

Vehicle Stops Report

University of Missouri

June 1, 2023

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1 State Results

Table 1: Rates by Race for Missouri

	Total	White	Black	Hispanic	Native American	Asian	Other
Population							
2021 ACS pop.	4910777	4018782	535276	183165	16570	101636	238513
2021 ACS pop. %	100	81.84	10.9	3.73	.34	2.07	4.86
2020 Decennial pop.	4775612	3723642	514169	197173	18642	104558	217428
2020 Decennial pop. %	100	77.97	10.77	4.13	.39	2.19	4.55
Totals							
All stops	1273509	984097	220556	36105	1927	12825	17999
Resident stops	629676	521066	82704	15772	725	5179	4230
Searches	75014	53976	17303	2760	110	418	447
Contraband	28922	20691	7137	799	36	111	148
Arrests	49122	34951	11596	1880	73	303	319
Citations	547816	390174	127138	18795	788	5845	5076
Rates							
Stop rate	25.93	24.49	41.2	19.71	11.63	12.62	7.55
Stop rate, residents	12.82	12.97	15.45	8.61	4.38	5.1	1.77
Search rate	5.89	5.48	7.85	7.64	5.71	3.26	2.48
Contraband hit rate	38.56	38.33	41.25	28.95	32.73	26.56	33.11
Arrest rate	3.86	3.55	5.26	5.21	3.79	2.36	1.77
Citation rate	43.02	39.65	57.64	52.06	40.89	45.58	28.2

Notes: The American Community Survey five-year population estimates for ages 16+ as of 2021 are used for Missouri. For comparison, the 2020 Decennial Census population estimates for ages 18+ are also shown in the table.

The ACS only provides race-specific Hispanic estimates for White, meaning non-White Hispanic residents are double-counted in the 2020 race percentages above.

Stop rate = (stops / 2021 population) X 100.

Stop rate, residents only = (stops by residents / 2021 population) X 100.

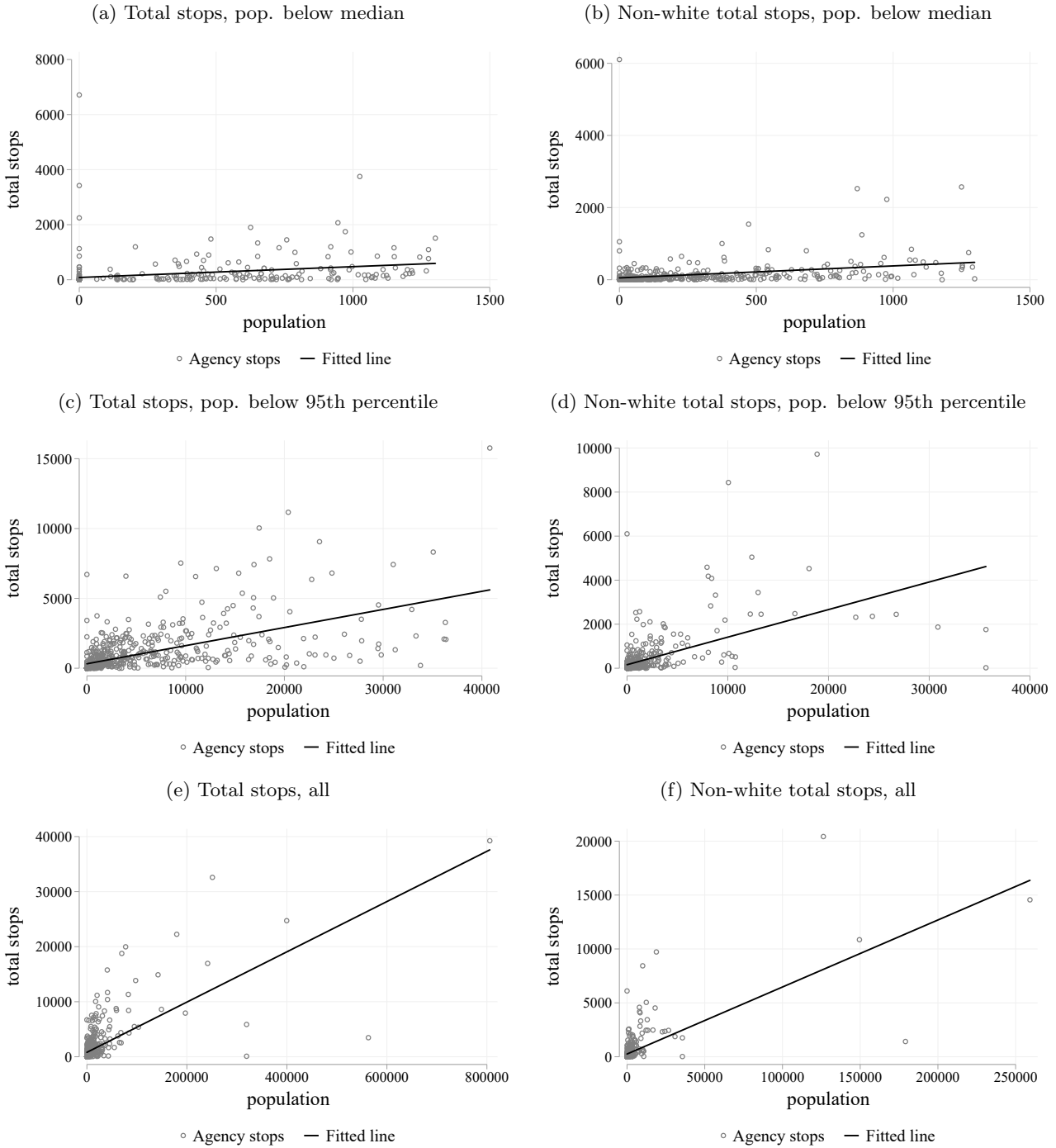
Search rate = (searches / stops) X 100.

