MISSOURI VEHICLE STOPS 2023 ANNUAL REPORT

MISSOURI ATTORNEY GENERAL'S OFFICE

Missouri Vehicle Stops 2023 Annual Report

Contents

ANDREW BAILEY
Missouri Attorney General

ANDREW BAILEY SERVES AS MISSOURI'S 44ᵀᴴ ATTORNEY GENERAL

Andrew Bailey
Missouri Attorney General

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 aggregates the traffic stops data from 508 law enforcement agencies across the state, 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. This data provides more context for the data collected and was fully available in the 2021 report.

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 improved

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.

Additional improvements to the VSR may become feasible as more agencies report detailed incident-level data on traffic stops. 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 more in-depth analyses that take into consideration other factors such as driver age, driver sex, and time of stop. Multi-variate analysis of incident-level data will significantly improve the informational content of the VSR. The AGO has implemented an optional data reporting framework that collects detailed information 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 aggregate data reported in the VSR provides a detailed comparison of differences in stops and outcomes of stops by race and ethnicity, for the state overall and for each agency. The VSR also reports relevant population data and calculates stop rates for the purpose of comparing differences by race and ethnicity relative to population, for the state and for each agency. However, beginning this year, the VSR no longer calculates the "Disparity Index" for each agency or overall for the state. This is because the Disparity Index is both redundant and problematic as a summary measure for understanding differences in traffic stops across population groups (see appendix).

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

STATEWIDE METRICS

This report summarizes traffic stop data from 538 law enforcement agencies in Missouri that reported data for calendar year 2023. Of these, 30 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 95% of the 569 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: Alma Police Dept, Appleton City Police Dept, Arcadia Police Dept, Camden Police Dept, Cameron Schools Police Dept, Clark Police Dept, Corder Police Dept, Crowder College Police Dept, Crystal Lakes Police Dept, East Lynne Police Dept, Glen Echo Park Police Dept, Green City School District Police Dept, Humansville Police Dept, Jackson County Drug Task Force, Laddonia Police Dept, Missouri Department of Revenue, Missouri Division of Alcohol & Tobacco, Pasadena Hills Police Dept, Springfield School Police, St. Charles Community College Police, St. Louis Community College Police Dept, Union Pacific RR Police-Kansas City, Wardell Police Dept, Waverly Police Dept

WWW

STATEWIDE METRICS CONTINUED

The 2023 VSR can be viewed as representing the new equilibrium after many years of interpreting the VSR through the context of the COVID-19 environment, which disrupted normal driving patterns and police operations. Although patterns are returning to normal, policing practices in some instances may still look different from 2019. That said, the 2023 report reflects conditions under the "new normal." In 2023, overall stops increased by 7% and arrests increased by 17% from 2022, while stops remained 10% and arrests 22.5% lower than 2019 levels. Searches were 17% lower than in 2022 and 39.5% lower than in 2019, Hit rates (i.e., rate of finding contraband per search) were also down by 35% in 2023 relative to 2019 and 2022.

In 2023, the agencies filing reports recorded 1,367,150 vehicle stops, resulting in 61,990 searches and 57,713 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	.	.	.	.	.	.	.
2022 ACS pop.	4940395	3925816	535423	191155	14295	105151	285027
2022 ACS pop. %	100	79.46	10.84	3.87	.29	2.13	5.77
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	1367150	1053004	235979	42736	2288	14148	18995
Resident stops	684743	565766	89428	18403	837	5583	4726
Searches	61990	45701	12276	2739	92	324	858
Contraband	14757	11652	2522	446	12	51	74
Arrests	57713	43226	11326	2387	92	308	374
Citations	567793	403112	130403	21532	908	6478	5360
Rates	.	.	.	.	.	.	.
Stop rate	27.67	26.82	44.07	22.36	16.01	13.45	6.66
Stop rate, residents	13.86	14.41	16.7	9.63	5.86	5.31	1.66
Search rate	4.53	4.34	5.2	6.41	4.02	2.29	4.52
Contraband hit rate	23.81	25.5	20.54	16.28	13.04	15.74	8.62
Arrest rate	4.22	4.11	4.8	5.59	4.02	2.18	1.97
Citation rate	41.53	38.28	55.26	50.38	39.69	45.79	28.22

Notes: The American Community Survey five-year population estimates for ages 16+ as of 2022 are used for Missouri. The ACS only provides race-specific Hispanic estimates for White, meaning non-White Hispanic residents are double-counted in the 2022 race percentages above.

