

The Promises and Challenges of Linked Rent Data from the Consumer Expenditure Survey and Housing and Urban Development

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Motivation

The Bureau of Labor Statistics' (BLS) Consumer Expenditure Survey (CE) is the primary source of data on the basket of goods and services used to calculate the Consumer Price Index (CPI).

There are concerns about cost and accuracy of sample survey data, which could lead to underestimating efficacy of the safety net. (Meyer and Mittag 2019)

We link Housing and Urban Development (HUD) data to CE to investigate potential misalignment of reported rent and receipt of housing assistance in order to improve data quality and inform future efforts to replace or supplement CE survey questions.

Motivation: CE Rent Question

RENTX1: "What was your total rental payment for (reference month) for this unit? Include any extra charges for garage or parking facilities, but do not include direct payments by local, state or federal agencies."

Data

- ▶ HUD
 - ▶ Public Housing: Public and Indian Housing Information Center (PIC)
 - ▶ Vouchers: Tenant Rental Assistance Certification System (TRACS)
 - ▶ Does not include others: State, USDA, etc.
- ▶ CE
 - ▶ Interview Survey
 - ▶ Detailed Rent Expenditure (Address level)
- ▶ 2013-2017

Linkage Methods

Currently link by address using the Census universe of addresses (Master Address File identifier, MAFID)

Plan to add links by individual (Protected Identification Key, PIK) - Wagner and Layne (2014)

- ▶ CE is sampled from Master Address File, so all units have a MAFID.
- ▶ 70-90% of HUD observations can be assigned MAFID.
- ▶ 11-70% of HUD observations can be assigned unique MAFID. (Lots of duplication, which decreases over time.)
- ▶ We link 2% of CE households, in line with expectations.

Results

- ▶ Participation Rates
- ▶ Rent
- ▶ Underreporting
- ▶ Underreporting by Characteristics
- ▶ Rent Burden

CE Participation Regression by Match and HUD Source

	Either	PIC	TRACS
Matched	0.0748*** (0.0121)	0.0563*** (0.0163)	0.0817*** (0.0198)
Constant	0.565*** (0.0015)	0.566*** (0.00149)	0.566*** (0.00149)
Observations	111,000	111,000	111,000
Count	1700	950	650
Test p-value			0.199

Note: Sample is all households sampled for CE. Linear regression of CE household survey participation on dummy for match to HUD data. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Source: CE 2013-2017, HUD PIC and TRACS 2013-2017. Approved for release by Census DRB, authorization number CBDRB-FY19-455.

Matched Sample Summary Statistics: Demographics

	Count	Mean/Percent	SD
Non-Hispanic White	1,100	37%	48%
Non-Hispanic Black	1,100	39%	49%
Non-Hispanic Other	1,100	6%	24%
Hispanic Any Race	1,100	17%	38%
Reference Age	1,100	54.57	17.94
Age Under 25	1,100	3%	18%
Age 25 to 44	1,100	28%	45%
Age 45 to 64	1,100	36%	48%
Age 65 and Up	1,100	33%	47%
Female	1,100	73%	44%
Census Region NE	1,100	26%	44%
Census Region MW	1,100	21%	41%
Census Region S	1,100	32%	47%
Census Region W	1,100	21%	41%
Total income before tax, reported	1,100	\$ 14,070	\$ 14,040
Total income before tax, reported or imputed	1,100	\$ 16,360	\$ 14,580
HUD Program Type indicates Public Housing	1,000	42%	49%
CE: Do you live in public housing [0/1]	900	47%	50%
CE: Housing cost lower bc govt pays some [0/1]	450	68%	47%

Source: CE 2013-2017, HUD PIC and TRACS 2013-2017. Approved for release by Census DRB, authorization number CBDRB-FY19-455.

HUD Rent Definitions

	No Utilities	Includes Utilities
Landlord Receipt	Contract Rent	Gross Rent
Tenant Out of Pocket	Tenant Rent	Tenant Total Payment

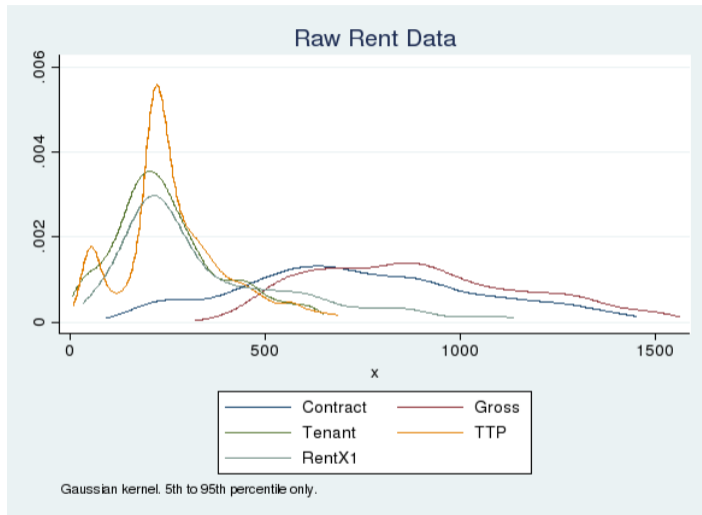
Note: CE rent question aims to measure out of pocket payments.

