

Online Appendix:
Locally Controlled Minimum Wages Leapfrog Public
Preferences

Contents

A Discussion of Bayesian Simulation and Reproducibility	35
B Supplementary Information on Data	36
B.1 Summary statistics	36
B.2 Referenda results from 2016	39
B.3 Non-Parametric Validation of Estimates	41
B.4 Additional Results	43

A Discussion of Bayesian Simulation and Reproducibility

To generate our city-level minimum wage estimates, we rely on Stan Development Team (2022)'s `rstan` and Goodrich et al. (2020) `rstanarm` packages in R. These algorithms are computationally intensive, and the results from the Bayesian simulation procedure can vary slightly across operating systems and machines even when setting the seed. According to the Stan Reference Manual (Version 2.31)²¹:

Stan results will only be exactly reproducible if *all* of the following components are *identical*:

- Stan version
- Stan interface (RStan, PyStan, CmdStan) and version, plus version of interface language (R, Python, shell)
- versions of included libraries (Boost and Eigen)
- operating system version
- computer hardware including CPU, motherboard and memory
- C++ compiler, including version, compiler flags, and linked libraries
- same configuration of call to Stan, including random seed, chain ID, initialization and data

In the on-line replication files, we provide detailed information about the software and hardware attributes used to generate our analysis. We also show that the distribution of estimates is nearly identical across the models produced by two different machines in the file `01_post_stratification.R`.

²¹https://mc-stan.org/docs/2_27/reference-manual/reproducibility-chapter.html

B Supplementary Information on Data

B.1 Summary statistics

Table OA1: Individual level summary statistics

Variable	Mean	Std. Dev.	Min	Max
Minimum wage preference	10.993	5.487	0	30
Democrat	0.482	0.500	0	1
Independent	0.106	0.307	0	1
Republican	0.413	0.492	0	1
Age (18-40)	0.424	0.494	0	1
Age (40-60)	0.327	0.469	0	1
Age (60+)	0.250	0.433	0	1
Male	0.480	0.500	0	1
Female	0.520	0.500	0	1
White	0.719	0.449	0	1
Black	0.120	0.325	0	1
Other Race	0.160	0.367	0	1
Not Hispanic	0.875	0.331	0	1
Hispanic	0.125	0.331	0	1
No high school	0.0633	0.244	0	1
High school	0.226	0.418	0	1
Some college	0.308	0.462	0	1
College	0.247	0.432	0	1
Grad degree	0.155	0.362	0	1

Table OA2: City-level summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Median rent (\$1000)	16160	1.11	0.59	0.12	4.00
Median income (\$1000)	16160	60.67	29.37	9.23	250.00
Population	16160	15523	93571	1000	8622698
Democratic vote-share	16160	44.16	16.88	6.87	95.70
Minimum wage MRP estimate (\$)	10.81	0.85	8.55	14.07	
Effective minimum wage	16154	9.49	2.15	7.25	15.69
Bias (\$)	16154	-1.32	1.61	-5.01	3.28
Absolute bias (\$)	16154	1.75	1.13	0.000036	5.01
Local	16160	0.027	0.16	0.00	1.00
Preempted	16160	0.52	0.50	0.00	1.00
Tiered	16160	0.094	0.29	0.00	1.00
State	16160	0.36	0.48	0.00	1.00

Table OA3: Comparing Sample Responses with Recent Polls

Survey Options	Morning Consult	Implicit Range	Lucid Sample
Status Quo	31%	Less than \$9.125	31%
\$11 per hour	29%	\$9.125 - \$13	36%
\$15 per hour	40%	More than \$13	34%

Note: Shows the percent of respondents from a recent Morning Consult/ Politico poll (LINK) that favor keeping the federal minimum wage at the status quo (\$7.25), increasing it to \$11, or increasing it to \$15. If we assume that respondents pick the wage that is closest to their ideal point, we can generate cutpoints and determine which percentage of the respondents in our sample would prefer each of these options. Note that the Morning Consult/ Politico poll frames the question in terms of increasing the minimum wage and shows all options at once, which likely produces anchoring effects. The question in this poll also asks whether respondents would favor “gradually increasing the federal minimum wage by 2025,” which might help to explain the slightly higher proportion of respondents selecting this category relative to our survey, where we ask what the minimum wage should be today.