Stop rate = (stops / 2022 population) X 100.
Stop rate, residents only = (stops by residents / 2022 population) X 100.
Search rate = (searches / stops) X 100.
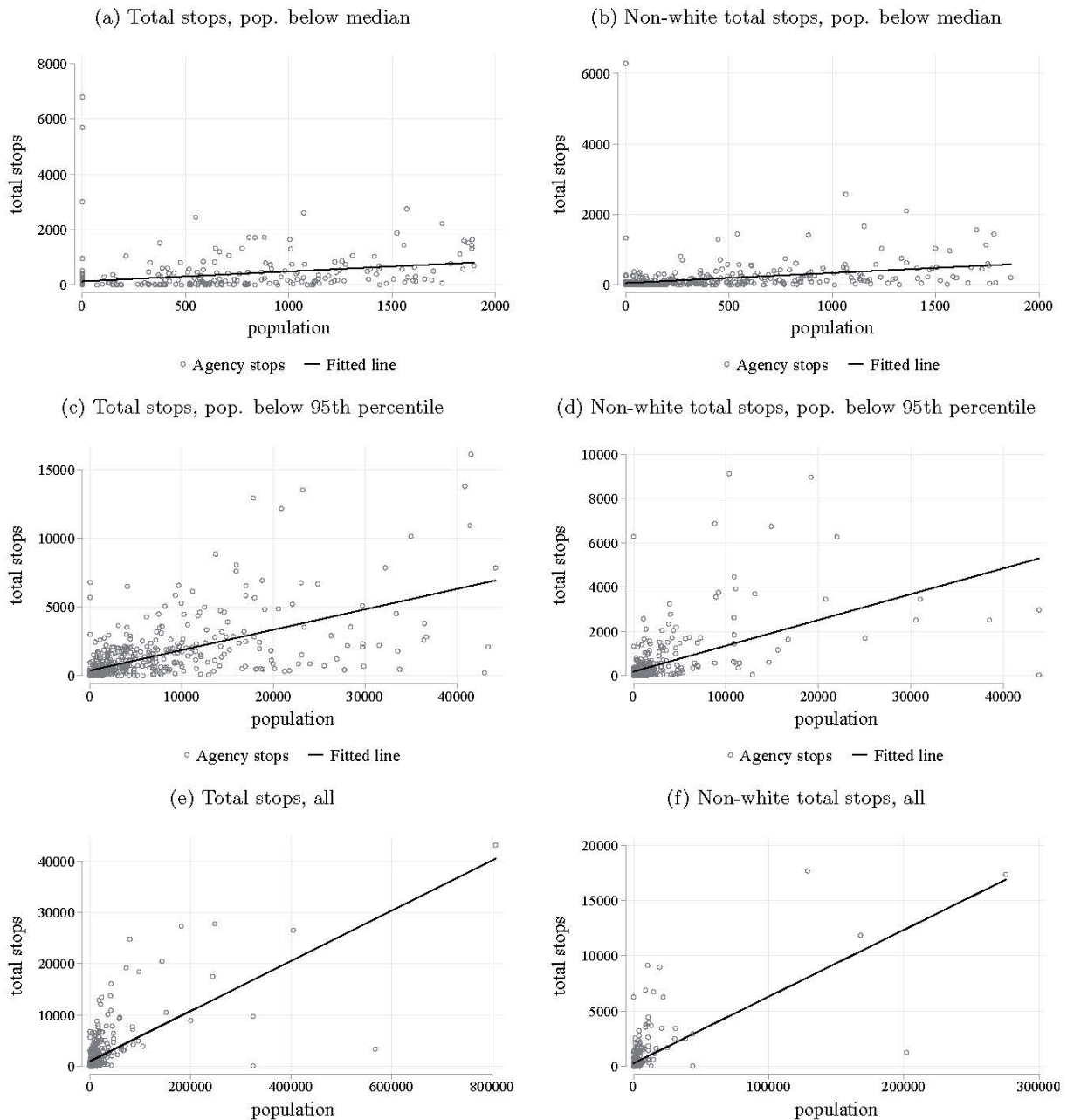*Contraband hit rate = (searches with contraband found / total searches) X 100.*
Arrest rate = (arrests / stops) X 100.
Citation rate = (citations / stops) X 100.

