MISSOURI VEHICLE STOPS 2021 ANNUAL REPORT

MISSOURI ATTORNEY GENERAL'S OFFICE

Missouri Vehicle Stops 2021 Annual Report

Contents

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As the chief lawyer for the State of Missouri, my job is to protect each and every one of our six million citizens from crime, abuse and fraud, a responsibility I take very seriously. Our government, the shared responsibility between the citizens of our state and the elected officials, must be a framework that preserves all citizens' rights to life, liberty and pursuit of happiness.

The office of the Missouri Attorney General is required, by law, to collect data on the demographics of the traffic stops made by law enforcement officers from across the state, and to report these findings to the Governor and the public. Importantly, this data can help government and law enforcement determine any issues with disparities related to stops and searches.

This report summarizes traffic stop data from 521 law enforcement agencies in Missouri that reported data for calendar year 2021, breaking down the data as it relates to race, the number of stops, the search rate, contraband hit rate and arrest rates. In 2019, we identified several changes to questions that officers must answer when making a stop that we believe will make future reports more informative. This includes questions relating to the officer's assignment, the residential zip code of the driver stopped and the reason for issuing a citation or warning. These changes will continue to be implemented in future reports.

As we seek to balance the rights of all citizens of our state with the enforcement of the rule of law, and the brave men and women of law enforcement who put their lives on the line every day to protect us, we will continue to improve this report.

BACKGROUND

Concerns by the citizens of Missouri and the Missouri legislature regarding allegations of bias in traffic enforcement prompted the passage of SB 1053 (2000). SB 1053 created Section 590.650, RSMo. which became effective August 28, 2000. This statute created the Vehicle Stops Report and required that the Attorney General's Office collect and report on traffic stops conducted by law enforcement officers across the state of Missouri.

Under § 590.650, RSMo. all peace officers in the state must report specific information, including a driver's race, for each vehicle stop made in the state. Law enforcement agencies must provide their vehicle stops data to the Attorney General by March 1, and the Attorney General must compile the data and report to the Governor, General Assembly, and each law enforcement agency no later than June 1 of each year. The law allows the Governor to withhold state funds for any agency that does not submit its vehicle stops data to the Attorney General by the statutory deadline.

After reviewing analysis of the Vehicle Stops Report (VSR) and conferring with law enforcement leaders across the state in 2019, the Attorney General's Office (AGO) began implementing comprehensive changes to the VSR. These changes will improve the information collected for the report while allowing for a fundamental shift in the level of analysis possible through the VSR. Three new questions have been added to the report that collect information on officer assignment during the stop, the residential zip code of the stopped driver, and the cause of citations and/or warnings issued to the driver. In addition, other questions have been adjusted for clarity or to improve the value of the data they collect by adding new response options.

The most significant change to the VSR is its shift toward collecting disaggregated data from across the state. Currently, most agencies only report the aggregate numbers of stops meeting the criteria for each question broken down only by the race and ethnicity of the individual involved in the stop. This reporting framework prevents incident-level analyses that can also take into consideration other factors such as driver age, driver sex, and time of stop. Multivariate analysis of incident-level data will significantly improve VSR analysis. To correct this, the AGO is moving to implement an optional data collection framework that collects all variables for each stop an agency made during the year, rather than just totals by race for each agency. These changes became effective January 2020 and implementation efforts across the state are ongoing.

The benefits of these changes are already manifest in the current VSR, which provides more detail and in-depth analyses than earlier reports, while still retaining all information contained in earlier versions. Improvements to the VSR will be on-going, and future reports will incorporate feedback from stakeholders, as well as analysis of incident-level data.

The summary of statewide vehicle stops data has been provided by a team of researchers in the Economic and Policy Analysis Research Center at the University of Missouri in Columbia. The team is led by Dr. Brittany Street, Assistant Professor of Economics; other team members include graduate students, Savannah McCauley and Tabitha Juneau, and Dr. Jeffrey Milyo, Professor and Chair of the Department of Economics.

STATEWIDE METRICS

This report summarizes traffic stop data from 521 law enforcement agencies in Missouri that reported data for calendar year 2021. Of these, 35% agencies reported no traffic stops during the year; these agencies often contract out traffic enforcement to another agency covering their jurisdictions and focus on other enforcement activities.[1] In total, this report represents 93% of the 595 active law enforcement agencies in the state. The statewide data described in this section are also presented in the same manner for each agency in the attached agency reports.

[1] Agencies with zero stops include: Annapolis, BNSF Railway, Breckenridge Hills, Bucklin, Camden, Canalou, City of Oakland, Cooter, Crystal Lakes, East Prairie, Emma, Forest City, Frankford, Garden City, Iron Mountain Lake, Jackson County Drug Task Force, Keytesville, Lilbourn, Logan-Rogersville School, Metropolitan Community College, Mineral Area College, MO Dept. of Revenue, MO Div. of Alcohol and Tobacco Control, Morrisville, Newburg, New Franklin, Norfolk Southern Railway, Stewartsville, St. Louis Community College, Summersville, Terminal Railroad Association of St. Louis, Union Pacific RR Police- Kansas City-St. Louis, Wardell, Willard School, and Winona Police Departments.

STATEWIDE METRICS CONTINUED

The 2021 VSR should be viewed in the context of substantial changes over the past two years as it relates to traffic on the roads and police policies, due to the COVID-19 environment. First, the pattern of driving is likely still different than pre-pandemic patterns affecting which drivers are on the road and how much; for example, many individuals still worked remote part/full-time in 2021. Second, law enforcement policies may have shifted in a variety of ways to minimize interpersonal contact, keep jail capacity low, or adjust to staffing shortages. Consequently, these factors must be considered when comparing data for 2021 to prior and future years.

For example, overall stops in 2021 were up 5% from 2020, but still 20% lower than overall stops in 2019. Similarly, overall arrests in 2021 were up 9% from 2020, but still 34% lower than overall arrests in 2019. Meanwhile, searches continued to fall with 2021 searches 12% lower than 2020 and 18% lower than 2019.