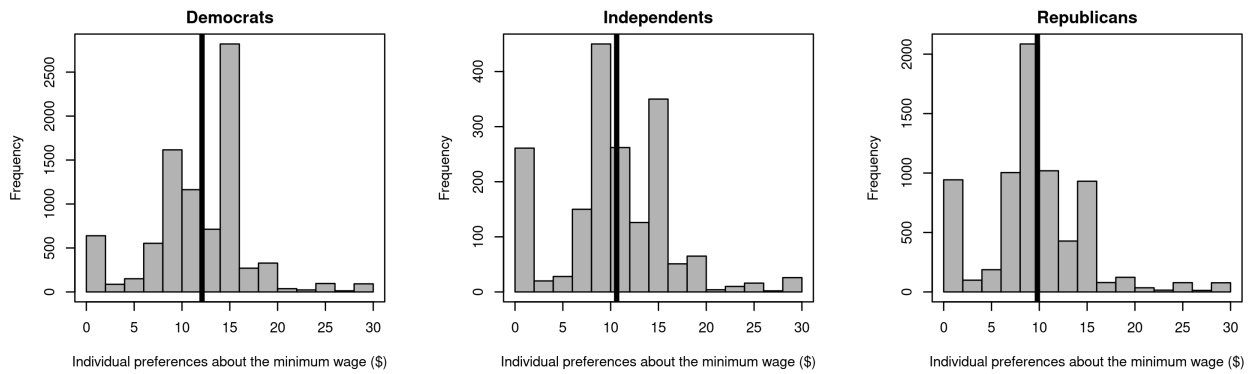
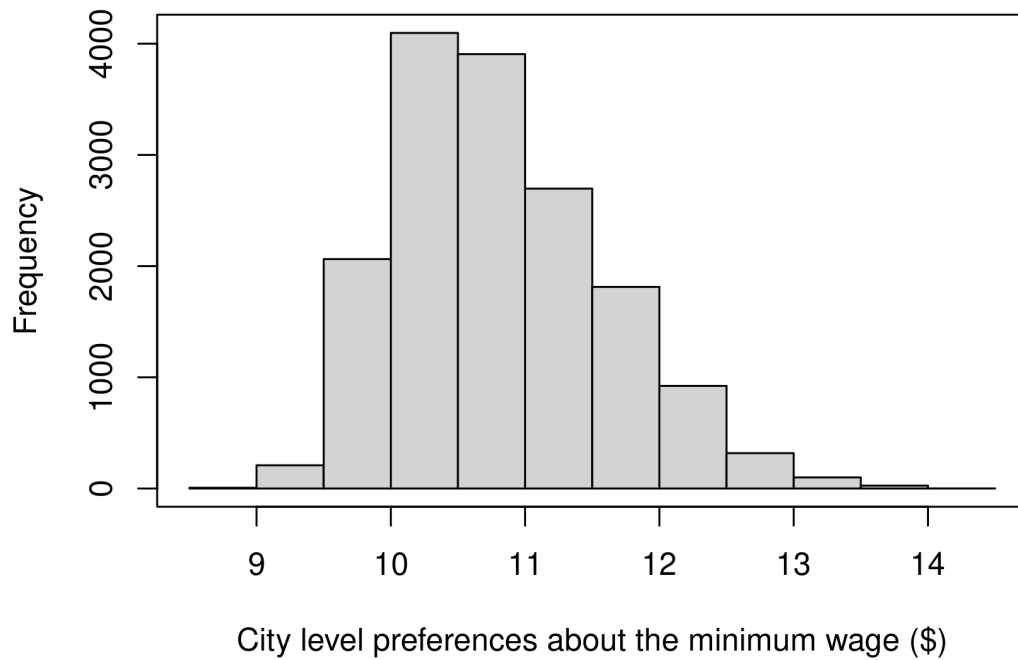


Figure OA1: Distribution of ideal points by party

Figure OA2: Distribution of city ideal points



B.2 Referenda results from 2016

In order to generate localized estimates of minimum wage preferences, we exploit four statewide ballot initiatives that took place in Arizona, Colorado, Maine and Washington in 2016. The minimum wage in these states was already higher than the federal minimum, and these referenda each proposed an additional increase. All four ballot initiatives passed, though with relatively narrow margins, and there was substantial variation in the support for these initiatives in each state. In our analysis, we rely on vote counts aggregated at the county level, the smallest units at which results are available in all states. We summarize information about these referenda below in Table OA4.²² We then compare our MRP minimum wage estimates (aggregated from cities to the county level) against the support for each initiative (Figure OA3).