Contraband hit rate = (searches with contraband found / total searches) X 100.

Arrest rate = (arrests / stops) X 100.

Citation rate = (citations / stops) X 100.

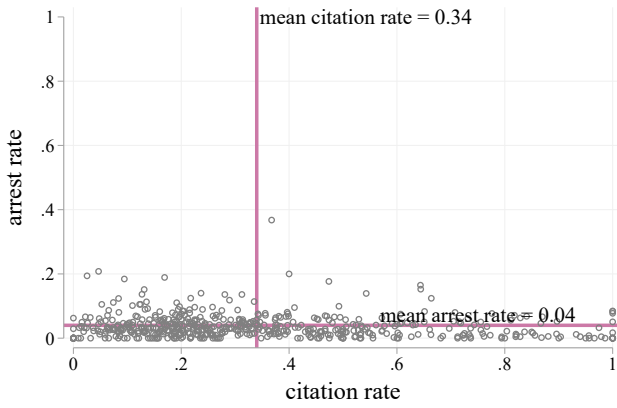
Figure 1: Total stops across agencies for Missouri



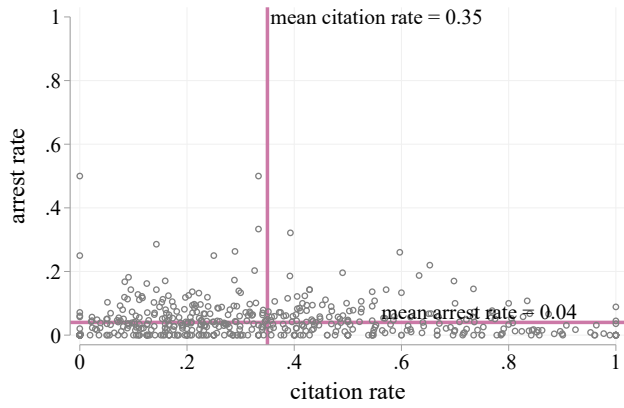
Notes: Figure (a) depicts the total number of stops for all agencies with a total population less than the median population size (1,953 persons) in Missouri plotted against population size. Similarly, Figure (b) shows the total number of non-white stops by the non-white population size for each agency for those same agencies. Figures (c) and (d) follow the same format but for agencies with a total population less than the 95th-percentile (43,795 persons). Finally, graphs (e) and (f) graph all agencies, except the Missouri State Highway Patrol which covers the entire state. Population is measured using the 2021 American Community Survey 5-year estimates for Missouri. The ACS only provides race-specific Hispanic estimates for White, to avoid double counting we calculate the total non-White population as the total population minus the White population for each agency. Agencies without population (e.g., university police) are considered to have a population of zero.

