

Managing Investment in Russian Urban Growth & Development

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Background

~ In April, 2001, an NYU urbanist by the name of Alain Bertaud published a study comparing the spatial organisation of seven large cities across the world. His study ultimately presented the correlation on how urban areas within capitalist economies tended, consistently, to have decreasing density as homes are farther from the city centre, whereas command economies had an essentially flat (or slightly trending upward) density gradient. All along, Bertaud had been using data from the 1980s, despite the fact that his paper was published in 2001. After this, I had become intrigued with repeating his experiment except with the more capitlistically inclined Russia.



(A) This is a common Russian unit (or, in general, lingering Soviet era housing type) called the Khrushchyovka, named after Nikita Khrushchev, who began the massive urban housing initiative back in the 1960s, to house every Soviet.
(B) This is an example of some of the newer housing options available to Russians that live near Saint-Petersburg. These homes are generally along the borders of the city, but they are just far enough to be outside the reach of the metro system.

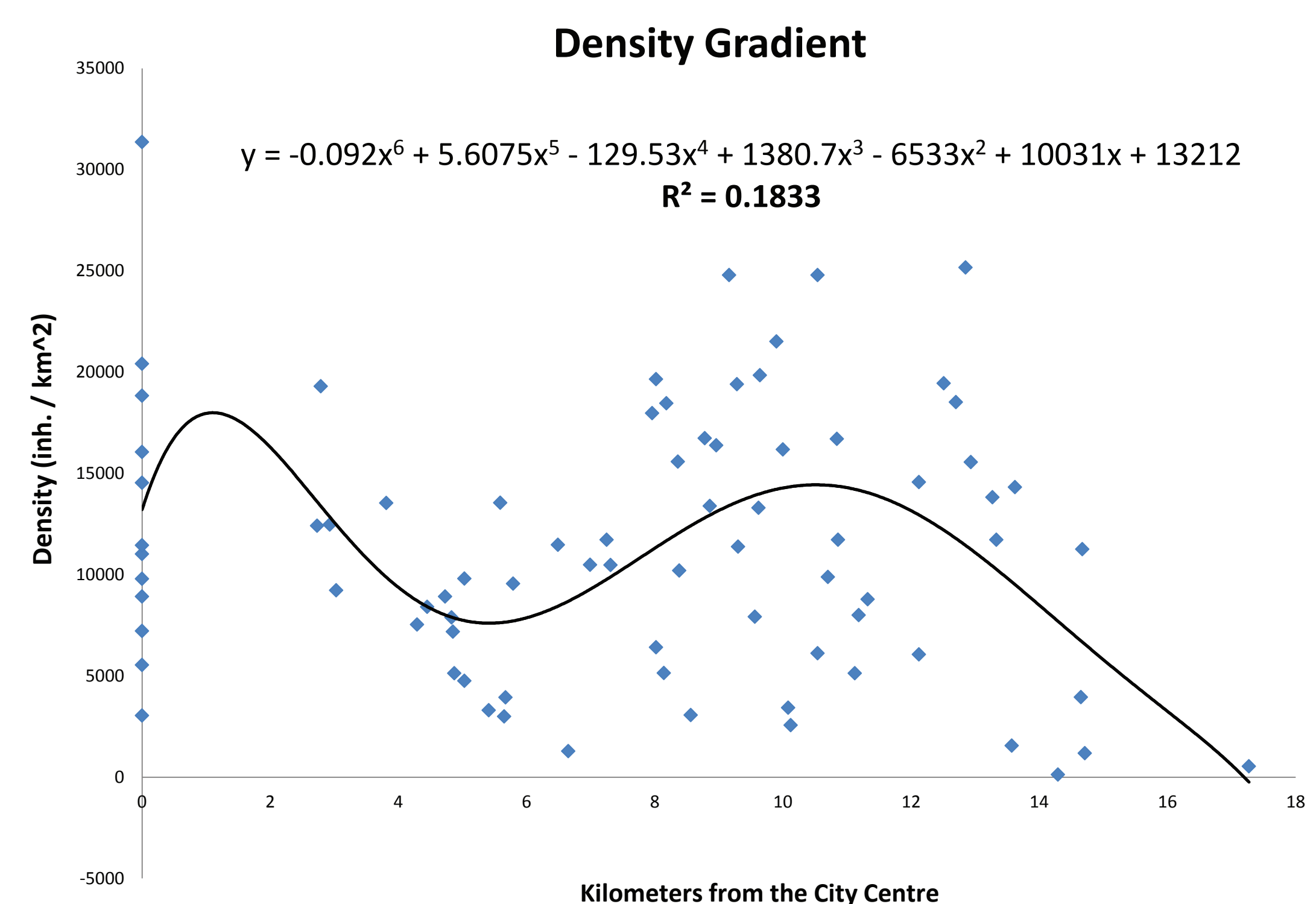
Research Questions

- ~ What are the key variables in determining home prices within the Russian Federation's largest urban areas?
- ~ What sort of narrative are these variables conveying about the state of Russian urban growth and development?
- ~ Is Russia's urban development sustainable? If not, what can be done to improve upon its efficiency?

