

Homework 2

Environmental Economics II
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1 Python part

1.1 Balance table

Table 1: Balance table from Python

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

abcd

1.2 Graphical evidence

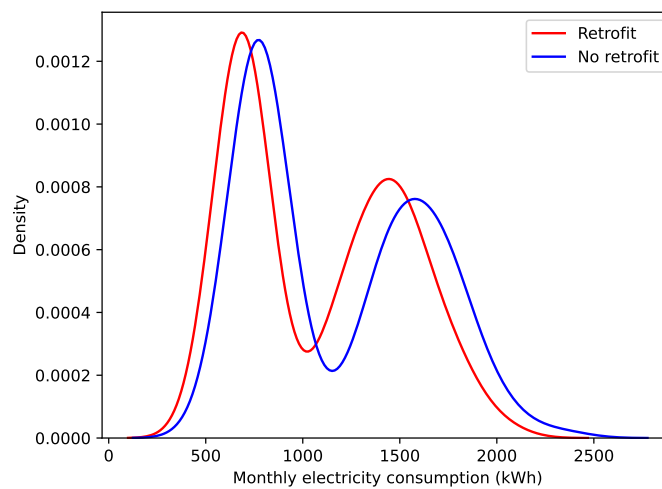


Figure 1: Density plot of electricity consumption

1.3 OLS regression

Table 2: OLS estimates for different computation methods

	By Hand	Stats Model	Least Squares
=1 if retrofit	-109.666 (7.948)	-109.666 (7.948)	-109.666 (7.948)
Square feet of home	0.615 (0.006)	0.615 (0.006)	0.615 (0.006)
Outdoor average temperature	3.255 (1.924)	3.255 (1.924)	3.254 (1.924)
Constant	-83.603 (154.360)	-83.603 (154.360)	-83.543 (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 (7.943)	-109.666 (7.943)	-109.666 (7.943)
Square feet of home	0.615 (0.007)	0.615 (0.007)	0.615 (0.007)
Outdoor average temperature	3.255 (1.932)	3.255 (1.932)	3.254 (1.932)
Constant	-83.603 (154.695)	-83.603 (154.695)	-83.543 (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 (454.31)	1086.75 (423.96)	0.001 [3.404]
Square feet of home	1633.05 (682.90)	1657.55 (686.27)	0.572 [-0.566]
Outdoor average temperature	79.89 (2.16)	79.89 (1.97)	0.987 [-0.016]
Observations	501	499	1,000

abcd

2.2 Scatterplot

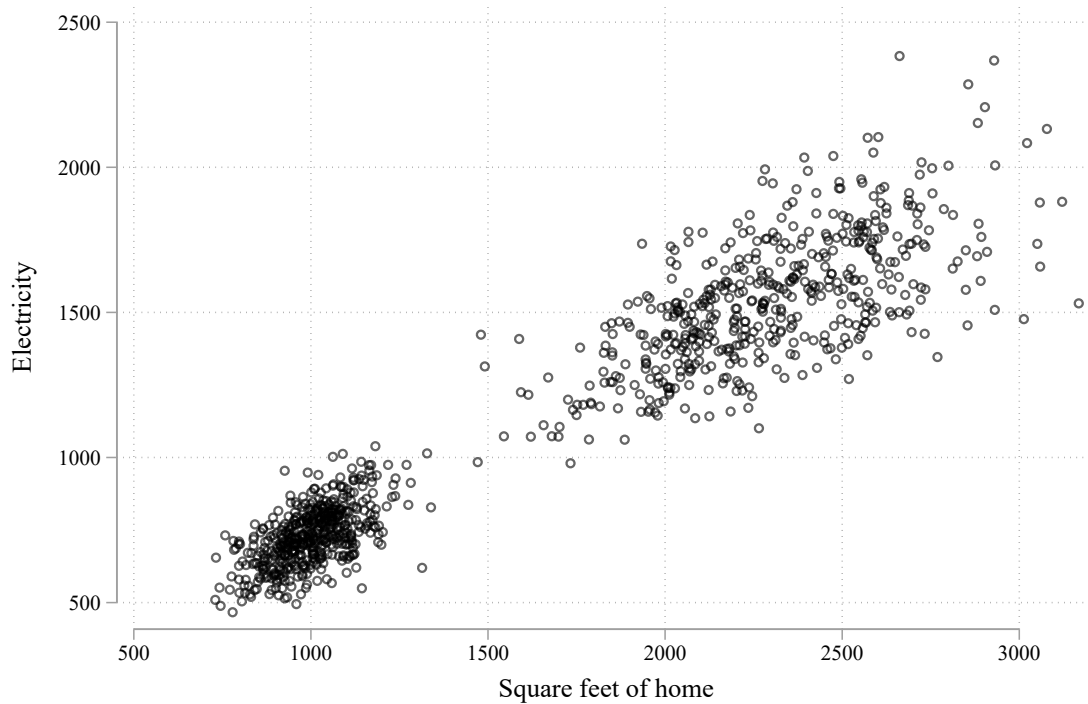


Figure 2: Scatterplot of electricity consumption and square feet of home

2.3 OLS regression

Table 5: Estimates from Stata

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