Homework 2

Environmental Economics II
Maghfira Ramadhani

January 23, 2024

1 Python part

1.1 Balance table

Table 1: Balance table from Python

	Control	Treatment	P-value
Electricity	1181.33	1086.75	0.001
	(454.31)	(423.96)	[3.403]
Square feet of home	1633.05	1657.55	0.572
	(682.90)	(686.27)	[-0.566]
Outdoor average temperature	79.89	79.89	0.987
	(2.16)	(1.97)	[-0.016]
Observations	501	499	

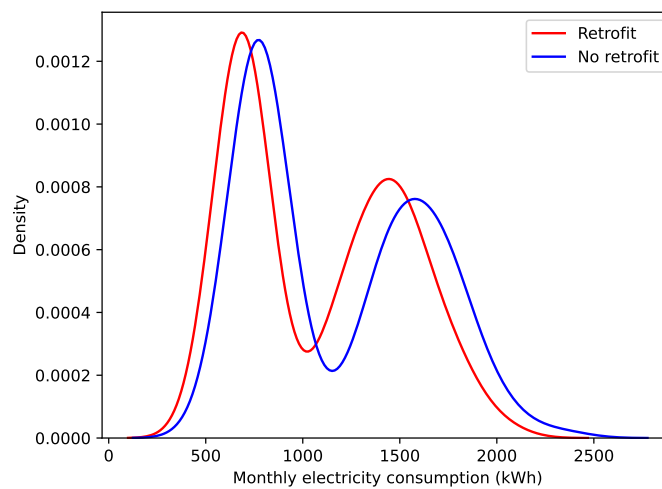abcd

1.2 Graphical evidence

Figure 1: Density plot of electricity consumption

1

1.3 OLS regression

Table 2: OLS estimates for different computation methods

	By Hand	Stats Model	Least Squares
=1 if retrofit	-109.666	-109.666	-109.666
	(7.948)	(7.948)	(7.948)
Square feet of home	0.615	0.615	0.615
	(0.006)	(0.006)	(0.006)
Outdoor average temperature	3.255	3.255	3.255
	(1.924)	(1.924)	(1.924)
Constant	-83.603	-83.603	-83.593
	(154.360)	(154.360)	(154.360)
MSE	125.652	125.652	125.652

abcd

Table 3: OLS estimates with robust S.E. for different computation methods

	By Hand	Stats Model	Least Squares
=1 if retrofit	-109.666	-109.666	-109.666
	(7.943)	(7.943)	(7.943)
Square feet of home	0.615	0.615	0.615
	(0.007)	(0.007)	(0.007)
Outdoor average temperature	3.255	3.255	3.255
	(1.932)	(1.932)	(1.932)
Constant	-83.603	-83.603	-83.593
	(154.695)	(154.695)	(154.695)
MSE	125.652	125.652	125.652

abcd

2 Stata

2.1 Balance table

Table 4: Balance table from Stata

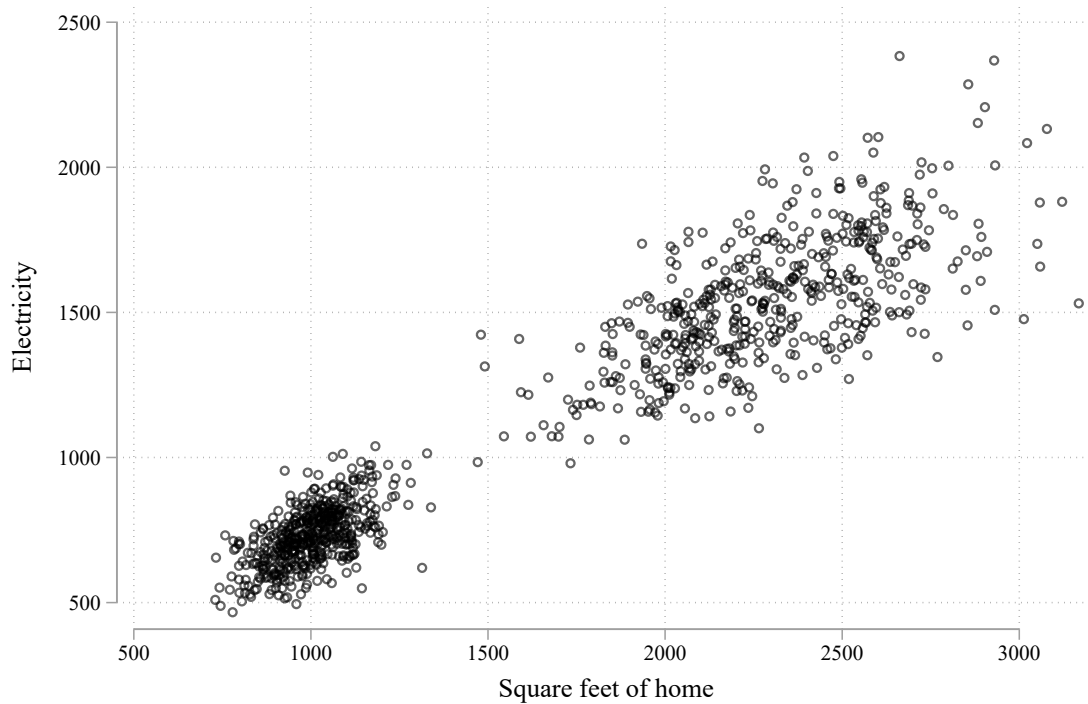|	Control	Treatment	P-value
Electricity	1181.33	1086.75	0.001
	(454.31)	(423.96)	[3.404]
Square feet of home	1633.05	1657.55	0.572
	(682.90)	(686.27)	[-0.566]
Outdoor average temperature	79.89	79.89	0.987
	(2.16)	(1.97)	[-0.016]
Observations	501	499	1,000

abcd

2.2 Scatterplot

Figure 2: Scatterplot of electricity consumption and square feet of home

2.3 OLS regression

Table 5: Estimates from Stata

	Non-robust S.E.	Robust S.E.
=1 if retrofit	-109.666	-109.666
	(7.948)	(7.943)
Square feet of home	0.615	0.615
	(0.006)	(0.007)
Outdoor average temperature	3.255	3.255
	(1.924)	(1.932)
Constant	-83.603	-83.603
	(154.360)	(154.695)
Observations	1,000	1,000

abcd

Ziliak and McCloskey (2009)

References

Ziliak, S. and D. McCloskey (2009). The Cult of Statistical Significance. *Proceedings of the Joint Statistical Meetings Section on Statistical Education*, 2302–2319.