In 2021, the agencies filing reports recorded 1,226,823 vehicle stops, resulting in 83,981 searches and 49,955 arrests. Table 1 provides summary data on stops, searches, arrests, and citations, broken out by race and ethnic group; this facilitates comparisons across groups and over time using past reports.[2] More detailed data on vehicle stops and outcomes of stops are listed in Tables 4 and 5, located at the end of this report.[3]

[2] Race and ethnicity are recorded based on officer perception at the time of the vehicle stop.
[3] The analysis in the report is based on the aggregated data reported by each agency. Thus, it relies on the assumption of accuracy in the reported data in terms of the tallying of stops and resulting outcomes, the distinction between resident and non-resident drivers, etc.

TABLE 1: RATES BY RACE FOR MISSOURI

	Total	White	Black	Hispanic	Native American	Asian	Other
Population							
2020 Population	4903578	3954573	539111	176807	19999	101746	186829
2020 Population %	100	80.65	10.99	3.61	.41	2.07	3.81
Totals							
All Stops	1226823	940468	226196	31673	2090	10897	15499
Resident Stops	275333	220195	44797	5314	386	1848	2793
Searches	83981	61088	19487	2509	129	329	439
Contraband	33519	24352	7958	860	61	117	171
Arrests	48955	36484	10426	1521	74	214	236
Citations	564834	403386	132477	17452	938	5297	5284
Rates							
Stop rate	25.02	23.78	41.96	17.91	10.45	10.71	8.3
Stop rate, residents	5.61	5.57	8.31	3.01	1.93	1.82	1.49
Search rate	6.85	6.5	8.62	7.92	6.17	3.02	2.83
Contraband hit rate	39.91	39.86	40.84	34.28	47.29	35.56	38.95
Arrest rate	3.99	3.88	4.61	4.8	3.54	1.96	1.52
Citation rate	46.04	42.89	58.57	55.1	44.88	48.61	34.09

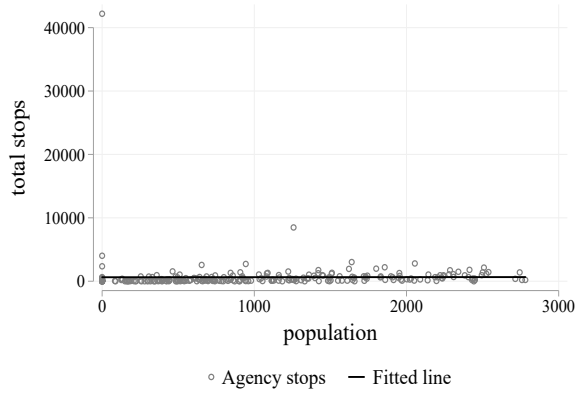
Table 1 lists the number of traffic stops for residents of the community served by a particular agency. Stop rates are therefore calculated for all stops and for the subset of vehicle stops involving only residents. However, because only aggre¬gate data is currently required to be reported by agencies, it is not possible to calculate search rates, arrest rates, etc. for residents, nor is it possible to break down the detailed data in Tables 4 and 5 (below) for residents only. In the future, as more agencies report incident-level data, a more detailed breakdown of data by residence will be feasible. For consistency and ease of exposition, all subsequent discussion of these data refers to total vehicle stops by agencies.

Notes: The American Community Survey five-year population estimates for ages 16+ as of 2020 are used for Missouri. The ACS only provides race-specific Hispanic estimates for White, meaning non-White Hispanic residents are double-counted in the 2020 race percentages above.

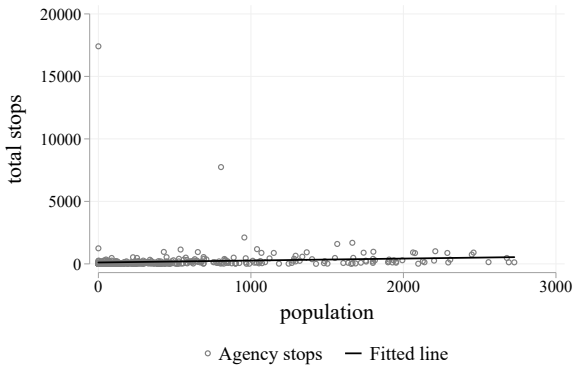
Stop rate = (stops / 2020 population) X 100.
Stop rate, residents only = (stops by residents / 2020 population) X 100.
Search rate = (searches / stops) X 100.
Contraband hit rate = (searches with contraband found / total searches) X 100.
Arrest rate = (arrests / stops) X 100.
Citation rate = (citations / stops) X 100.

FIGURE 1:
TOTAL STOPS ACROSS AGENCIES FOR MISSOURI

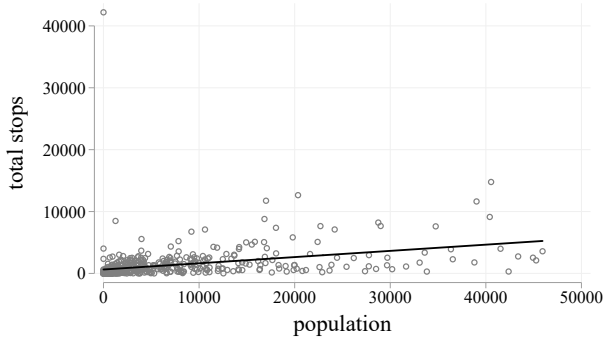
(a) Total stops, pop. below median



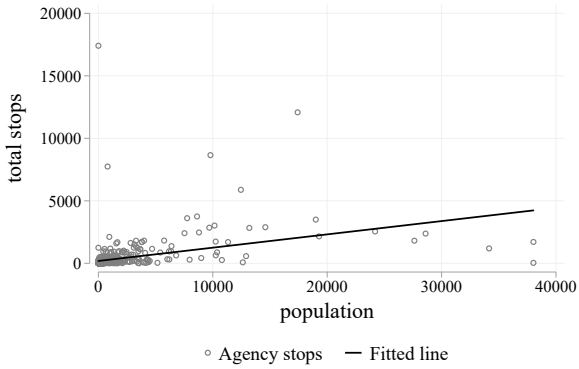
(b) Non-white total stops, pop. below median