Figure 2: Citation, arrest, search, and hit rates across agencies for Missouri

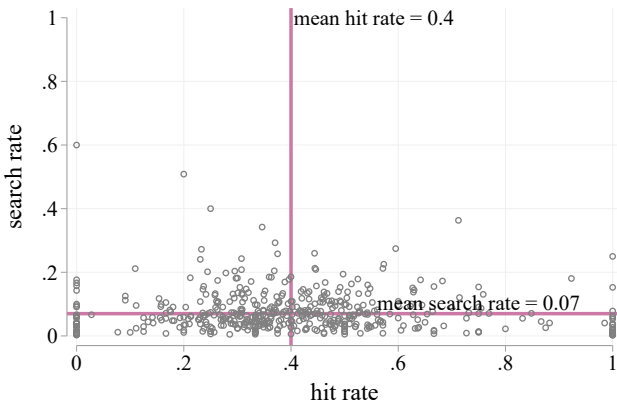
(a) Arrest and citation rate



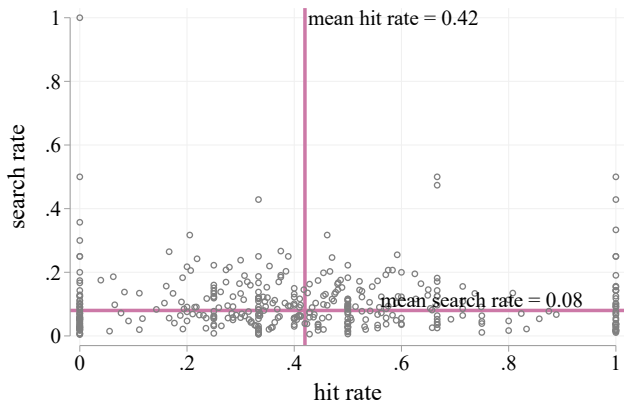
(b) Non-white arrest and citation rate



(c) Search and hit rate

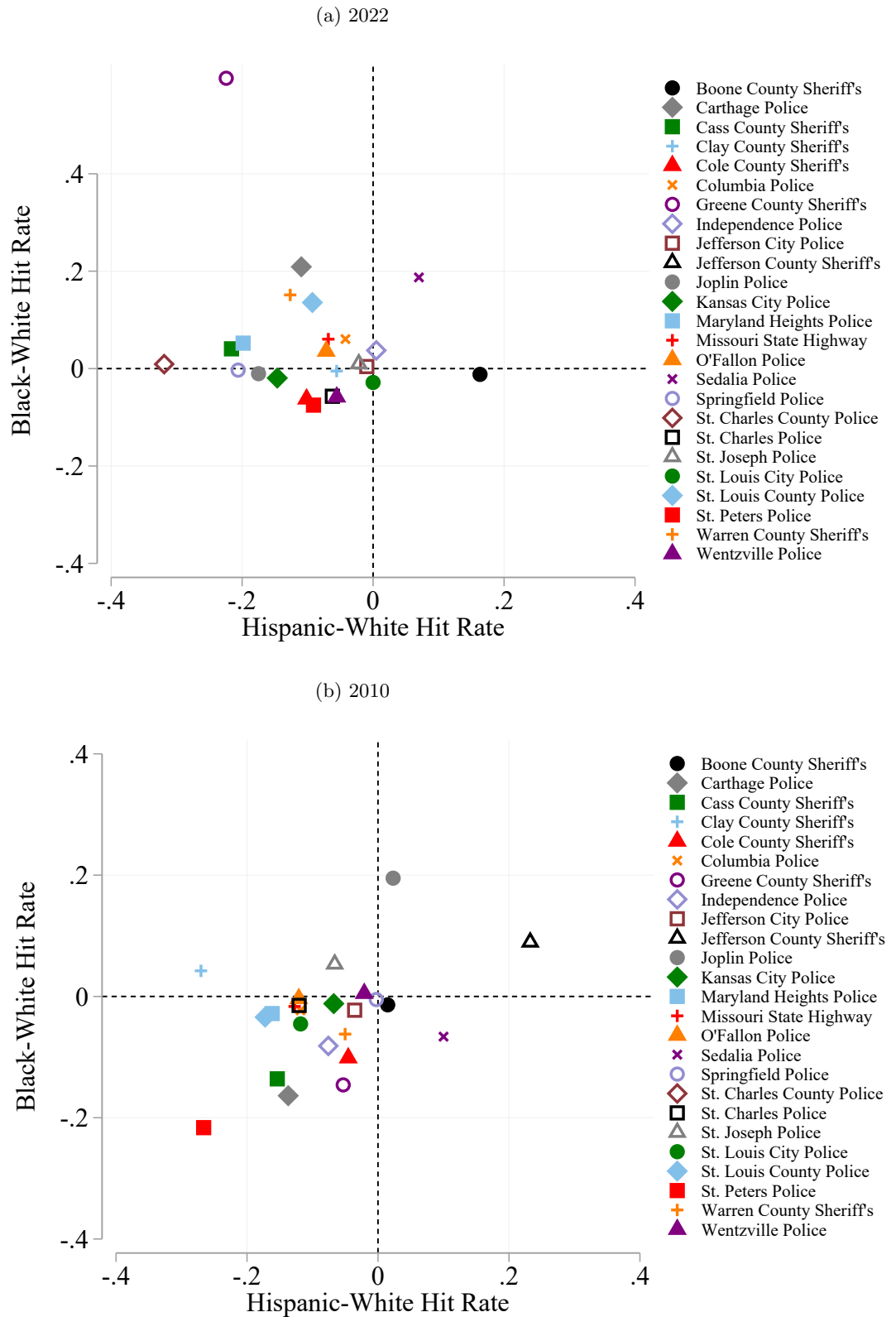


(d) Non-white search and hit rate



Notes: Figure (a) graphs the arrest rate and citation rate for all agencies in Missouri. Similarly, Figure (b) graphs the arrest rate and citation rate for all non-white stops. Figure (c) graphs the search rate and hit rate for all agencies in Missouri. Similarly, Figure (d) graphs the search rate for all non-white stops and hit rate for all non-white searches. The reported mean equally weights each agency and is not a population-weighted mean.

Figure 3: Relative hit rates for the top 25 agencies with the most searches



Notes: The race specific hit rate is calculated as the number of searches that find contraband divided by the total number of searches for a specific race. The difference between the Black and White hit rates and the Hispanic and White hit rates are plotted on the y- and x-axis, respectively.

Table 2: Disparity Index for Missouri

	Total	White	Black	Hispanic	Native American	Asian	Other
Population							
2021 ACS pop.	4910777	4018782	535276	183165	16570	101636	238513