Matched Sample Summary Statistics: Rent

	Count	Mean	SD
HUD: Contract Rent	1,000	\$ 757	\$ 412
HUD: Gross Rent (w/ util)	1,000	\$ 787	\$ 494
HUD: Tenant Rent	850	\$ 261	\$ 228
HUD: Total Tenant Payment (TTP, w/ util)	1,100	\$ 282	\$ 239
CE:RentX1	800	\$ 394	\$ 354
CE:RentX2	800	\$ 390	\$ 350
CE:RentX3	850	\$ 392	\$ 346
Gross-Rentx1	750	\$ 371	\$ 502
Contract-Rentx1	750	\$ 348	\$ 427
Tenant-Rentx1	600	\$ (120)	\$ 287
Tenant Total-Rentx1	800	\$ (104)	\$ 330
CE: Number of utilities included	1,100	2.55	2.19
Closest Rent: Contract	650	17%	38%
Closest Rent: Gross	650	7%	26%
Closest Rent: Tenant	650	44%	50%
Closest Rent: TTP	650	31%	46%

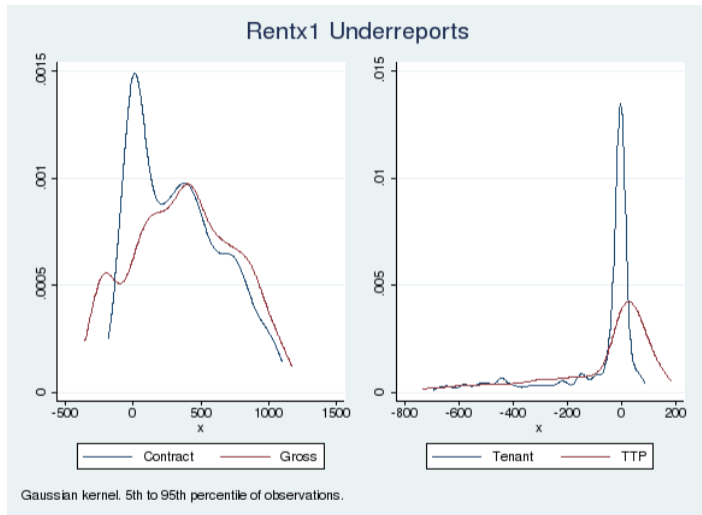
Source: CE 2013-2017, HUD PIC and TRACS 2013-2017. Approved for release by Census DRB, authorization number CBDRB-FY19-455.

Raw Rent Data



Source: CE Quarterly Interview Survey, HUD PIC and TRACS 2013-2017. Approved for release by Census DRB, authorization number CBDRB-FY19-455.

Rent Underreporting



Source: CE 2013-2017, HUD PIC and TRACS 2013-2017. Approved for release by Census DRB, authorization number CBDRB-FY19-455.

Rent Underreporting by Characteristics

Group	Tenant	Tenant Total
Upper Income	\$ (133.40)	\$ (112.20)
Lower Income	\$ (106.00)	\$ (95.72)
NH White	\$ (72.02)	\$ (46.80)
NH Black	\$ (146.40)	\$ (132.20)
NH Other	\$ (246.80)	\$ (175.20)
Hispanic	\$ (127.70)	\$ (138.30)
Male	\$ (129.80)	\$ (102.90)
Female	\$ (116.80)	\$ (104.80)
Age <25	\$ (256.80)	\$ (165.00)
Age 25-44	\$ (229.10)	\$ (206.80)
Age 45-64	\$ (104.70)	\$ (99.92)
Region NE	\$ (106.50)	\$ (91.80)
Region MW	\$ (117.20)	\$ (90.47)
Region S	\$ (128.90)	\$ (86.53)
Region W	\$ (143.10)	\$ (176.70)

Source: CE 2013-2017, HUD PIC and TRACS 2013-2017. Approved for release by Census DRB, authorization number CBDRB-FY19-455/432.