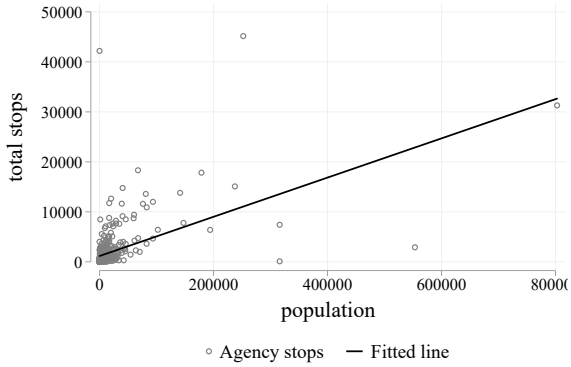
(c) Total stops, pop. below 95th percentile



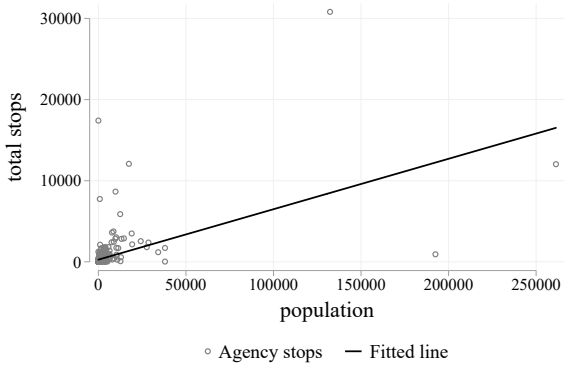
(d) Non-white total stops, pop. below 95th percentile



(e) Total stops, all



(f) Non-white total stops, all



Notes: Figure (a) depicts the total number of stops for all agencies with a total population less than the median population size (2,362 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 (45,261 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 2020 American Community Survey 5-year estimates for Missouri. The ACS only provides race-specific Hispanic estimates for Whites. To avoid double counting, we calculate the total non-White population as the total population minus the Non-Hispanic White population for each agency. Agencies without population (e.g., university police) are considered to have a population of zero.

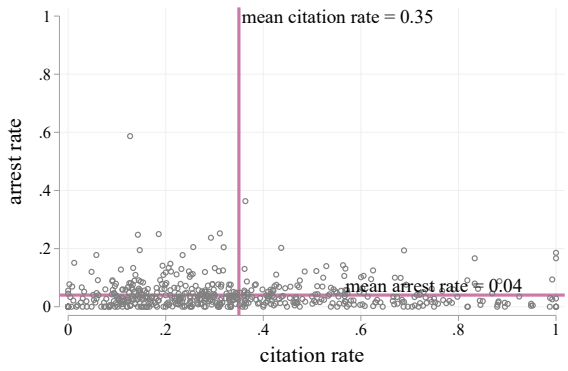
The panels in Figure 1 are split across three rows according to community size; this facilitates comparisons across agencies serving similar-size communities. The panels in the first row focus only on agencies serving smaller communities (less than median population, or 2,362 persons), while the second row of panels covers agencies serving all but the largest 5% of cities (i.e., communities with less than 45,261 persons) and the last row of panels includes all agencies, except the Missouri State Highway Patrol. Each panel in Figure 1 also includes a "best fit" line that indicates the relationship between stops and population (i.e., the stop rate for the agencies and communities listed in each panel). The agency detailed reports replicate Figure 1 and highlight the location of each agency in this figure, which facilitates comparisons to other agencies.

FIGURE 2:

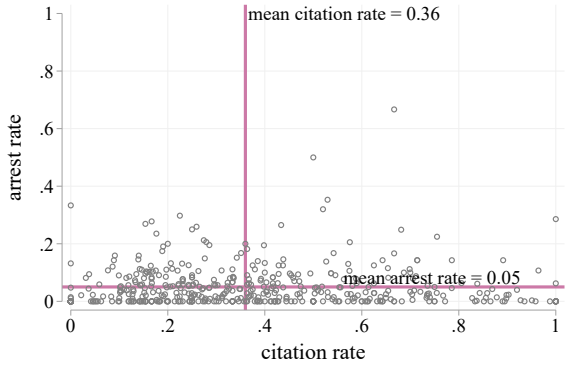
CITATION, ARREST, SEARCH AND HIT RATES ACROSS AGENCIES FOR MISSOURI

Figure 2 describes the other outcomes of interest for vehicle stops (i.e., arrests, citations, searches and the discovery of con¬traband during a search, or "hits"), by the agency. The data are reported as rates, for all stops (left side) and for only stops involving the non-white population (right side).

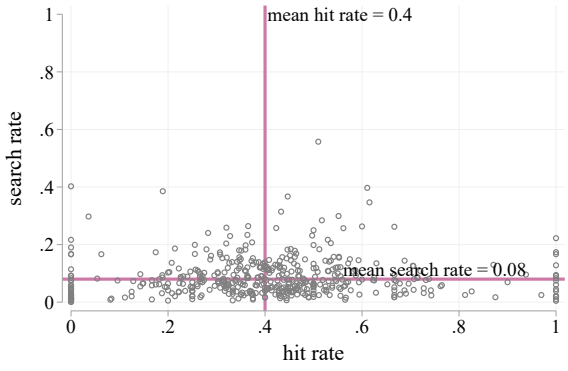
(a) Arrest and citation rate



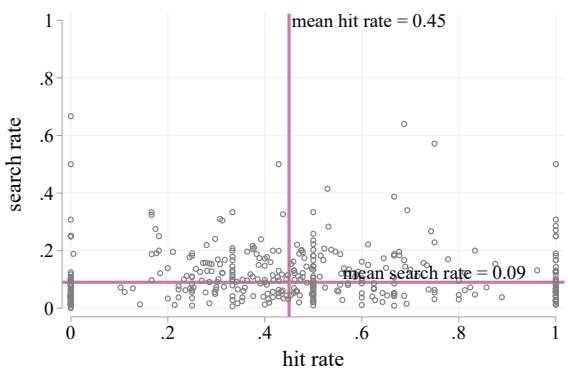
(b) Non-white arrest and citation rate



(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 panels in the first row of Figure 2 show the distribution of agency citation rates and arrest rates per 100 stops compared to the average rates for all agencies. Agencies located in the upper right quadrants of these figures exhibit higher than average arrest and citation rates, while those in the lower left quadrant exhibit lower than average rates for both arrests and citations.