2021 ACS pop. %	100	81.84	10.9	3.73	.34	2.07	4.86
2020 Decennial pop.	4775612	3723642	514169	197173	18642	104558	217428
2020 Decennial pop. %	100	77.97	10.77	4.13	.39	2.19	4.55
Stops							
All stops	1273509	984097	220556	36105	1927	12825	17999
Resident stops	629676	521066	82704	15772	725	5179	4230
Disparity index							
All stops ACS	.	.944	1.589	.76	.448	.487	.291
Resident stops ACS	.	1.011	1.205	.672	.341	.397	.138
All stops DEC	.	.991	1.609	.687	.388	.46	.31
Resident stops DEC	.	1.061	1.22	.607	.295	.376	.148

Notes: 2022 Disparity index is based on 2017-2021 average population estimates from the U.S. Census Bureau's American Community Survey (ACS) for ages 16+ for Missouri. The ACS only provides race-specific Hispanic estimates for White, meaning non-White Hispanic residents are double-counted in the 2021 race percentages above. For comparison, the 2020 Decennial Census population estimates for ages 18+ are also shown in the table.

Disparity index = (proportion of stops / proportion of population). A value of 1 indicates no difference between the share of stops and share of local population for a given group. Values greater than one indicate over-representation in the share of stops relative to local population, while a value less than 1 indicates under-representation.

