	1180553	1.560	0.132
Income	4074	3640	1.119	0.275

R^2= 0.05164, Adjusted R^2 = 0.01041

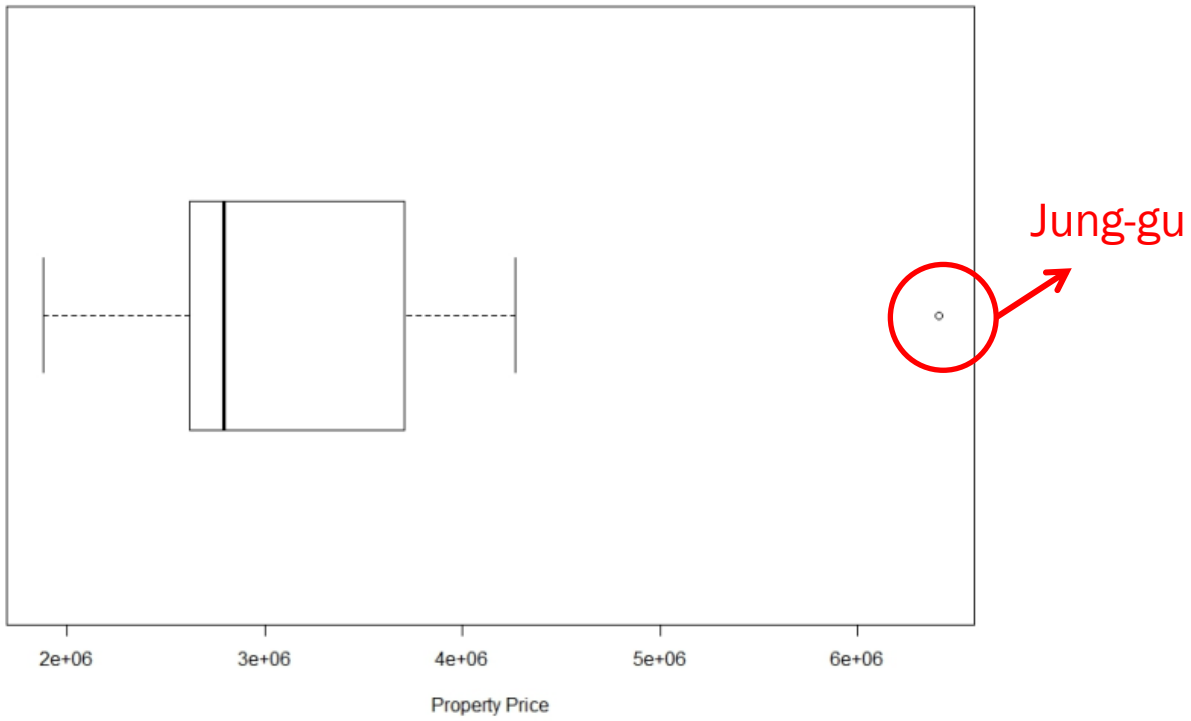
F-statistic = 1.252, df = (1,23), p-value = 0.2746

Correlation = 0.2272486



Discussion1: Most of the variables are not accepted.

We think about outlier, Jung-gu



Discussion1: Most of the variables are not accepted.

Result

Multiple regression is changed

Transportation does not have a significant effect any more. (p-value=.2219)

Only Welfare facilities variable is statistically significant. (p-value<.1)

Simple regression is changed as well.

Transportation and Income are statistically significant. (p-value<.05)

Welfare facility is not significant any more. (p-value=.26)

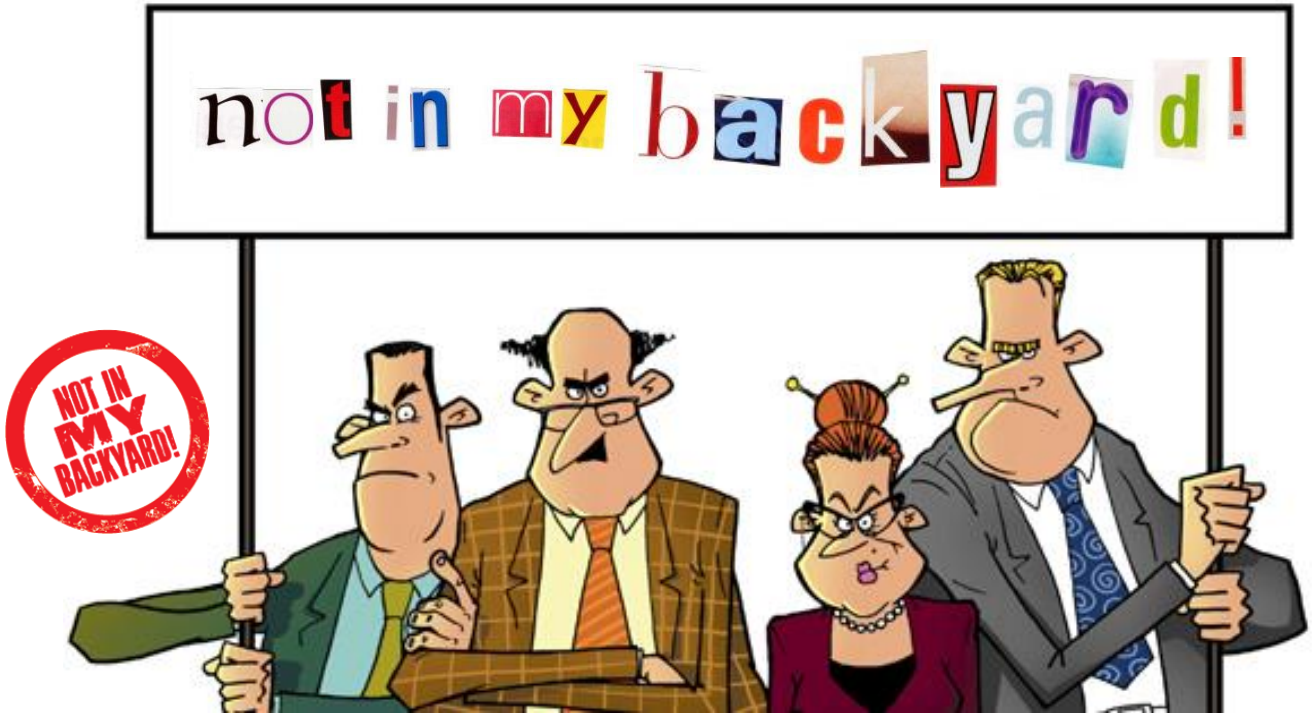
= Hypothesis 1 and 5 are accepted.





Discussion2: Welfare facilities have negative relation.

NIMBY effect on the facilities for handicapped.



Conclusion

Both in multiple regression and simple regression
Transportation and Income variable influence the property price strongly.

Future work
To analyze this study more specifically, making smaller unit of area than 'gu' will be better.

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THANK YOU