The panels in the second row of Figure 2 describe the search rate per 100 stops and the contraband hit rate per search, as well as the mean for these rates across all agencies.[4] Agencies in the lower right quadrant conduct relatively few searches with higher contraband hit rates. Agencies in the upper left quadrant conduct relatively more searches with fewer contraband hit rates. The agency detail reports replicate Figure 2 and highlight the location of each agency in the figure.

DATA LIMITATIONS FOR COMPARING DIFFERENCES

When comparing these summary metrics across agencies or different population groups, several caveats must be considered. First, driving patterns and composition of the driving communities. Second, traffic enforcement, the frequency of calls to police, and discretionary stops and searches also vary across agencies. Consequently, agencies may exhibit different stop rates or search rates due to the composition of drivers encountered by the agency, the enforcement policies implemented by the agency, or some combination of these and other factors.

For example, traffic stops that are the result of investigative stops or emergency calls may generate higher arrest rates than stops resulting from the enforcement of speed limits. Similarly, an arrest will almost always lead to a search, while searches of motorists during routine traffic stops are likely more rare and highly discretionary. Any comparison of search rates and hit rates must then consider the frequency of discretionary searches. As more agencies report incident-level data, accounting for such distinctions may become possible in subsequent reports.

The same caveats apply when examining disparities in traffic stops and resulting outcomes across racial and ethnic groups. Observed differences may result from differential impacts of policing, differential treatment by police, or some combination of these and other factors. Differential treatment refers to bias (unintended or not), whereas differential impact refers to several potential sources of disparities that are not a direct result of bias on the part of officers conducting vehicle stops. An example of differential impact would be if one population group has more outstanding warrants on average, then that group would have a higher arrest rate not because officers' actions were different with respect to each group, but because the same enforcement action, arresting drivers with outstanding warrants, disproportionately impacts one group more than another. Similarly, existing patterns of residential concentrations by race may result in a differential impact of policing across racial and ethnic groups if officers more intensively patrol some beats due to more calls for service, higher crime rates, or other factors.

The sources of disparate impacts are themselves of interest and should be considered by policymakers and the public, but they are not the direct result of differential treatment by officers conducting vehicle stops. Consequently, the presence of large or persistent disparities is not necessarily an indication of bias in policing. For these reasons, no single metric is capable of identifying or disproving bias in policing. Instead, these data are presented for the purpose of informing a continuing conversation among the public and policymakers regarding differences in traffic stops and outcomes across agencies, as well as the sources of disparities in these measures across racial and ethnic groups.

DIFFERENTIAL HIT RATES

In addition to the metrics described in Table 1 above, a frequently employed proxy for bias in searches is the difference in contraband "hit rates" across groups. The logic of comparing hit rates is as follows: i) if discretionary searches are conducted for the purpose of discovering contraband, and ii) police search motorists only when they estimate that the probability of finding contraband exceeds some threshold (e.g., 30%), then unbiased search behavior will result in a hit rate that is equalized across groups, although search rates may vary across groups. For example, if one group is more likely to possess contraband, then unbiased search behavior will lead to a higher search rate for that group, until the probability of finding contraband is equalized across different groups. Consequently, differences in hit rates are an indicator of differential treatment, while differences in search rates are not necessarily an indicator of differential treatment.

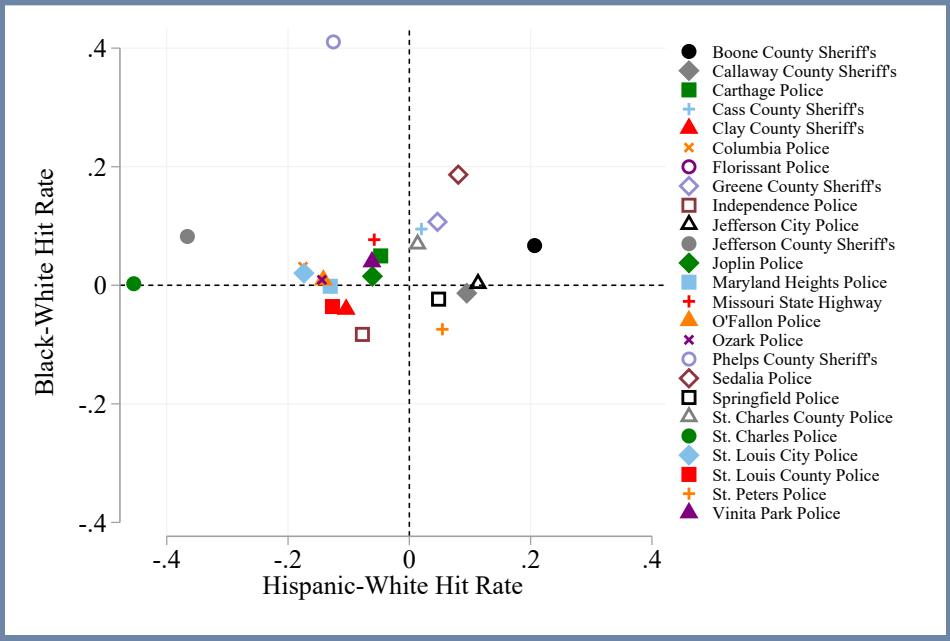
The analytical benefit of differential hit rates is based on the maintained assumption that searches are discretionary. However, this is not always the case. As an example, many agencies have a policy of searching any individual being arrested for obvious reasons of officer safety and investigative integrity. Thus, a high number of arrests might skew the hit rate with non-discretionary searches. The aggregate data reported by most agencies does not allow for any distinction between discretionary and non-discretionary searches, but as more agencies report incident-level data, such a distinction will be feasible. Yet another consideration is that large differences in search rates across groups may be considered problematic even if hit rates are equalized across racial and ethnic groups, since searches are invasive. For this reason, it is useful to consider the frequency of searches alongside hit rates. Finally, because searches are relatively infrequent, a comparison of differential hit rates is not informative unless there are a sufficient number of searches conducted for each population group.

[4] Agencies that conduct very few searches will be more likely to cluster at quotients of small values, such as 0, 0.5, and 1 for the search and hit rates. This effect is particularly noticeable in the non-White search and hit rate charts due to smaller raw counts of searches for this population.