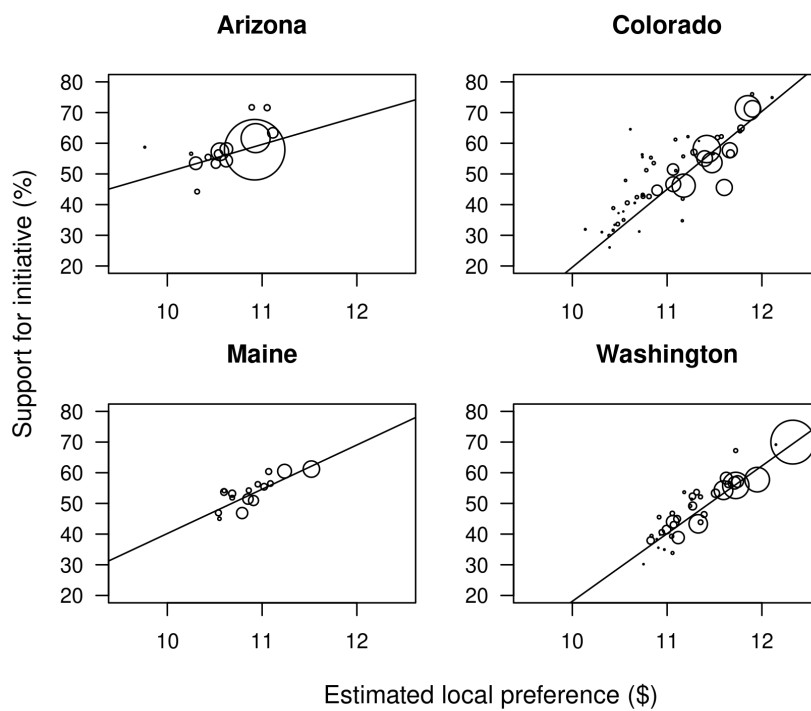
Table OA4: Minimum wage ballot initiatives in 2016

Initiative	Jurisdiction	Type	Date	Existing Wage	Proposal	Votes in favor (%)
Proposition 206	Arizona	Statewide	2016	8.15	10.00	58.3
Amendment 70	Colorado	Statewide	2016	8.56	9.30	55.3
Question 4	Maine	Statewide	2016	7.50	9.00	55.5
Initiative 1433	Washington	Statewide	2016	9.55	11.00	57.4

Source: Raw data comes directly from Ballotpedia.com)

²²These data are freely available online in spreadsheet forms at <http://results.arizona.vote/2016/General/n1591/Results-State.html>, <http://results.enr.clarityelections.com/CO/63746/184388/Web01/en/summary.html>, <http://www.state.me.us/sos/cec/elec/results/results16-17.html> and <http://results.vote.wa.gov/results/20161108/Export.html>.

Figure OA3: MRSP Estimates and 2016 Ballot results



Note: Circles plot county level support for ballot initiatives in four states against estimated city minimum wage preferences aggregated to the county level. Circles are proportional to the square-root of population sizes. Lines show best fitting regression estimated via WLS.

B.3 Non-Parametric Validation of Estimates

To further validate the MrsP approach that we use to generate our estimates of city preferences, we rely on Multilevel Regression and Bayesian Additive Regression Trees using the BARP package in R (Bisbee, 2019). This procedure allows survey data to be aggregated to different levels of geography but uses a non-parametric approach to estimate preferences. We feed the same individual and geographic predictor variables into the model as described in the main text, but BARP flexibly selects which variables and higher-order interactions to include in the predictive model using a data-driven approach. All results are available in the replication files.

Figure OA4 shows the correlation between our MrsP estimates and the BARP estimates of city minimum wage preferences. Note that because BARP is more computationally demanding than our MrsP approach, we were only able to generate estimates for cities with populations above 20,000. Circles are proportional to the square-root of population sizes. There is a tight correlation between both sets of estimates, although the BARP estimates are slightly higher, on average. However, our substantive results remain virtually identically across both sets of estimates. Figure OA5 replicates the main results from Figure 5 using BARP instead of MrsP estimates. Our conclusions about the direction and degree of policy bias remain consistent across both sets of estimates.