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 aggregate 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.

Figure 1 provides more context by comparing traffic stops by agencies to their associated community population for both the total population (left side) and the non-white population (right-side) in each community. For example, the Columbia Police Department is matched to the total and non-white population for the city of Columbia, and so on. Agencies that do not match directly to census geographies, such as university and airport police, are assigned a population of zero.

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 (1,896.5 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 (46,171 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 2022 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 1,953 persons), while the second row of panels covers agencies serving all but the largest 5% of cities (i.e., communities with less than 43,795 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.
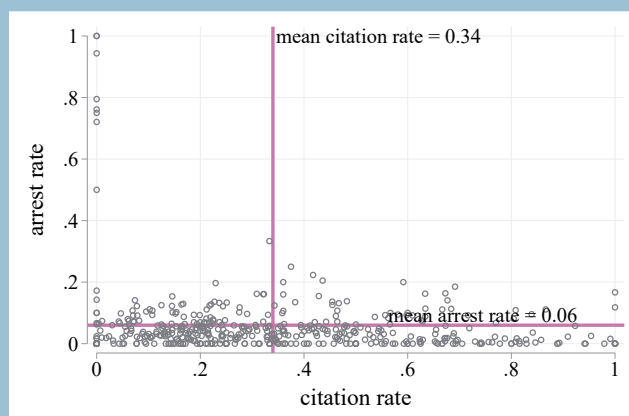
FIGURE 2:
CITATION, ARREST, SEARCH AND HIT RATES ACROSS AGENCIES FOR MISSOURI

Figure 2 describes the other outcomes of interest for vehicle stops (i.e., arrests, citations, searches and the discovery of contraband 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).
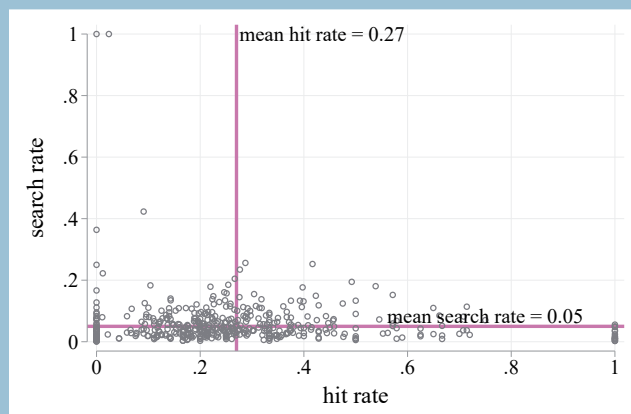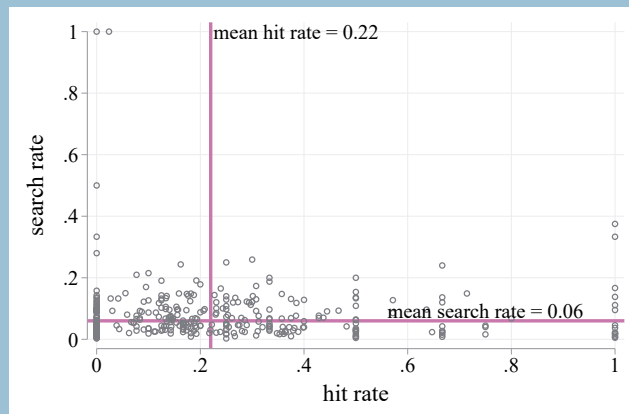
(a) Arrest and citation rate
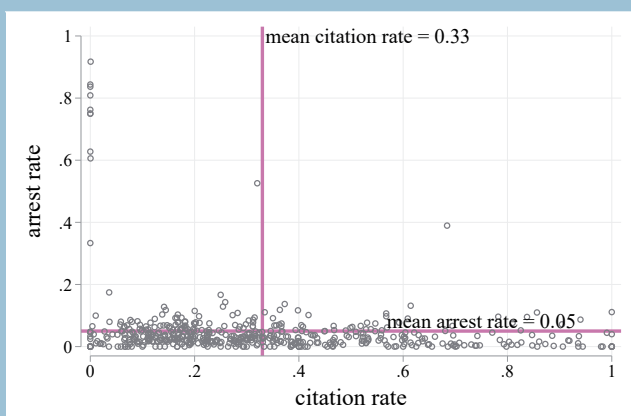
(b) Non-white arrest and citation rate