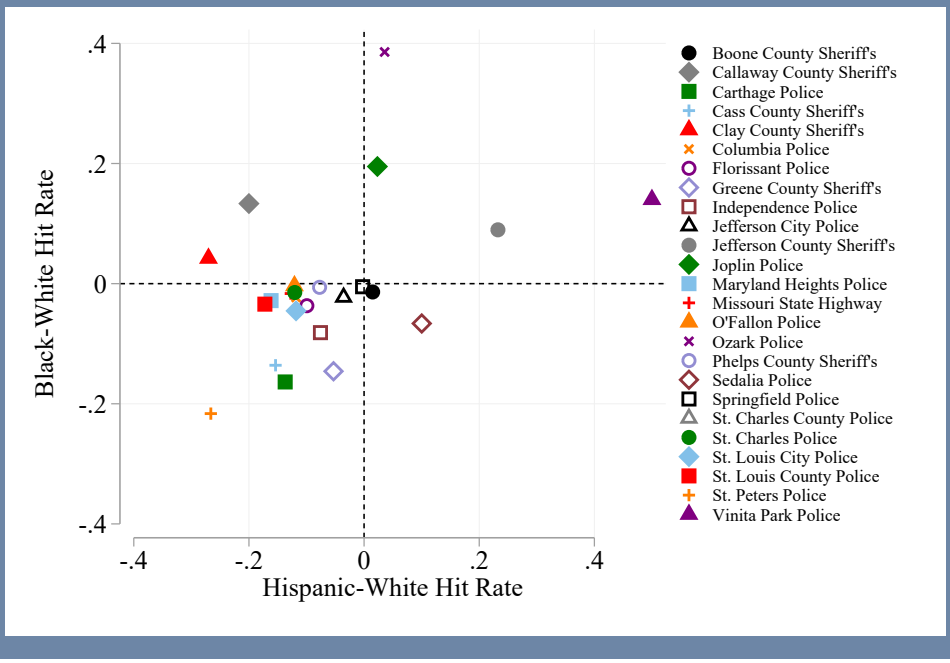
FIGURE 3:

RELATIVE HIT RATES FOR THE TOP 25 AGENCIES WITH THE MOST SEARCHES

(a) 2021



(b) 2010



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.

Figure 3 shows the differential hit rates for the 25 largest agencies in the state by the number of searches; the same agencies are shown for two snapshots in time: 2021 (in panel a) and 2010 (in panel b). The data are plotted such that the lower-left quadrant is associated with theoretical "over-searching" the Black and Hispanic population relative to the White population, while the upper-right quadrant is associated with theoretical "over-searching" the White population. Relative to the Black and Hispanic population. If all searches are discretionary, then unbiased searches would result in all agencies being located at the origin in the figures (0,0). However, deviations from the center are expected, since not all searches are discretionary. Consequently, the location of a given agency in these figures is not necessarily an indication of bias in searches by police, but persistent outliers may warrant further examination.

Looking across the two panels of Figure 3, it is apparent that differential hit rates have drifted over time away from the lower-left quadrant associated with theoretical over-searching Black and Hispanic motorists, and toward the upper-right quadrant associated with theoretical under-searching of Black and Hispanic motorists. However, this apparent shift is based only on these two snapshots in time, so it may be the result of random variation in the data as opposed to a persistent trend. Future reports will explore patterns in differential hit rates over time and across agencies in more detail. And as more agencies report incident-level data on stops, it will be possible to calculate differential hit rates using only the subset of discretionary searches.

DISPARITY INDEX

Another measure that has been examined in previous reports is the "Disparity Index," or the ratio of a particular group's share of traffic stops divided by that group's share of the population. For example, if 100% of traffic stops involve Black drivers, but the percentage of Black residents in the associated population is only 10%, then the Disparity Index would be 10 for that hypothetical case.

When the Disparity Index is equal to 1, then the reference group is represented equally in both traffic stops and population. For values greater than 1, the reference group is over-represented in traffic stops relative to the population. Consequently, the Disparity Index is a summary measure that captures the same information that can be gleaned by looking at stop rates across groups, albeit in one convenient number. However, because it is a ratio, the Disparity index is also problematic for making comparisons across communities.

For example, the maximum value of the Disparity Index varies with the reference group's share of the population. In other words, the larger the share of population for a given group, the lower the maximum possible Disparity Index is for that group. Reconsider the example above when 100% of traffic stops involve Black drivers, but now the community population is 50% Black. The Disparity Index will be 2, even though in both cases, only Black drivers are stopped. For this reason, it is not informative to compare Disparity Indices across communities with very different population shares.

As with the other metrics discussed above, the Disparity Index is not a measure of bias in policing. Disparities may be generated by many factors, including:

- Policing strategies and policies: Law enforcement officials make strategic choices on where and when to police that may disproportionately impact various racial/ethnic groups. Strategies such as concentrating patrols in areas within a city with higher crime rates, could lead to a disproportionate impact if that area has a higher concentration of a racial/ethnic group than the jurisdiction as a whole.

- Differences in real rates of offending between racial/ethnic groups: The correlation of dynamics such as economic or social disadvantage with race or ethnicity may lead to differences in rates of real offending. If there are real differences in offending rates, traffic stops should theoretically increase or decrease accordingly. (Disparate impact)

- Implicit or Explicit bias: Implicit bias refers to subconscious or unconscious biases that influence the decisions and perceptions of individuals. Implicit bias can be difficult to detect, even for the individual operating under its influence. Explicit bias refers to conscious bias towards a specific group. (Disparate treatment)

- Incorrect population benchmark: Estimated population characteristics may not accurately measure the racial and ethnic composition of drivers. Further, changes in population demographics may not be fully captured in population estimates.

For these reasons, changes in the value of the Disparity Index over time are not informative about changes in the prevalence of bias in traffic stops. In other words, it is possible for bias in traffic stops to be increasing even though the Disparity Index is falling due to changing demographics or policing patterns; the converse is also true.

TABLE 2: DISPARITY INDEX FOR MISSOURI

Table 2 shows the Disparity Index for each racial and ethnic group, using both -- all traffic stops and only stops of residents. The population shares for each group are taken from the most recent American Community Survey conducted by the U.S. Census Bureau. Table 3 shows the Disparity Index for every year that this report has been generated. However, previous versions of this report have employed different sources for population estimates, so caution should be used when comparing Disparity Index values over time (see notes to Table 3).

