# Replicating Christensen & Timmins (2022)

Emphasis on Table 5 (Column 2), p. 2135, as part of the Institute for Replication *AI Games*

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Reference: Christensen, P., & Timmins, C. (2022). Sorting or steering: The effects of housing discrimination on neighborhood choice. *Journal of Political Economy*, *130*(8), 2110-2163. https://doi.org/10.1086/720140

Table 1: Steering and Neighborhood Effects

| | *Dependent variable:* | | | |
|---|---|---|---|---|
| | show | | home_av | |
| Racial Minority | −0.1282 | −0.1419 | 0.0048 | 0.0057 |
| | (0.1990) | (0.1987) | (0.0183) | (0.0183) |
| | $p = 0.5196$ | $p = 0.4753$ | $p = 0.7934$ | $p = 0.7542$ |
| ln(Price) Advert Home | *N* | *Y* | *N* | *Y* |
| Racial Comp Advert Home | *N* | *Y* | *N* | *Y* |
| Observations | 6,580 | 6,555 | 6,588 | 6,562 |
| Adjusted $R^2$ | -0.2196 | -0.2348 | -0.1670 | -0.1774 |
| *Note:* | | | | $^{*}$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01 |

We note that in *Table 5*, the authors merge tables from two different models, but only report the R2 for the second table. While these differences do not alter the direction of the results, it would have been more transparent to report the R2 separately for the two models. # Robustness Check 1: Imputing Missing Data First check the missing data

```
## $THHEGAI
##  [1] "-1" "1"  "2"  "3"  "4"  "5"  "6"  "7"  "8"  "9"  "10" "11"
##
## $TPEGAI
## [1] "-1" "1"  "2"  "3"  "4"  "5"  "6"  "7"  "8"
##
## $THIGHEDU
##  [1] "-1" "1"  "2"  "3"  "4"  "5"  "6"  "7"  "8"  "9"  "10" "11"
##
## $DPMTEXP
## [1] "-1" "1"  "2"  "3"  "4"
##
## $AMOVERS
##  [1] "-1" "1"  "2"  "3"  "4"  "5"  "6"  "7"  "8"  "9"
##
## $ALEASETP
## [1] "1" "2"
##
```

Table 2: Steering and Neighborhood Effects

| | *Dependent variable:* | | | |
|---|---|---|---|---|
| | Number of Recommendations | | Home Availability | |
| African American | −0.1608 | −0.1690 | −0.0097 | −0.0087 |
| | (0.2713) | (0.2707) | (0.0220) | (0.0219) |
| | $p = 0.5536$ | $p = 0.5326$ | $p = 0.6584$ | $p = 0.6900$ |
| Hispanic | −0.1340 | −0.1304 | −0.0090 | −0.0077 |
| | (0.2465) | (0.2474) | (0.0255) | (0.0258) |
| | $p = 0.5869$ | $p = 0.5983$ | $p = 0.7257$ | $p = 0.7655$ |
| Asian | 0.1231 | 0.0833 | 0.0174 | 0.0178 |
| | (0.2477) | (0.2465) | (0.0227) | (0.0227) |
| | $p = 0.6192$ | $p = 0.7354$ | $p = 0.4434$ | $p = 0.4323$ |
| Other | 1.7401** | 1.6822** | −0.0893 | −0.0921 |
| | (0.8557) | (0.8525) | (0.0632) | (0.0633) |
| | $p = 0.0422$ | $p = 0.0487$ | $p = 0.1582$ | $p = 0.1459$ |
| ln(Price) Advert Home | *N* | *Y* | *N* | *Y* |
| Racial Comp Advert Home | *N* | *Y* | *N* | *Y* |
| Observations | 6,580 | 6,555 | 6,588 | 6,562 |
| Adjusted $R^2$ | -0.2192 | -0.2348 | -0.1687 | -0.1792 |