(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.

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 differences in these measures across racial and ethnic groups. However, any analysis of such differences must take into consideration that disparities across population groups 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. (Disparate impact)

- Differences in *real* rates of offending between racial/ethnic groups: The correlation of dynamics such as economic disparity between different racial groups 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)

- Explicit bias: 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. (Measurement error)

---

[4] *Agencies that conduct very few searches will be more likely to cluster at quotients of small values, such as 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.*

DIFFERENTIAL HIT RATES

A "hit rate" is the rate at which contraband is located pursuant to a search. 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 analytical benefit of differential hit rates is based on the maintained assumption that all searches are discretionary. However, this is not always the case. As an example, for obvious reasons such as officer safety and investigative integrity, many agencies have a policy of searching any individual after being arrested. Additionally, when law enforcement arrests a driver and impounds the vehicle, the officer will likely conduct an inventory search of the vehicle pursuant to agency policy. These searches, searches incident to arrest and inventory searches, differ from vehicle searches based on probable cause to believe contraband will be located. 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 searches based on probable cause and searches incident to arrest or inventory 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.

FIGURE 3:
RELATIVE HIT RATES FOR THE TOP 25 AGENCIES WITH THE MOST SEARCHES

(a) 2023

(b) 2013
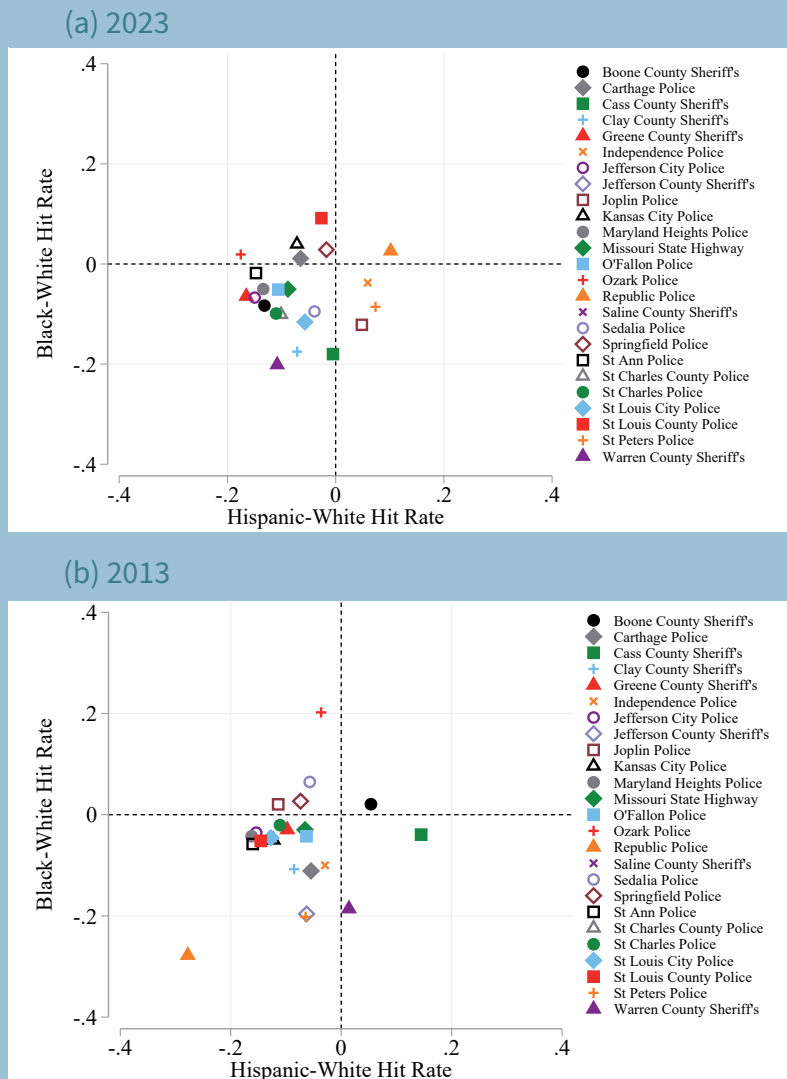
Notes: The race specific hit rate is calculated as the number of searches that find contraband divided by the total number of searches for a specific race. The difference between the Black and White hit rates and the Hispanic and White hit rates are plotted on the y- and x-axis, respectively.