	Total	White	Black	Hispanic	Native American	Asian	Other
Population							
2020 population	4903578	3954573	539111	176807	19999	101746	186829
2020 population %	100	80.65	10.99	3.61	.41	2.07	3.81
Stops							
All Stops	1226823	940468	226196	31673	2090	10897	15499
Resident Stops	275333	220195	44797	5314	386	1848	2793
Disparity Index							
All Stops		.951	1.677	.716	.418	.428	.332
Resident Stops		.992	1.48	.535	.344	.323	.266

Notes: 2020 Disparity Index is based on 2016-2020 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 2020 race percentages above.

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 2021 FOR MISSOURI

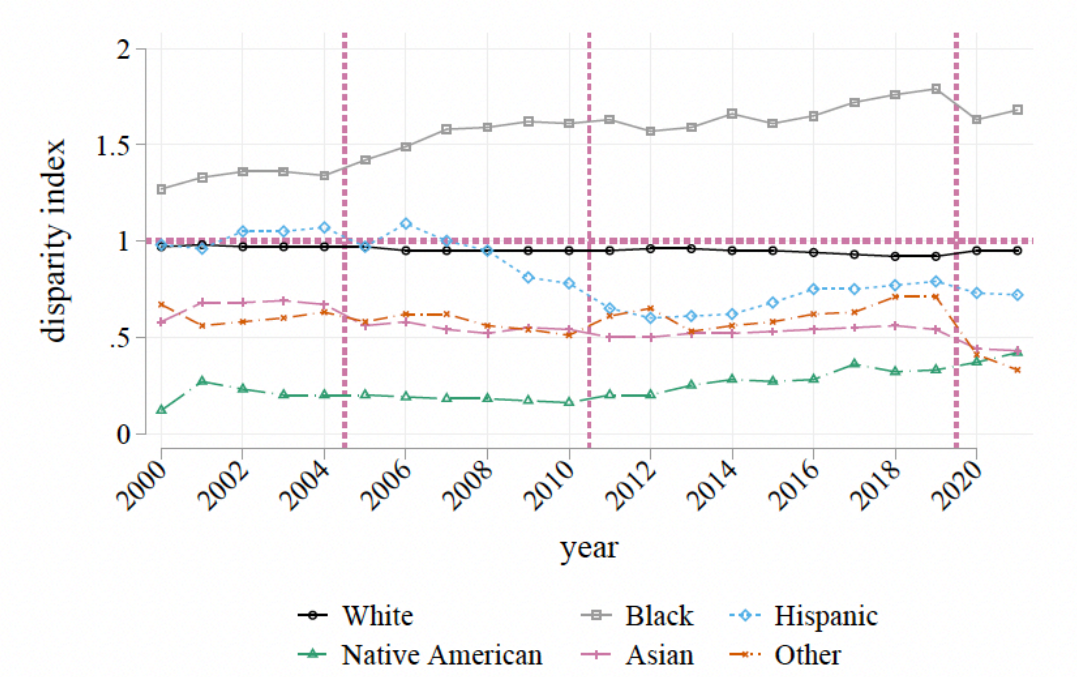
	White	Black	Hispanic	Native American	Asian	Other
2000	0.97	1.27	0.98	0.12	0.58	0.67
2001	0.98	1.33	0.96	0.27	0.68	0.56
2002	0.97	1.36	1.05	0.23	0.68	0.58
2003	0.97	1.36	1.05	0.2	0.69	0.6
2004	0.97	1.34	1.07	0.2	0.67	0.63
2005	0.97	1.42	0.97	0.2	0.56	0.58
2006	0.95	1.49	1.09	0.19	0.58	0.62
2007	0.95	1.58	1	0.18	0.54	0.62
2008	0.95	1.59	0.95	0.18	0.52	0.56
2009	0.95	1.62	0.81	0.17	0.55	0.54
2010	0.95	1.61	0.78	0.16	0.54	0.51
2011	0.95	1.63	0.65	0.2	0.5	0.61
2012	0.96	1.57	0.6	0.2	0.5	0.65
2013	0.96	1.59	0.61	0.25	0.52	0.53
2014	0.95	1.66	0.62	0.28	0.52	0.56
2015	0.95	1.61	0.68	0.27	0.53	0.58
2016	0.94	1.65	0.75	0.28	0.54	0.62
2017	0.93	1.72	0.75	0.36	0.55	0.63
2018	0.92	1.76	0.77	0.32	0.56	0.71
2019	0.92	1.79	0.79	0.33	0.54	0.71
2020	0.95	1.63	0.73	0.37	0.44	0.41
2021	0.95	1.68	0.72	0.42	0.43	0.33

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, 2011-2019 use the 2010 Decennial Census (ages 16+), and 2020-2021 use the annual 5-year population estimates from the American Community Survey (ages 16+) for Missouri. Hispanics may be of any race. Other includes persons of two or more races or unknown race.

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.

The Disparity Index for traffic stops and a given population in this year's report can show values that are greater than one or less than one. Changes to the Disparity Index over time for different groups are captured in Figure 4, which plots the values in Table 3 over time (the vertical lines in Figure 4 indicate a change in the source for population used in calculating the Disparity Index). Again, the recent changes in the value of the Disparity Index for any given population reflects multiple factors, including changing population shares between the 2010 census data employed in 2019's report and the 2020 ACS population estimates employed in this report.

TABLE 4: DISPARITY INDEX FROM 2000 TO 2021 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, 2011-2019 use the 2010 Decennial Census (ages 16+), and 2020-2021 use the annual 5-year population estimates from the American Community Survey (ages 16+) for Missouri. Hispanics may be of any race. Other includes persons of two or more races or unknown race. Changes in the source of population estimates 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.

Tables 4 and 5 provide more detailed information on traffic stops, also broken down by race and ethnic group. The agency reports follow the same presentation format as shown here, but exclude the figures showing differential hit rates by community.

