Price comparison of flats in Bratislava

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1. Introduction

Most of the young families need to solve basic questions regarding their future. One of the most important issues to solve is finding a place to live. The common practice is that the young people need to get a loan or mortgage to buy a flat or a house. However, especially due to high prices of apartments in the capital of Slovakia, mortgages are rather costly. This is particularly of interest to young families for whom high prices imply high mortgage costs as a proportion of their family budget. For this reason, I investigated and compared the prices of 3-bedroom flats with the size range of 70-80 square meters in two different districts of Bratislava – Ružinov and Petržalka. I chose these two particular districts because I believe they are the two most commonly searched places for the young families to find a place to live in. All of the prices are set in Euros and the I evaluated only flats in buildings which are not older than 5 years.

2. Data acquisition

Data for this research paper were obtained from two Slovak real estate websites, www.topreality.sk and www.areality.sk. I randomly gathered 35 observations from each district, so I have two samples with a same sample size of 35 observations. The observations are 3-room flats, with the size between 70-80 square meters and they are all flats located in the buildings which are not older than 5 years. The possible difference in prices is minimized as the flats with less square meters have balconies or parking spaces, so the quality of the flats is comparable. These observations are not perfectly representative of the whole population, and obviously there are several biases that need to be taken under the consideration.
First of all, the collected sample is random. However we cannot assume that this sample is perfectly representative of all young families in Bratislava. Different perception of the quality is the subject of selection bias. The reader must understand that most of the undecided young people search for their new living on the internet, however it is not possible to go through all

the flats from the databases, and furthermore not all the flats available are listed online. Therefore we can make assumptions only from what we can gather online.

Secondly, there is a big issue of pricing bias. The collected data is only from the websites. As a result, the real prices of the flats might be slightly lower as the reality agencies usually take provisions for each and every sold flat. The provision usually ranges from 2000-4000 Euros for the flats of this size. However, many owners of the flats do not advertise through reality agencies so the real prices might differ.

Next, one cannot underestimate that people tend to haggle over the price and sometimes undervalue their real estate as a result of the need to sell the house. On the other hand, some owners like to wait a long time for the buyer who would pay much more than the catalogue price.

Moreover, I have collected only data from the most famous web sites and there might be some smaller agencies which are able to offer better prices.

It is very important to understand this small bias as it might affect the true situation with real estates in these two districts. So I assumed that the real population in my case would be all flats in each of these two districts.

3. Measures of central tendency and dispersion

After I performed descriptive statistics, I can see the results immediately. The average price of flats in Petržalka is 144 300 Euro with the median price of 146 000 Euros (see Appendix, Table 1, Table 3 and Figure 1), and the mean price of flats in Ružinov is 124 342.86 Euro with median of 123 000 (see Appendix, Table 2, Table 4 and Figure 2). This means that the sample observed in Petržalka is left-skewed as the mean is lower than median. On the other hand, my sample from Ružinov is right-skewed as the mean price there is higher than the median. Furthermore, the sample from Petržalka shows higher range of prices (64 000 Euros) with higher maximum and minimum prices. On the other hand the sample from

Ružinov shows smaller range in prices (43 000 Euros) with lower maximum and minimum prices. Both sample variance and sample standard deviation are higher in Petržalka-sample than in Ružinov-sample.

Note: All prices are round up to two decimal places.

4. Hypothesis Testing

In this part of the research paper I would like to advise the young families which district is better for them to move into. Based on the location, access to the job opportunities and recreation I will assume that Petržalka offers more expensive flats on average.

I chose 1% level of significance and calculated that the p-value is 0.000031299%. Therefore, since my p-value is greater than alpha, I do reject the null hypothesis. I can draw a conclusion that there is enough evidence to claim that the 3-room flats are more expensive in Petržalka than in Ružinov on average. I can also claim that since H_0 in my case is false and we do reject it, no error has been committed and the level of significance is higher than my p-value. Careful, you don't know is Hnull is false unless you collect the whole population data.

5. Conclusion- will be subject to discussion with my leading questions

Young families have different expectations when they are making the decision about where they should settle down and start their new lives together. However these expectations must be in coherence with their financial allowances. Location is very important factor that determines the price of the possible flat. The purpose of this research paper was to analyze the situation in two of the Bratislava's districts and to decide where it is economically more beneficial to live but based only on prices, other factors were not considered. Petržalka and the flats there are more expensive, the families can expect prices anywhere between 138489.46 Euros and 150110.54 Euros, but on the other hand it offers better living standards than Ružinov, where the prices usually range from 119874.14 Euros to 128811.58 Euros.

Appendix

Table 1

Petržalka	
Stř. hodnota	144300
Chyba stř. hodnoty	2859,173648
Medián	146000
Modus	137000
Směr. odchylka	16915,09942
Rozptyl výběru	286120588,2
Špičatost	-0,832407012
Šikmost	0,02194435
#REF!	64000
Minimum	112000
Maximum	176000
Součet	5050500
Počet	35
Hladina spolehlivosti (95,0%)	5810,539915

Table 2

Ružinov	
Stř. hodnota	124342,8571
Chyba stř. hodnoty	2198,908384
Medián	123000
Modus	105000
Směr. odchylka	13008,91743
Rozptyl výběru	169231932,8
Špičatost	-1,197258482
Šikmost	0,216314537
#REF!	43000
Minimum	105000
Maximum	148000
Součet	4352000
Počet	35
Hladina spolehlivosti (95,0%)	4468,719464

Table 3

třídy	*Četnost*	*Kumul. %*
120000	3	8,57%
130000	6	25,71%
140000	6	42,86%
150000	5	57,14%
160000	9	82,86%
170000	4	94,29%
Další	2	100,00%