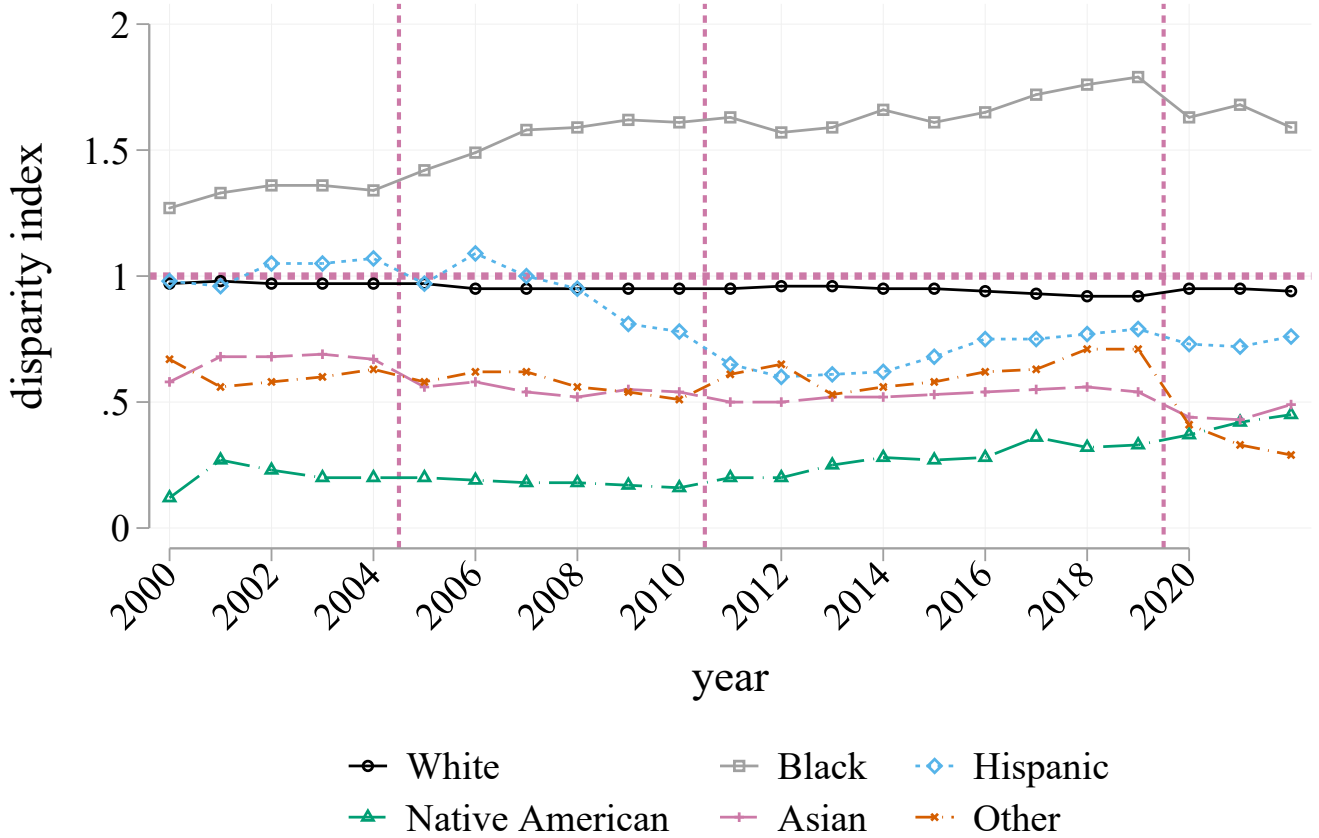
Table 3: Disparity Index from 2000 to 2022 for Missouri

	White	Black	Hispanic	Native American	Asian	Other
2000	.97	1.27	.98	.12	.58	.67
2001	.98	1.33	.96	.27	.68	.56
2002	.97	1.36	1.05	.23	.68	.58
2003	.97	1.36	1.05	.2	.69	.6
2004	.97	1.34	1.07	.2	.67	.63
2005	.97	1.42	.97	.2	.56	.58
2006	.95	1.49	1.09	.19	.58	.62
2007	.95	1.58	1	.18	.54	.62
2008	.95	1.59	.95	.18	.52	.56
2009	.95	1.62	.81	.17	.55	.54
2010	.95	1.61	.78	.16	.54	.51
2011	.95	1.63	.65	.2	.5	.61
2012	.96	1.57	.6	.2	.5	.65
2013	.96	1.59	.61	.25	.52	.53
2014	.95	1.66	.62	.28	.52	.56
2015	.95	1.61	.68	.27	.53	.58
2016	.94	1.65	.75	.28	.54	.62
2017	.93	1.72	.75	.36	.55	.63
2018	.92	1.76	.77	.32	.56	.71
2019	.92	1.79	.79	.33	.54	.71
2020	.95	1.63	.73	.37	.44	.41
2021	.95	1.68	.72	.42	.43	.33
2022	.94	1.59	.76	.45	.49	.29

Notes: In the years 2000 - 2004 the disparity index was calculated using the 2000 Decennial Census (ages 16+), 2005 - 2010 uses the annual updates from Geolytics Inc, and 2011 - 2019 use the 2010 Decennial Census for persons (ages 16+). Hispanics may be of any race. Other includes persons of two or more races or unknown race. The 2020, 2021 and 2022 disparity indices are based on the most recent 5-year population estimates from the American Community Survey (ages 16+) for Missouri (2015-2019, 2016-2020, 2017-2021 respectively).

Disparity index = (proportion of stops / proportion of population). A value of 1 indicates no difference between the share of stops and share of local population for a given group. Values greater than one indicate over-representation in the share of stops relative to local population, while a value less than 1 indicates under-representation.