TABLE 4: NUMBERS OF STOPS BY RACE FOR MISSOURI

	Total	White	Black	Hispanic	Native American	Asian	Other
All Stops	1226823	940468	226196	31673	2090	10897	15499
Resident Stops	275333	220195	44797	5314	386	1848	2793
Non-Resident Stops	480468	347744	109217	10121	1008	4048	8330
Reason for Stop	.	.	.	.	.	.	.
Moving	725544	559900	125258	21795	1346	8218	9027
Equipment	167121	130499	29024	3835	288	1106	2369
License	339286	251135	76523	5823	434	1555	3816
Investigative	45961	31729	11688	1197	89	298	960
Stop Outcome	.	.	.	.	.	.	.
Searches	83981	61088	19487	2509	129	329	439
Contraband	33519	24352	7958	860	61	117	171
Arrests	48955	36484	10426	1521	74	214	236
Citation	564834	403386	132477	17452	938	5297	5284
Warning	916810	738248	132295	24917	3873	7837	9640
No Action	44914	30293	12231	1405	54	357	574
Location of Stop	.	.	.	.	.	.	.
Interstate Hwy	164860	112639	39646	7794	301	2644	1836
US Hwy	203974	170932	23980	5848	411	1545	1258
State Hwy	257934	219142	27838	5968	448	1998	2540
County Road	77295	54509	19826	960	92	632	1276
City Street	438922	320716	97498	10200	718	3499	6291
Other	82975	61756	17367	902	86	570	2294
Driver Gender	.	.	.	.	.	.	.
Male	762792	581938	138700	23554	1370	7044	10186
Female	464544	357995	87434	8099	707	3833	6476
Driver Age		.	.	.	.	.	.
17 and Under	49787	42652	4972	1162	62	287	652
18-29	459934	331579	103551	13874	816	4004	6110
30-39	291634	217177	58766	8559	527	2638	3967
40 and Over	420898	344826	58797	7910	633	3885	4847

Table 4 Note: Data reported by the agency to the Attorney General's Office covering all traffic stops in 2021.

TABLE 5:
SEARCH STATISTICS FOR MISSOURI

	Total	White	Black	Hispanic	Native American	Asian	Other
Probable Cause							
Consent	39745	30947	7319	1077	52	156	194
Inventory	6324	4781	1255	212	10	24	42
Drug/Alcohol Odor	18791	10632	7384	574	30	66	105
Incident to Arrest	26644	19061	6298	987	47	115	136
Plain View Contra.	6896	4714	1922	200	13	24	23
Reas. Susp-Weapon	2783	1546	1135	77	1	12	12
Drug-Dog Alert	2663	2194	364	74	4	8	19
Other	4329	3707	523	61	4	11	23
What Searched	.	.	.	.	.	.	.
Driver	15495	11440	3195	680	24	81	75
Car/Property	15476	11353	3322	593	24	101	83
Driver & Property	52685	37940	12971	1267	82	145	280
Search Duration	.	.	.	.	.	.	.
0-15 Minutes	74580	53717	17763	2262	108	339	391
16-30 Minutes	8796	6923	1560	215	18	29	51
31+ minutes	1443	1176	195	56	4	5	7
Contraband Found	.	.	.	.	.	.	.
Drugs/Alcohol	34292	25022	8024	908	66	113	159
Currency	450	268	148	25	0	7	2
Weapon	3237	1523	1624	69	3	6	12
Stolen Property	967	674	256	28	3	1	5
Other	756	602	118	28	1	5	2
Arrest Charge	.	.	.	.	.	.	.
Outstanding Warrant	19368	13303	5457	432	33	55	88
Drug Violation	13479	10225	2851	292	27	35	49
Resist Arrest	1736	1162	527	35	3	2	7
Off Against Person	1146	741	353	37	7	4	4
Traffic Violation	28741	23283	4246	852	76	150	134
DWI/BAC	12728	9978	1879	648	25	95	103
Property Offense	1705	1141	526	29	2	1	6
Other	8349	6549	1456	227	20	35	62

Table 5 Notes: Data reported by the agency to the Attorney General's Office covering all traffic stops in 2021.

NON-COMPLIANT AGENCIES

- Bellflower Police Dept.*
- Berger Police Dept.
- Bernie Police Dept.*
- Blackburn Police Dept.
- Brunswick Police Dept.
- Butler Police Dept.*
- Centralia Police Dept.*
- Clark Police Dept.*
- Country Club Hills Police Dept.*
- Crocker Police Dept.
- Dallas County Sheriff's Dept.
- DeSoto Police Dept.
- Dixon Police Dept.
- Doolittle Police Dept.
- Drexel Police Dept.*
- Edgerton Police Dept.
- Ellington Police Dept.
- Elsberry Police Dept.
- Eminence Police Dept.
- Fair Play Police Dept.
- Ferguson Police Dept.
- Ferrelview Police Dept.
- Flordell Hills Police Dept.*
- Foley Police Dept.
- Freeman Police Dept.
- Glasgow Police Dept.
- Goodman Police Dept.
- Grain Valley Police Dept.
- Henrietta Police Dept.
- Humansville Police Dept.
- Indian Point Police Dept.
- Jefferson City Police Dept.*
- King City Police Dept.
- La Grange Police Dept.
- Laddonia Police Dept.
- Lake Winnebago Police Dept.
- Lanagan Police Dept.
- Lathrop Police Dept.*
- Leeton Police Dept.*
- Lexington Police Dept.
- Liberal Police Dept.
- Lincoln University Police Dept.*
- Louisiana Police Dept.*
- Maries County Sheriff's Dept.
- Marshfield Police Dept.
- Marston Police Dept.
- Maryland Heights Police Dept.*
- Miner Police Dept.
- Morehouse Police Dept.
- Morrisville Police Dept.*
- Newburg Police Dept.*
- Orrick Police Dept.
- Otterville Police Dept.
- Portageville Police Dept.
- Reeds Spring Police Dept.*
- Rich Hill Police Dept.
- Strasburg Police Dept.
- Sturgeon Police Dept.
- Unionville Police Dept.*
- Velda Police Dept.*

* Agency did not submit data by the statutory deadline, but did provide data for inclusion in the report.