*Note:* *p<0.1; **p<0.05; ***p<0.01

```
## $ACAROWN
## [1] "0" "1"
##
## $APRACE
## [1] "1" "2" "3" "4" "5"
## $SEQUENCE.x
## [1] 0
##
## $month
## [1] 65
##
## $ARELATE2
## [1] 0
##
## $HHMTYPE
## [1] 0
##
## $SAPPTAM
## [1] 1
##
## $TSEX.x
## [1] 0
##
## $THHEGAI
## [1] 0
##
## $TPEGAI
## [1] 0
##
```

```
## $THIGHEDU
## [1] 0
##
## $TCURTENR
## [1] 0
##
## $ALGNCUR
## [1] 33
##
## $AELNG1
## [1] 34
##
## $DPMTEXP
## [1] 213
##
## $AMOVERS
## [1] 0
##
## $age
## [1] 13
##
## $ALEASETP
## [1] 54
##
## $ACAROWN
## [1] 33
##
## $w2012pc_Ad
## [1] 5
##
## $b2012pc_Ad
## [1] 5
##
## $a2012pc_Ad
## [1] 5
##
## $hisp2012pc_Ad
## [1] 5
##
## $logAdPrice
## [1] 24
##
## $APRACE
## [1] 0
##
## $STOTUNIT
## [1] 111
##
## $SAVLBAD
## [1] 28

## [1] "2024-02-20 15:52:12 CET"

##   parallelizing over the variables of the input data matrix 'xmis'
##   missForest iteration 1 in progress...done!
```

```
##     estimated error(s): 0.1772572 0.04825441
##     difference(s): 0.000105216 0.001601196
##     time: 93.22 seconds
##
##   missForest iteration 2 in progress...done!
##     estimated error(s): 0.1758072 0.04828352
##     difference(s): 5.644242e-06 0.0003380302
##     time: 32.21 seconds
##
##   missForest iteration 3 in progress...done!
##     estimated error(s): 0.176523 0.04791597
##     difference(s): 3.499331e-06 0.0004091944
##     time: 179.18 seconds
##
##   missForest iteration 4 in progress...done!
##     estimated error(s): 0.1769735 0.04859223
##     difference(s): 4.686017e-06 0.0004981497
##     time: 144.43 seconds
```

```
## [1] "2024-02-20 15:59:41 CET"
```

```
## Time difference of 7.486204 mins
```

```
## $SEQUENCE.x
## [1] 0
##
## $month
## [1] 0
##
## $ARELATE2
## [1] 0
##
## $HHMTYPE
## [1] 0
##
## $SAPPTAM
## [1] 0
##
## $TSEX.x
## [1] 0
##
## $THHEGAI
## [1] 0
##
## $TPEGAI
## [1] 0
##
## $THIGHEDU
## [1] 0
##
## $TCURTENR
## [1] 0
##
## $ALGNCUR
## [1] 0
```

```
##
## $AELNG1
## [1] 0
##
## $DPMTEXP
## [1] 0
##
## $AMOVERS
## [1] 0
##
## $age
## [1] 0
##
## $ALEASETP
## [1] 0
##
## $ACAROWN
## [1] 0
##
## $w2012pc_Ad
## [1] 0
##
## $b2012pc_Ad
## [1] 0
##
## $a2012pc_Ad
## [1] 0
##
## $hisp2012pc_Ad
## [1] 0
##
## $logAdPrice
## [1] 0
##
## $APRACE
## [1] 0
##
## $STOTUNIT
## [1] 0
##
## $SAVLBAD
## [1] 0
```

Table 3: Steering and Neighborhood Effects

| | *Dependent variable:* | | | |
|---|---|---|---|---|
| | show | | home_av | |
| Racial Minority | −0.2114 | −0.2092 | −0.0004 | −0.0005 |
| | (0.1985) | (0.1980) | (0.0179) | (0.0179) |
| | $p = 0.2870$ | $p = 0.2908$ | $p = 0.9810$ | $p = 0.9799$ |
| ln(Price) Advert Home | $N$ | $Y$ | $N$ | $Y$ |
| Racial Comp Advert Home | $N$ | $Y$ | $N$ | $Y$ |
| Observations | 7,025 | 7,025 | 6,953 | 6,953 |
| Adjusted $R^2$ | -0.1619 | -0.1626 | -0.1466 | -0.1500 |
| *Note:* | | | | $^{*}$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01 |

Table 4: Steering and Neighborhood Effects

| | *Dependent variable:* | | | |
|---|---|---|---|---|
| | Number of Recommendations | Home Availability | | |
| African American | −0.2009 | −0.1972 | −0.0105 | −0.0106 |
| | (0.2576) | (0.2565) | (0.0221) | (0.0221) |
| | $p = 0.4356$ | $p = 0.4422$ | $p = 0.6334$ | $p = 0.6310$ |
| Hispanic | −0.2361 | −0.2186 | −0.0126 | −0.0121 |
| | (0.2620) | (0.2632) | (0.0244) | (0.0246) |
| | $p = 0.3678$ | $p = 0.4065$ | $p = 0.6060$ | $p = 0.6238$ |
| Asian | −0.0287 | −0.0440 | 0.0074 | 0.0067 |
| | (0.2439) | (0.2433) | (0.0218) | (0.0217) |
| | $p = 0.9063$ | $p = 0.8566$ | $p = 0.7346$ | $p = 0.7575$ |
| Other | 1.5771$^{*}$ | 1.5300$^{*}$ | −0.0917 | −0.0940 |
| | (0.8495) | (0.8468) | (0.0620) | (0.0621) |
| | $p = 0.0636$ | $p = 0.0710$ | $p = 0.1392$ | $p = 0.1305$ |
| ln(Price) Advert Home | $N$ | $Y$ | $N$ | $Y$ |
| Racial Comp Advert Home | $N$ | $Y$ | $N$ | $Y$ |
| Observations | 7,025 | 7,025 | 6,953 | 6,953 |
| Adjusted $R^2$ | -0.1621 | -0.1630 | -0.1483 | -0.1518 |
| *Note:* | | | | $^{*}$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01 |