

**Extended List from Myers and Park (2019, Exhibit 9) Showing Constant Quartile Affordability Mismatch at High and Low End of Rental Housing Markets in the 50 Largest Metropolitan Areas (Percentage Increases in Mismatch from 2000 to 2016)**

HIGH-END MISMATCH (IN ORDER OF NET SHIFT)						LOW-END MISMATCH (IN ORDER OF NET SHIFT)						SUM OF HIGH AND LOW NET MISMATCH (IN ORDER OF SUMMED NET SHIFT)					
Least Affordable	Pop Size Rank	Metro Name	Income Shift	Rental Shift	Net Shift	Least Affordable	Pop Size Rank	Metro Name	Income Shift	Rental Shift	Net Shift	Least Affordable	Pop Size Rank	Metro Name	High-end Net Shift	Low-end Net Shift	Summed Net Shift
1	7	Washington, D.C.	6.1	33.1	26.9	1	43	Richmond	4.2	-11.1	15.3	1	7	Washington, D.C.	26.9	15.2	42.1
2	13	Riverside-SB	3.8	30.3	26.5	2	41	Memphis	2.0	-13.2	15.2	2	17	San Diego	25.6	14.3	39.8
3	46	New Orleans	0.8	26.8	25.9	3	7	Washington, D.C.	1.5	-13.6	15.2	3	36	Virginia Beach	24.4	14.5	38.9
4	17	San Diego	7.6	33.2	25.6	4	5	Houston	2.4	-12.8	15.2	4	2	Los Angeles	25.2	13.5	38.6
5	8	Miami	1.4	26.6	25.2	5	36	Virginia Beach	-1.0	-15.5	14.5	5	13	Riverside-SB	26.5	10.1	36.6
6	2	Los Angeles	4.3	29.4	25.2	6	40	Jacksonville	1.5	-12.8	14.3	6	46	New Orleans	25.9	10.5	36.4
7	36	Virginia Beach	5.6	29.9	24.4	7	17	San Diego	-1.7	-16.0	14.3	7	8	Miami	25.2	11.0	36.3
8	20	Baltimore	6.9	30.9	24.0	8	25	Sacramento	2.5	-11.5	14.0	8	21	Denver	23.0	12.8	35.8
9	1	New York	2.5	26.0	23.6	9	39	Milwaukee	7.5	-6.2	13.8	9	5	Houston	19.1	15.2	34.3
10	21	Denver	3.8	26.7	23.0	10	2	Los Angeles	-0.5	-14.0	13.5	10	25	Sacramento	19.6	14.0	33.6
11	23	Portland	2.3	23.6	21.3	11	4	Dallas	3.5	-9.9	13.4	11	45	Hartford	20.5	12.9	33.4
12	24	San Antonio	1.2	22.2	21.0	12	26	Orlando	2.8	-10.5	13.3	12	20	Baltimore	24.0	9.5	33.4
13	45	Hartford	-4.4	16.1	20.5	13	19	Tampa	1.2	-11.9	13.2	13	41	Memphis	17.9	15.2	33.1
14	25	Sacramento	2.8	22.4	19.6	14	45	Hartford	6.2	-6.8	12.9	14	43	Richmond	17.0	15.3	32.3
15	10	Boston	3.3	22.9	19.5	15	21	Denver	-1.0	-13.8	12.8	15	26	Orlando	18.8	13.3	32.1
16	5	Houston	1.3	20.4	19.1	16	34	Indianapolis	5.4	-7.3	12.7	16	19	Tampa	18.9	13.2	32.0
17	19	Tampa	1.0	19.9	18.9	17	12	Detroit	4.9	-7.6	12.5	17	24	San Antonio	21.0	11.0	31.9
18	26	Orlando	-1.7	17.2	18.8	18	3	Chicago	3.2	-9.1	12.3	18	1	New York	23.6	8.1	31.7
19	15	Seattle	8.2	26.9	18.8	19	31	San Jose	3.9	-8.0	12.0	19	40	Jacksonville	17.2	14.3	31.5
20	41	Memphis	-1.6	16.2	17.9	20	6	Philadelphia	2.4	-9.5	11.9	20	23	Portland	21.3	9.8	31.1
21	31	San Jose	6.8	24.1	17.3	21	29	Kansas City	3.6	-7.7	11.4	21	31	San Jose	17.3	12.0	29.3
22	40	Jacksonville	-1.6	15.6	17.2	22	8	Miami	-2.8	-13.8	11.0	22	15	Seattle	18.8	10.2	29.0
23	43	Richmond	1.4	18.4	17.0	23	24	San Antonio	-1.1	-12.0	11.0	23	6	Philadelphia	16.4	11.9	28.2
24	6	Philadelphia	0.7	17.0	16.4	24	33	Charlotte	4.6	-6.3	10.8	24	3	Chicago	14.5	12.3	26.9
25	37	Providence	2.0	17.8	15.8	25	46	New Orleans	-2.0	-12.5	10.5	25	10	Boston	19.5	7.1	26.6
26	35	Austin	1.9	17.6	15.7	26	15	Seattle	-1.1	-11.4	10.2	26	12	Detroit	13.9	12.5	26.4
27	42	Louisville	-3.1	12.2	15.3	27	32	Columbus	3.8	-6.4	10.2	27	4	Dallas	12.8	13.4	26.2
28	44	Oklahoma City	1.7	16.8	15.1	28	13	Riverside-SB	-2.7	-12.8	10.1	28	35	Austin	15.7	9.1	24.8