Figure OA4: Distribution of city ideal points (BARP estimates)

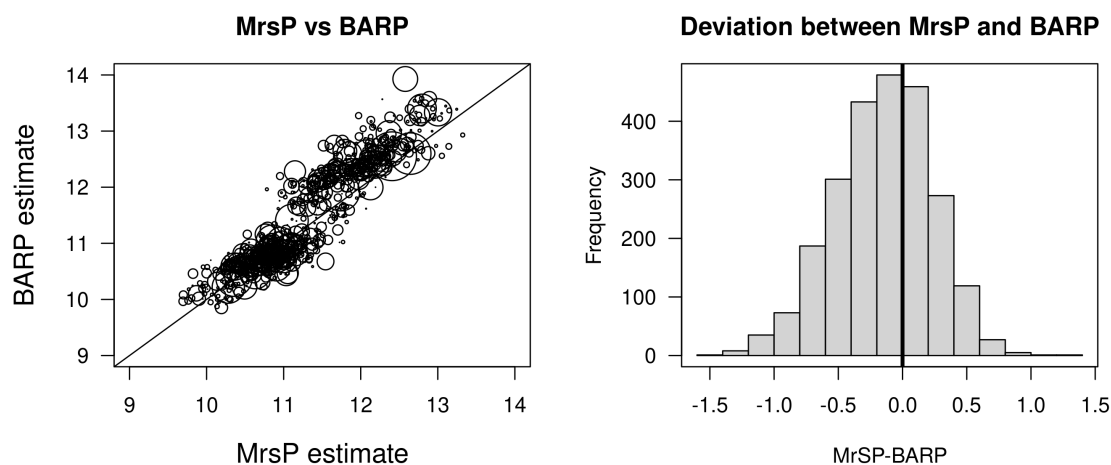
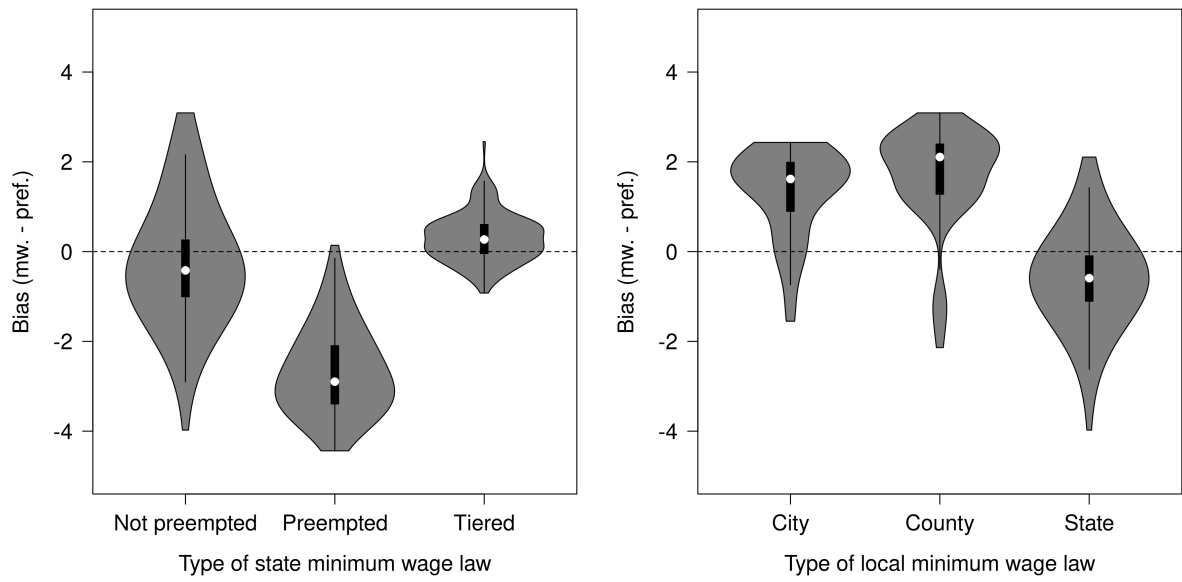


Figure OA5: Figure 5 with Barp estimates



B.4 Additional Results

Figure OA6: Estimates of Minimum Wage Preferences by Subgroup Within New York City