Methods & Materials

~ The primary reason for my stay in Russia was to collect data sets on municipal development, with which I could run econometric tests to check for urban sustainability. To do this, I needed to:

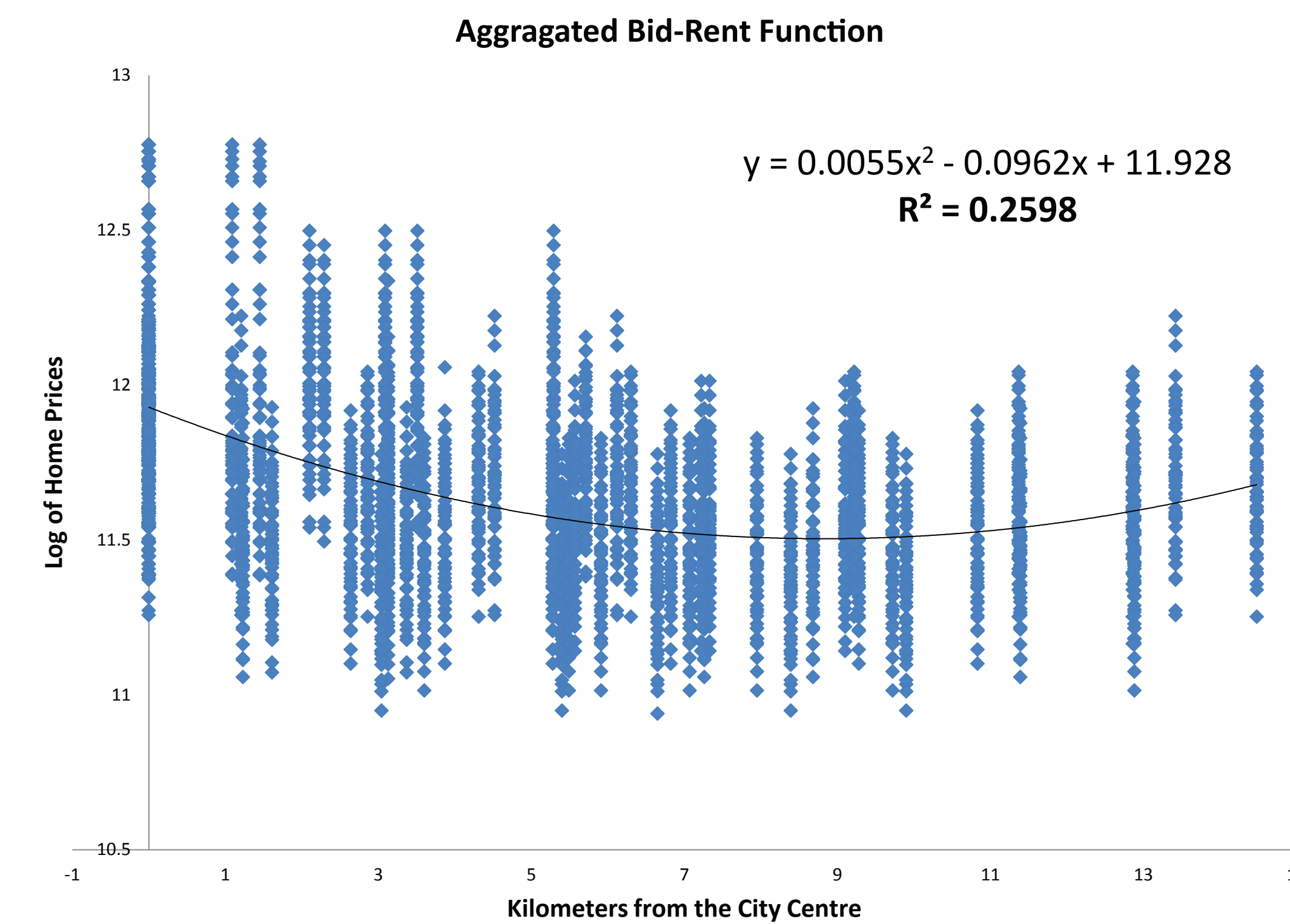
1. become professionally proficient in Russian
2. conduct door-to-door surveys on the living conditions and arrangements of Russian apartment residents.
3. conduct scholarly interviews with faculty from the local institutes of economics
4. conduct business-formal interviews with local municipal investment bankers
5. file all of the variables into an organised excel file, and then prep the file for STATA
6. run my multiple linear regression in STATA, accounting for heteroskedasticity, the adjusted R and omitted variables biases.
7. cross check my findings with a literary review of articles and books on my topic.