AGENCIES WITH ZERO STOPS

- Annapolis Police Dept.
- BNSF Railway Police Dept.
- Breckenridge Hills Police Dept.
- Bucklin Police Dept.
- Camden Police Dept.
- Canalou Police Dept.
- City of Oakland Police Dept.
- Cooter Police Dept.
- Crystal Lakes Police Dept.
- East Prairie Police Dept.
- Emma Police Dept.
- Forest City Police Dept.
- Frankford Police Dept.
- Garden City Police Dept.
- Iron Mountain Lake Police Dept.
- Jackson County Drug Task Force
- Keytesville Police Dept.
- Lilbourn Police Dept.
- Logan-Rogersville School Po-lice Dept.
- Metropolitan Community Col-lege Police Dept.
- Mineral Area College Depart-ment of Public Safety
- Missouri Department of Reve-nue Criminal Investigation Di-vision
- Missouri Division of Alcohol & Tobacco Control
- Morrisville Police Dept.
- Newburg Police Dept.
- New Franklin Police Dept.
- Norfolk Southern Railway Po-lice Dept.
- Stewartsville Police Dept.
- St. Louis Community College Police Dept.
- Summersville Police Dept.
- Terminal Railroad Association of St. Louis Police Dept.
- Union Pacific RR Police- Kansas City-St. Louis Police Dept.
- Wardell Police Dept.
- Willard School Police Dept.
- Winona Police Dept.

APPENDIX
POPULATION DATA

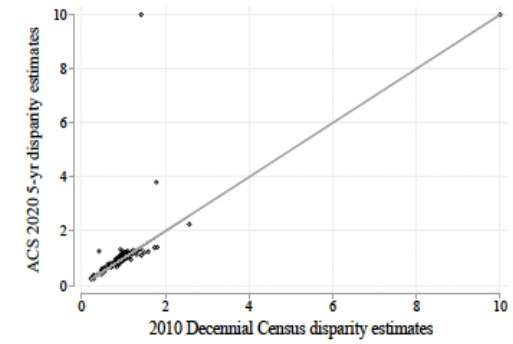
As discussed in the report, population estimates factor into the calculation of the Disparity Index. Thus, it is important to use the most accurate population estimates available. In this report, the 2019 5-year American Community Survey population estimates are used for each agency. However, past reports have used other estimates, which makes year to year comparisons difficult. Specifically, the 2011-2019 reports used population estimates from the 2010 Decennial Census, which were more accurate earlier in the decade and gradually became outdated in later years. It is important to note that some of the changes in the Disparity Index, either positive or negative, are due to both changes in traffic stops and the change in the population estimates.

Figure 5 plots the 2021 Disparity Index calculated using both the 2020 ACS and 2010 Decennial population for each agency by race. The 45-degree line indicates where the two indices are the same. Points above the line are agencies with a higher Disparity Index using the more recent population estimates, while points below the line are agencies with a higher Disparity Index using the 2010 population estimates.[5] The prevalence of agencies below the line for many racial/ethnic groups suggests that many agencies' disparity indices may have been driven higher by increasing diversity in their residential populations since the last decennial census, though this is not the case for all agencies.

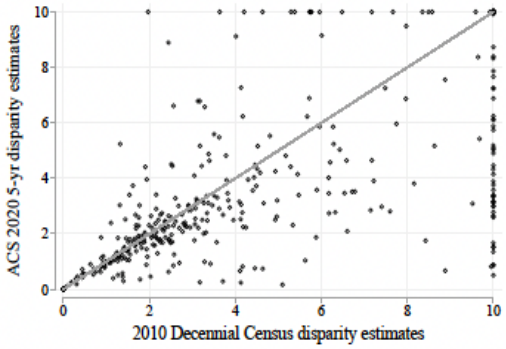
[5] The Disparity Index is truncated at 10 to make the graphs more readable, which creates some of the observed clustering along the perimeter of the figures.

FIGURE 5:
DIFFERENCES BETWEEN DISPARITY INDICES USING DECENNIAL 2010 & AMERICAN COMMUNITY SURVEY 2020

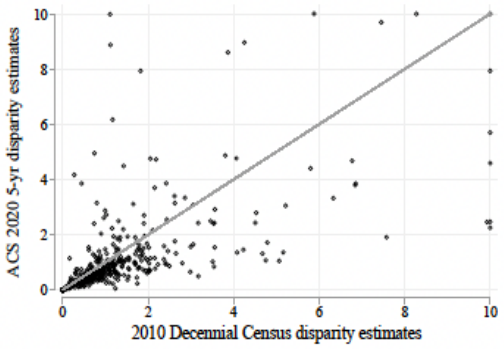
(a) White



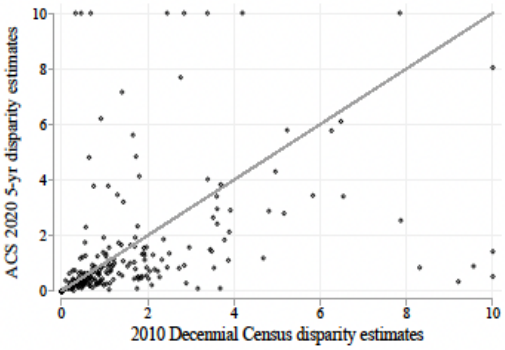
(b) Black



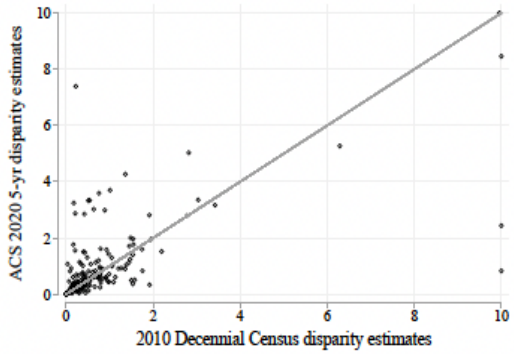
(c) Hispanic



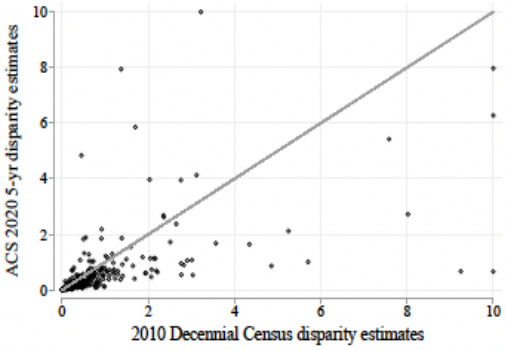
(d) Asian



(e) Native American



(f) Other



Notes: The disparity indices based on the population estimates from the five-year 2020 American Community Survey for ages 16+, used in this report, and the 2010 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 anagency. The disparity indices are truncated at 10 for visualization purposes.

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