29	11	SF-Oakland	8.6	23.6	15.0	29	23	Portland	0.1	-9.7	9.8	29	18	St. Louis	14.6	9.1	23.6
30	18	St. Louis	-0.7	13.8	14.6	30	20	Baltimore	-1.4	-10.8	9.5	30	37	Providence	15.8	7.7	23.5
31	3	Chicago	-0.3	14.3	14.5	31	27	Cincinnati	2.3	-6.9	9.2	31	34	Indianapolis	10.6	12.7	23.3
32	50	Birmingham	0.6	15.0	14.4	32	35	Austin	-3.6	-12.7	9.1	32	11	SF-Oakland	15.0	8.3	23.3
33	22	Pittsburgh	-0.3	13.7	14.0	33	18	St. Louis	-1.8	-10.9	9.1	33	16	Minneapolis	13.9	8.8	22.7
34	16	Minneapolis	0.4	14.3	13.9	34	9	Atlanta	5.4	-3.5	8.9	34	33	Charlotte	11.6	10.8	22.4
35	12	Detroit	-4.5	9.4	13.9	35	16	Minneapolis	1.2	-7.6	8.8	35	42	Louisville	15.3	7.0	22.3
36	38	Nashville	3.3	16.3	13.1	36	14	Phoenix	1.4	-7.0	8.4	36	38	Nashville	13.1	8.2	21.2
37	4	Dallas	0.4	13.2	12.8	37	11	SF-Oakland	-1.0	-9.3	8.3	37	50	Birmingham	14.4	6.8	21.2
38	49	Salt Lake City	4.4	17.1	12.7	38	38	Nashville	0.4	-7.8	8.2	38	29	Kansas City	9.7	11.4	21.0
39	33	Charlotte	-2.1	9.5	11.6	39	1	New York	-1.0	-9.1	8.1	39	22	Pittsburgh	14.0	7.0	20.9
40	34	Indianapolis	-3.6	7.0	10.6	40	28	Cleveland	5.7	-2.1	7.7	40	39	Milwaukee	6.8	13.8	20.5
41	29	Kansas City	0.6	10.3	9.7	41	37	Providence	0.8	-6.9	7.7	41	44	Oklahoma City	15.1	5.4	20.5
42	14	Phoenix	2.3	11.8	9.5	42	49	Salt Lake City	0.7	-6.6	7.3	42	49	Salt Lake City	12.7	7.3	20.0
43	30	Las Vegas	-0.9	8.6	9.5	43	10	Boston	1.9	-5.2	7.1	43	32	Columbus	9.2	10.2	19.4
44	32	Columbus	-1.2	8.0	9.2	44	42	Louisville	0.7	-6.3	7.0	44	27	Cincinnati	8.8	9.2	17.9
45	27	Cincinnati	-0.1	8.7	8.8	45	22	Pittsburgh	-2.1	-9.1	7.0	45	14	Phoenix	9.5	8.4	17.9
46	9	Atlanta	-2.4	5.9	8.3	46	50	Birmingham	-1.0	-7.8	6.8	46	9	Atlanta	8.3	8.9	17.2
47	39	Milwaukee	-3.3	3.5	6.8	47	30	Las Vegas	6.2	0.8	5.5	47	30	Las Vegas	9.5	5.5	15.0
48	28	Cleveland	-2.3	2.4	4.7	48	44	Oklahoma City	-4.1	-9.5	5.4	48	28	Cleveland	4.7	7.7	12.5
49	47	Raleigh	2.3	6.0	3.7	49	48	Buffalo	2.3	-2.4	4.7	49	48	Buffalo	3.6	4.7	8.3
50	48	Buffalo	1.5	5.0	3.6	50	47	Raleigh	-0.7	-3.7	3.0	50	47	Raleigh	3.7	3.0	6.6
		Total United States	0.9	14.1	13.3			Total United States	0.7	-7.9	8.6			Total United States	13.3	8.6	21.8
		50 Metro Average	1.4	17.5	16.2			50 Metro Average	1.3	-9.2	10.5			50 Metro Average	16.2	10.5	26.7
		Standard Deviation	3.2	8.2	6.2			Standard Deviation	2.8	3.6	3.1			Standard Deviation	6.2	3.1	8.1

**Note:** Mismatch at the high-end is the increase in share of rentals in the top quartile LESS the increase in share of renters' incomes in the top quartile. Mismatch at the low-end is the DECREASE in share of renters' incomes in the bottom quartile less the DECREASE in share of rentals in the bottom quartile. Total mismatch is the sum of the problem increase at the two ends of the distribution. The top quartile is the top 25% of rents paid or renters' incomes, while the bottom quartile is lowest 25%.

**Source:** Extended version showing all 50 metros of Exhibit 9 (not just top 10 and bottom 10) in Dowell Myers and JungHo Park, "A Constant Quartile Mismatch Indicator of Changing Rental Affordability in U.S. Metropolitan Areas," *Cityscape: A Journal of Policy Development and Research*, 21, 1 (2019): 163-200. <https://www.huduser.gov/portal/periodicals/cityscape/vol21num1/article7.html>