Figure 4: Disparity Index from 2000 to 2022 for Missouri



Notes: In the years 2000 - 2004 the disparity index was calculated using the 2000 Decennial Census (ages 16+), 2005 - 2010 uses the annual updates from Geolytics Inc, and 2011 - 2019 use the 2010 Decennial Census (ages 16+). Hispanics may be of any race. Other includes persons of two or more races or unknown race. The 2020, 2021, and 2022 disparity indices are based on the most recent 5-year population estimates (ages 16+) from the American Community Survey for Missouri (2015-2019, 2016-2020, and 2017-2021 respectively). Changes in the population are noted by the vertical dashed lines before 2005, 2011, and 2020.

Disparity index = (proportion of stops / proportion of population). A value of 1 indicates no difference between the share of stops and share of local population for a given group. Values greater than one indicate over-representation in the share of stops relative to local population, while a value less than 1 indicates under-representation.

Table 4: Number of Stops by Race for Missouri

	Total	White	Black	Hispanic	Native American	Asian	Other
All Stops	1273509	984097	220556	36105	1927	12825	17999
Resident Stops	629676	521066	82704	15772	725	5179	4230
Non-Resident Stops	643833	463031	137852	20333	1202	7646	13769
Reason for Stop	.	.	.	.	.	.	.
Moving	724032	559263	120261	24124	1374	9449	9561
Equipment	167383	132468	26417	4382	266	1253	2597
License	401834	302400	83329	7662	452	2178	5813
Investigative	42384	30224	9595	1325	52	303	885
Stop Outcome	.	.	.	.	.	.	.
Searches	75014	53976	17303	2760	110	418	447
Contraband	28922	20691	7137	799	36	111	148
Arrests	49122	34951	11596	1880	73	303	319
Citation	547816	390174	127138	18795	788	5845	5076
Warning	986990	798501	135361	29324	1479	9915	12410
No action	39920	27159	10398	1458	61	364	480
Location of Stop	.	.	.	.	.	.	.
Interstate hwy	168729	114294	40864	8373	358	3074	1766
US hwy	213539	178941	24237	6725	315	2022	1299
State hwy	305406	256276	35414	7477	423	2313	3503
County road	77075	54146	19131	1036	97	668	1997
City street	435884	329692	82862	11810	643	4063	6814
Other	69076	46725	18074	610	80	631	2956
Driver Gender	.	.	.	.	.	.	.
Male	782509	602400	131653	26945	1293	8538	11680
Female	491506	381950	89252	9139	622	4285	6258
Driver Age	.	.	.	.	.	.	.
17 and under	49074	41691	5108	1203	55	315	702
18-29	448612	327097	93999	15225	734	4819	6738
30-39	306226	228536	60036	9751	454	2885	4564
40-64	370209	295685	55249	9448	566	4082	5179
65 and over	381253	372711	6478	452	118	721	773

Notes: Data reported by the agency to the Attorney General's Office covering all traffic stops in 2022.