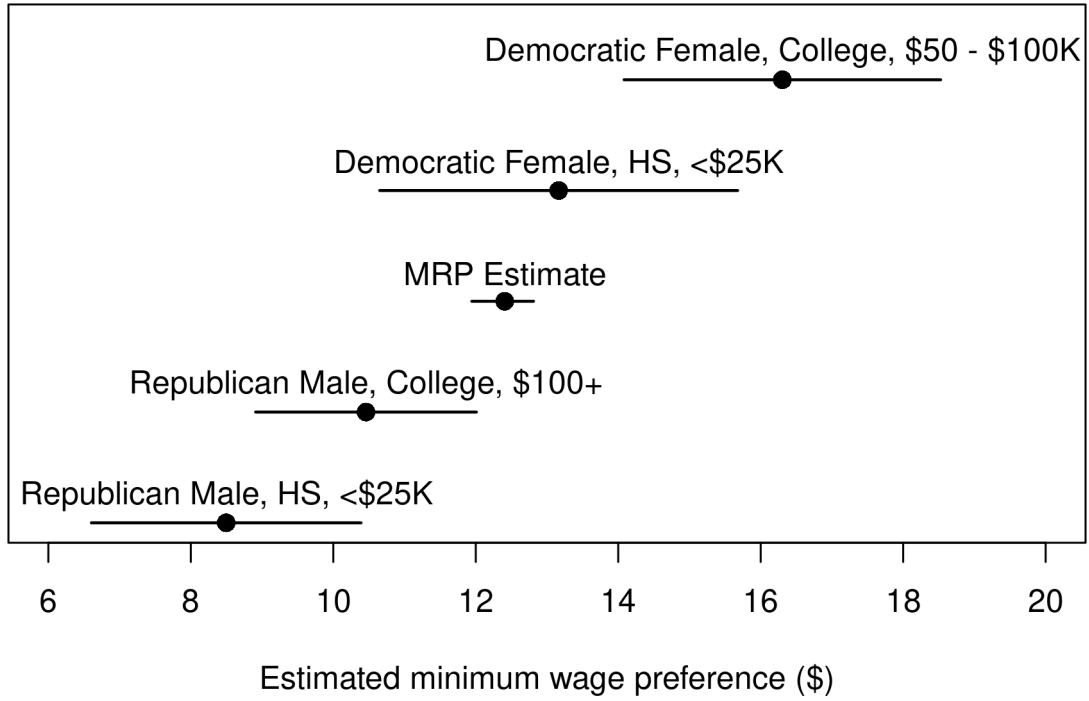
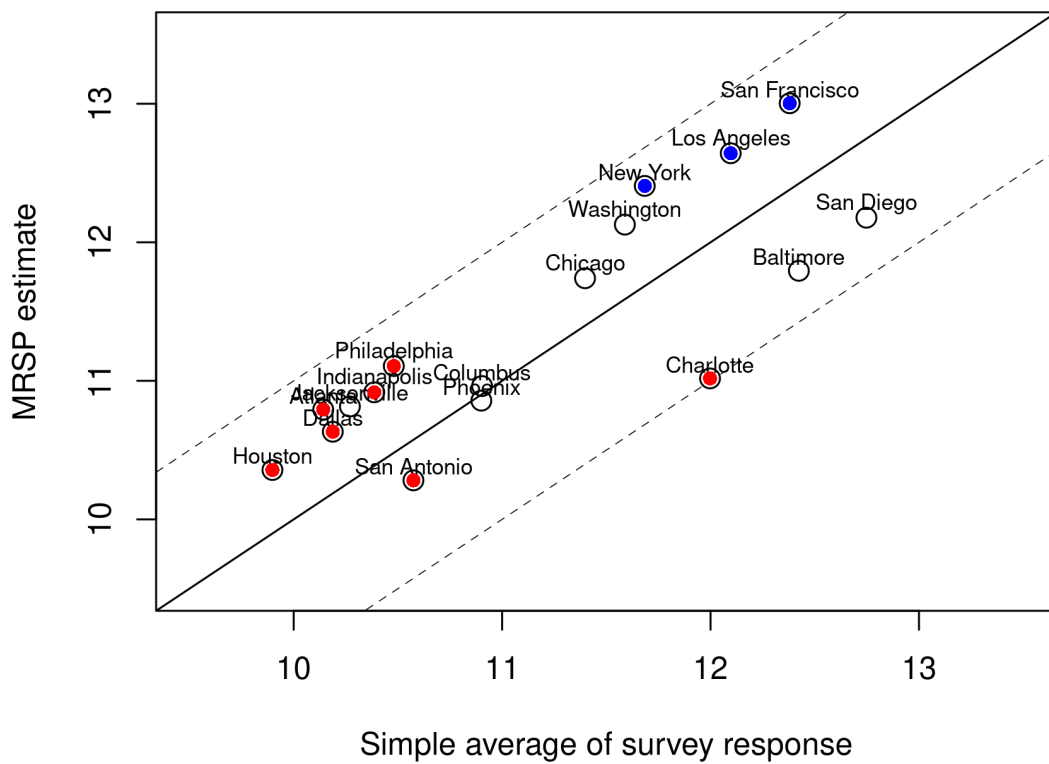
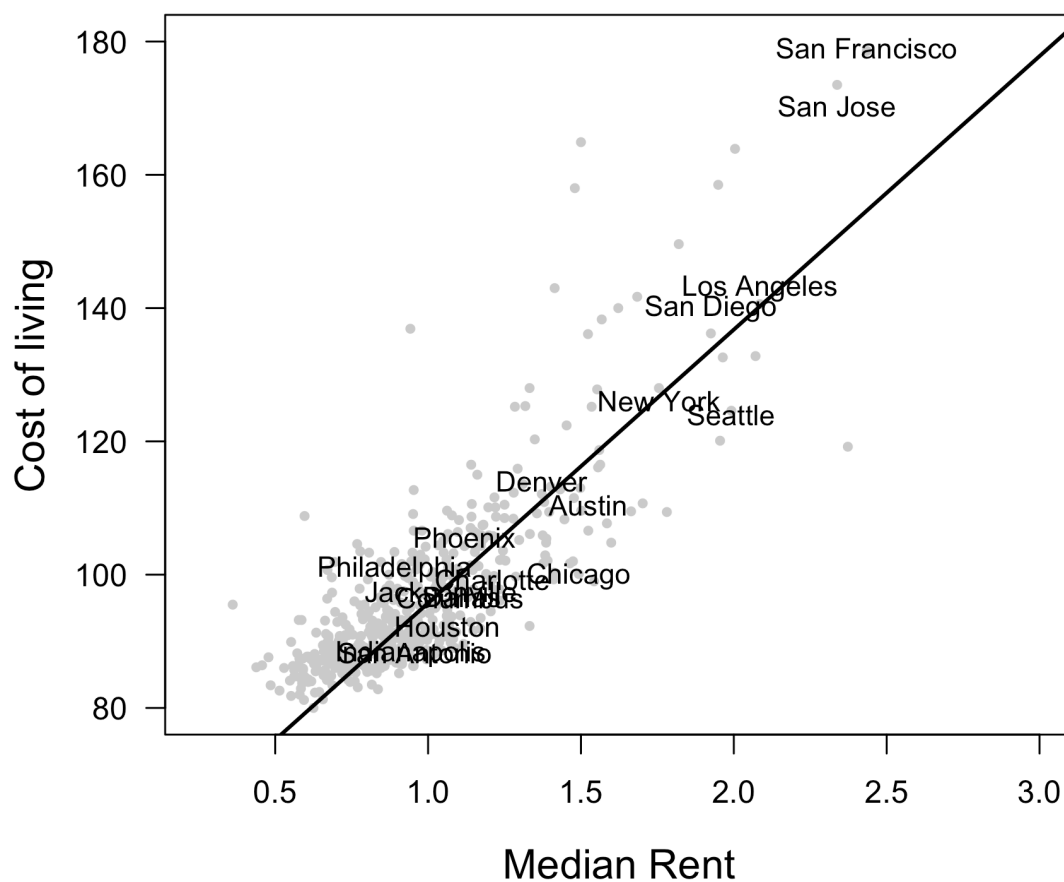


Figure OA7: Comparing MRP estimates with raw data



Note: Circles show MrsP estimates against raw average preferences in cities with more than 55 survey respondents. The blue circles denotes cities where the effective minimum wage is \$15, while the red circles denote cities where the effective minimum wage is \$7.25. The two dashed line shows a boundary of \pm \$1 difference.

Figure OA8: Rental prices and cost of living



Note: In the main analysis, we control for city median rent from the American Community Survey. Here, we confirm that these rental prices serve as an effective proxy for city-level cost of living by comparing median rent to a cost of living index available for 500 large cities from <https://advisorsmith.com/data/coli/>