This is a Density Gradient for the city of Saint-Petersburg (Russia), extending to the limits of the city's metro system, which goes as far as 17.3km from the city centre. Compared with most cities in the Developed World, where density gradients immediately trend downwards, Saint-Petersburg exhibits increased levels of density in a ring around the city, ranging from 8 to 13km away from the city centre. This is a glimpse into the urban nature of the post-command economy, where past urban projects still dictate the legacy of planned density.

Results

- ~ Overall, this research yielded some very interesting results:
1. Firstly, with regards to density, there seems to be a slight paradox. Despite the density gradient's seemingly absurd regression (sixth power function), it does prove that the Russian city is beginning to show signs of a transition from the command urban model to a more capitalist urban model. And with this newfound freedom of capital flow, the city's density is now beginning to decrease (slowly) when plotted against increased distances from the city centre.
 2. Secondly, with regards to home price, the Russians simply do not seem to be phased by massive increases to density. Perhaps this is due to the lingering cultural norm of living in a dense urban fabric, but as the regression shows, population density can increase by 2,222 inhabitants per kilometer sqrd before even .01 of a single percentage of home prices is impacted.
 3. Lastly, despite the fact that > 90% of Russian urban density still lives in rundown, Soviet-era housing units (without complaint), that does not mean that the poor quality of these units does not impact price.



This is an Aggregated Bid-Rent Function: which means that each data point within the graph is holding several variables worth of data. This, however, means that the model is intentionally allowing omitted variable biases, which is to isolate the challenges associated with this single factor of home pricing. In the case of most simple bid-rent functions, the "single factor" in question is the distance from the city centre (measured in kilometers). The peculiarity with this bid-rent function is the data's quadratic trend, which acts as a counter-example to capitalist urban models, where the data simply (linearly) trends down (negatively sloped).

regress lnpricerub metersqrd des pnls mimet distcen distcensqrd popden percpcpchg, vce (robust) level (99)

Linear Regression
Number of obs = 4160
F (8, 4151) = 772.42
Prob > F = 0.0000
R-squared = 0.5936
Root MSE = .20254

lnpricerub	Coef.	Robust Std. Err.	t	P > t	[99% Conf. Interval]
metersqrd	.0017207	.0001135	15.16	0.000	.0014281 .0020133
des	.2483095	.0062806	39.54	0.000	.2321243 .2644947
pnls	-.1973821	.0062806	-31.43	0.000	-.2135673 -.1811969
mimet	-.0128392	.0005605	-22.91	0.000	-.0142836 -.0113947
distcen	-.0907762	.0021522	-42.18	0.000	-.0963225 -.0852299
distcensqrd	.0052184	.0001567	33.29	0.000	.0048145 .0056223
popden	4.49e-06	3.93e-07	11.41	0.000	3.47e-06 5.50e-06
percpcpchg	-.0005481	.0002642	-2.07	0.038	-.001229 .0001327
_cons	11.8280772	.0147449	802.18	0.000	11.79007 11.86607

display e (r2_a)

.59280772

HomePrice(%) = 11.83 + 0.0017aptarea + 0.25designed - 0.20panels - 0.013mimet - 0.091distcen + 0.0052distcensqrd + .0000045popden - .0005percpcpchg + u

This was my attempt at uncovering the meaningful variables that dictate home prices across Saint-Petersburg; this is also known as a Bid-Rent Function. Some important findings within this regression: 1) the strikingly low coefficient of population density; 2) the difference between the distance from the city centre and from the metro; and 3) the very large coefficients associated with the architectural binary variables designed and panels. In general, with regards to the statistical inferencing, my variables are passing hypothesis testing past 99% confidence.

Conclusions

~ The Russian city was designed to be efficient. It was designed to respond to an urban housing affordability and shortage issue of the 1950s, so the government, in the 1960s, began a massive programme to house each and every Soviet within a building type was built to last (to an extent). Now, these buildings are unmaintained and in disrepair because the government no longer claims responsibility for their continued use. However, these units are still in used by more than 90% of the Russian urban population, and the private sector has begun to inject both national and foreign capital into the housing market, which has resulted in new massive housing projects that are just outside the city limits.

~ There is both opportunity and reason to worry in this story: on the one hand, Russians now have access to more housing options, but as a tradeoff, these new homes are both more expensive and farther from their city centre jobs.

~ Since Russian home prices do not seem to be phased by drastic increases to density (as is the case in the West), then I believe that the city government should create an incentivised programme targeted to real estate developers to build up in the historically dense Russian city boundaries, and to start replacing the older buildings with new viable and affordable options that are closer to the city centre.

Acknowledgements

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