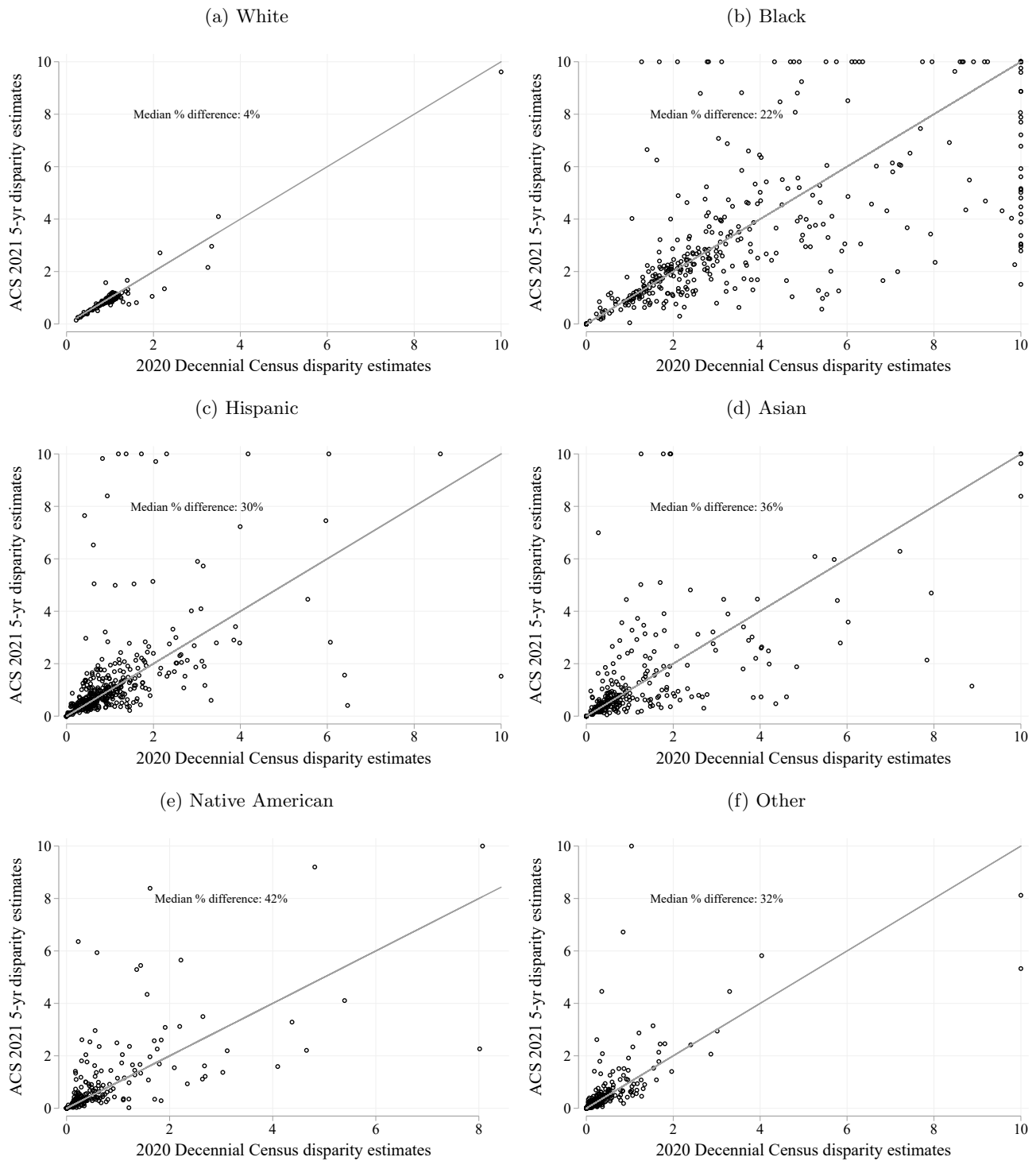
Table 5: Search statistics for Missouri

	Total	White	Black	Hispanic	Native American	Asian	Other
Probable cause	.	.	.	.	.	.	.
Consent	31892	24885	5497	1093	53	164	200
Inventory	5530	3957	1299	191	8	33	42
Drug/alcohol odor	16275	9635	5861	576	19	79	105
Incident to arrest	28237	19744	6901	1206	45	201	140
Plain view contra.	6020	4056	1741	162	7	20	34
Reas. susp-weapon	2025	1069	882	42	6	9	17
Drug-dog alert	2613	2170	336	87	2	5	13
Other	1879	1497	316	47	3	6	10
What searched	.	.	.	.	.	.	.
Driver	16692	11697	3977	781	27	122	88
Car/property	15657	11294	3350	733	32	139	109
Driver & Property	42767	31091	9979	1246	52	157	242
Search duration	.	.	.	.	.	.	.
0-15 minutes	67792	48501	15865	2526	100	397	403
16-30 minutes	7336	5687	1368	210	11	24	36
31+ minutes	1833	1434	296	81	2	9	11
Contraband found	.	.	.	.	.	.	.
Drugs/alcohol	29351	21208	6987	870	40	106	140
Currency	300	159	114	18	0	5	4
Weapon	2793	1264	1454	54	2	6	13
Stolen property	800	548	238	9	1	0	4
Other	787	612	129	32	1	9	4
Arrest charge	.	.	.	.	.	.	.
Outstanding warrant	22307	14941	6710	450	26	74	106
Drug violation	11030	8220	2462	247	13	33	55
Resist arrest	1844	1176	597	53	2	7	9
Off against person	1082	742	294	32	1	5	8
Traffic violation	22452	17501	3844	819	39	124	125
DWI/BAC	14225	10785	2260	873	28	151	128
Property offense	1354	906	404	27	5	3	9
Other	8891	7312	1193	244	11	65	66

Notes: Data reported by the agency to the Attorney General's Office covering traffic stops in 2022.