Figure 1

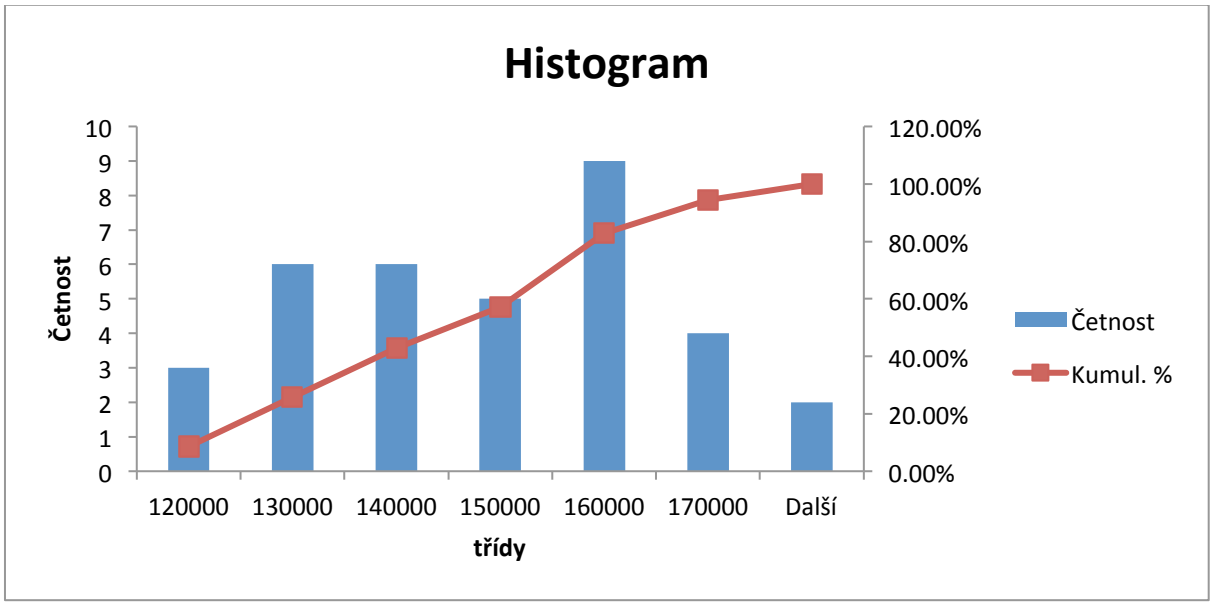
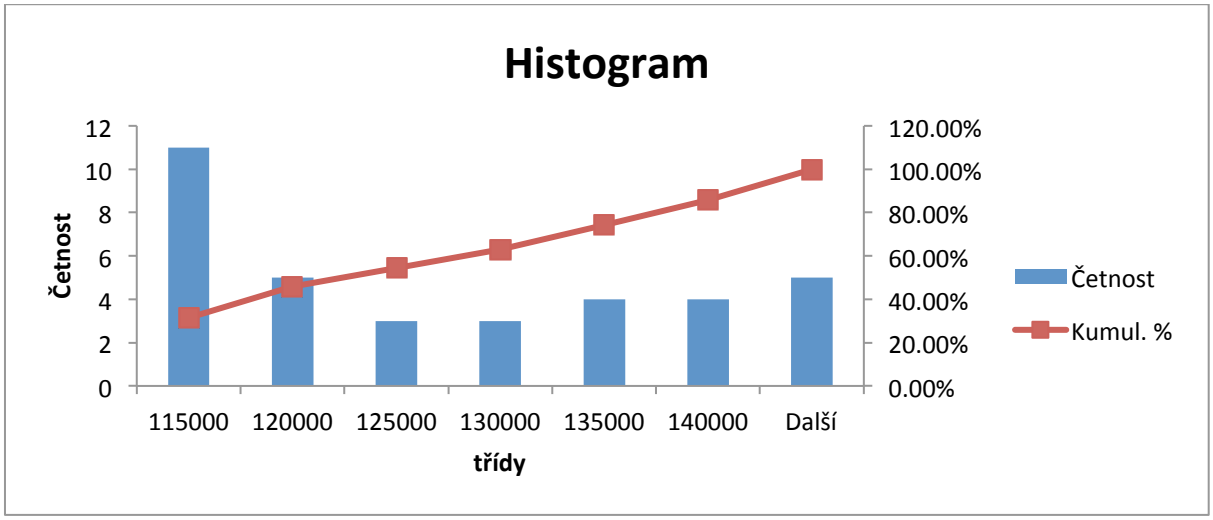


Table 4

třídy	*Četnost*	*Kumul. %*
115000	11	31,43%
120000	5	45,71%
125000	3	54,29%
130000	3	62,86%
135000	4	74,29%
140000	4	85,71%
Další	5	100,00%

For better comparison of two districts you could keep the bins the same.

Figure 2



Hypothesis testing

H_0: $\mu_{Petržalka} \leq \mu_{Ružinov}$

H_A: $\mu_{Petržalka} > \mu_{Ružinov}$

we used Excel command "t-Test: Two-Sample Assuming Unequal Variances"

Dvouvýběrový t-test s nerovností rozptylů

	Ružinov	*Petržalka*
Stř. hodnota	124342,8571	144300
Rozptyl	169231932,8	286120588,2
Pozorování	35	35
Hyp. rozdíl stř. hodnot	0	
Rozdíl	64	
t Stat	-5,53297255	
P(T<=t) (1)	0,00000031299	
t krit (1)	2,096454652	
P(T<=t) (2)	6,25974E-07	
t krit (2)	2,386037031	

→ p-value = 0.000031299% ; significance level = 1% ; one-tail test