Rent Underreporting Characteristics Regressions

VARIABLES	(1) Tenant Percent	(2) Tenant Total Percent
Upper Income	47.66 (47.69)	0.439 (0.384)
NH White	42.39 (52.95)	0.129 (0.375)
NH Black	14.65 (53.62)	-0.417 (0.49)
NH Other	-138.9 (194.9)	-0.858 (0.737)
Age <25	-17.13 (93.64)	-0.925* (0.544)
Age 25-44	-146.2** (74.39)	-1.458*** (0.56)
Age 45-64	-107.6*** (35.13)	-0.746* (0.387)
Observations	550	700
R-squared	0.032	0.023
Mean dep. var	-93.07	-1.083

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Table shows regressions of rent underreporting in percentage terms. Regression also includes constant, sex, and region dummies. Reference group is lower income, Hispanic, 65+ female in West Census Region. Source: CE 2013-2017, HUD PIC and TRACS 2013-2017. Approved for release by Census DRB, authorization number CBDRB-FY19-432.

Rent Burden

Data Source	Reported Income			Reported or Imputed Income		
	(N)	Burden	Severe Burden	(N)	Burden	Severe Burden
CE	800	42%	27%	800	39%	23%
HUD Tenant Rent	800	31%	20%	850	27%	16%
HUD TTP	1,000	32%	18%	1,100	29%	15%

Rent Burden is defined as paying more than 30% of household income on rent. Severe rent burden is paying more than 50%. We use income before taxes (reported and reported/imputed) and compare results using rent figures from CE and HUD.

Source: CE 2013-2017, HUD PIC and TRACS 2013-2017. Approved for release by Census DRB, authorization number CBDRB-FY19-455.

Preliminary Conclusions

- ▶ Able to match 1,100 households.
- ▶ HUD recipients are more likely to participate than average CE sample.
- ▶ 20+% report rent closer to total landlord receives than amount tenant actually pays.
- ▶ Average overreport of tenant payment of \$100.
- ▶ Younger overreport a larger amount.
- ▶ Estimates of rent burden are as much as 10 percentage points lower using administrative data.

Next Steps

- ▶ Increase sample using person-level matching
- ▶ Investigate Supplemental Poverty Measure adjustments

Thank you!

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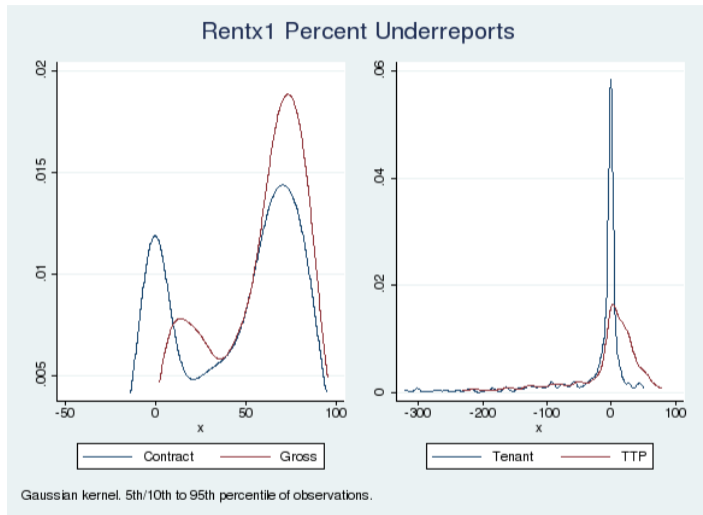
Backup Slides

EXTRA: Match Rates of Entire CE, Renters by Characteristics

	Match Count	CE All Rate	Match Count	CE Renters Rate
All	1,100	2%	800	6%
Non-Hispanic White	400	1%	300	4%
Non-Hispanic Black	450	7%	300	13%
Non-Hispanic Other	70	2%	50	4%
Hispanic	200	3%	150	5%
Age <24	40	1%	30	2%
Age 25-44	300	2%	200	3%
Age 45-64	400	2%	300	8%
Age 65+	350	3%	250	12%
Male	300	1%	200	3%
Female	800	3%	550	7%
NE Region	300	3%	200	8%
MW Region	250	2%	150	6%
S Region	350	2%	250	6%
W Region	250	2%	150	4%

Source: CE 2013-2017, HUD PIC and TRACS 2013-2017. Approved for release by Census DRB, authorization number CBDRB-FY19-455.

EXTRA: Rent Underreporting as Percentage



Source: CE Quarterly Interview Survey, HUD PIC and TRACS 2013-2017. Approved for release by Census DRB, authorization number CBDRB-FY19-455.