2 Appendix

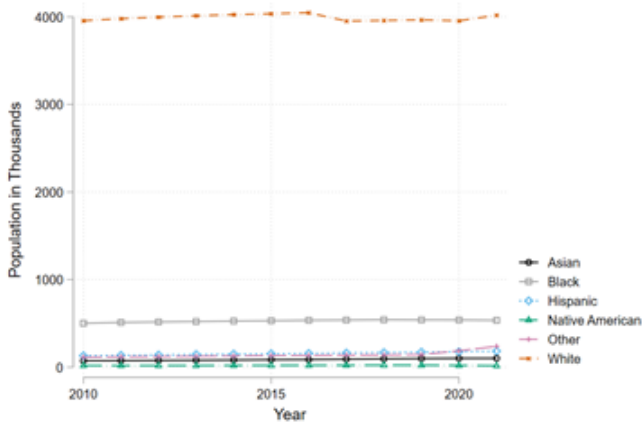
Figure 5: Differences between 2022 disparity indices using Decennial 2020 and American Community Survey 2021



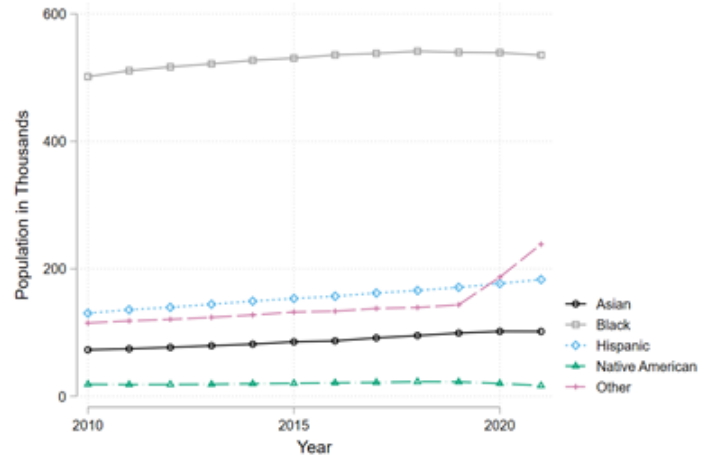
Notes: The disparity indices based on the population estimates from the five-year 2021 American Community Survey for ages 16+, used in this report, and the 2020 Decennial Census for ages 15+ are plotted on the y- and x-axis, respectively. A 45-degree line is plotted in each graph depicting the line of equality between the two measures. Each dot represents an agency. The disparity indices are truncated at 10 for visualization purposes.

Figure 6: Changes in Missouri's population in each racial category over time

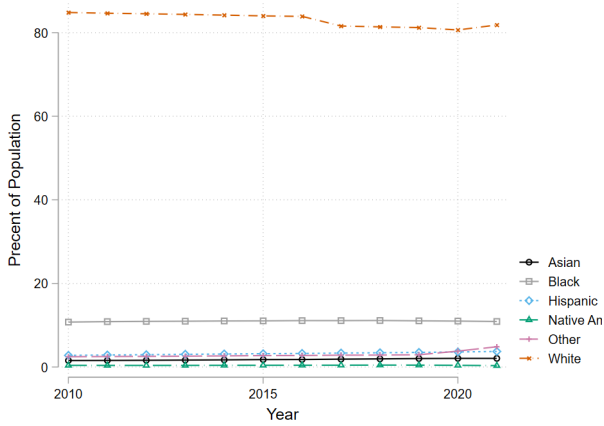
(a) All groups total population



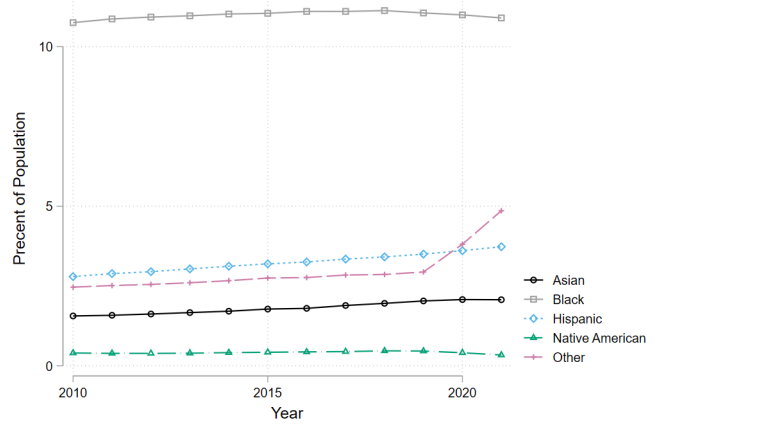
(b) Non-White groups total population



(c) All groups share of the population



(d) Non-White groups share of the population



Notes: Population is measured using the most recent American Community Survey 5-year estimates from 2010-2021. Since the American Community Survey started in 2005, 5-year estimates are not available until 2010. 2000 Decennial estimates are used as an initial baseline.