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: 2023 (in panel a) and 2013 (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. 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.

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	1367150	1053004	235979	42736	2288	14148	18995
Resident Stops	684743	565766	89428	18403	837	5583	4726
Non-Resident Stops	682407	487238	146551	24333	1451	8565	14269
Reason for Stop	.	.	.	.	.	.	.
Moving	764841	591566	123633	27901	1497	10354	9890
Equipment	176482	139933	26997	5319	282	1438	2513
License	452847	338247	95981	9733	527	2371	5988
Investigative	39991	27833	9218	1491	70	345	1034
Called for Service	10513	7294	2511	346	22	74	266
Officer Initiative	16649	11896	3620	700	33	138	262
Det./Crime Bulletin	1553	999	450	31	1	8	64
Other	11275	7686	2692	447	19	133	298
Stop Outcome	.	.	.	.	.	.	.
Searches	61990	45701	12276	2739	92	324	858
Contraband	14757	11652	2522	446	12	51	74
Arrests	57713	43226	11326	2387	92	308	374
Citation	567793	403112	130403	21532	908	6478	5360
Warning	1047626	847394	142459	33746	1569	10564	11894
No action	36554	24609	8780	1803	83	363	916
Citation/warning violation	.	.	.	.	.	.	.
Moving	765395	595607	118645	29570	1477	11283	8813
Equipment	250111	200309	36890	8232	353	2006	2321
License/Registration	595274	453120	113346	18321	704	3736	6047
Arrest violation	.	.	.	.	.	.	.
Outstanding warrent	24071	16521	6706	555	31	79	179
Drug Violation	5842	4812	766	91	7	7	159
Resist Arrest	1808	1138	582	65	3	8	12
Off Against Person	3239	2579	536	96	2	6	20
Traffic	14866	10675	3135	813	37	88	118
DWI/BAC	14919	11195	2349	1063	29	148	135
Property	1353	891	411	37	2	6	6
Other	4835	3819	819	141	4	16	36
Officer Assignment	.	.	.	.	.	.	.
General Parol	1131834	889809	178094	36448	1928	11878	13677
Dedicated Traffic	164842	117494	37440	4674	225	1624	3385
Special Assignment	43552	33319	7800	1319	97	475	542
Location of Stop	.	.	.	.	.	.	.
Interstate hwy	165213	113052	37900	9113	403	3284	1461
US hwy	237522	198071	26786	8175	399	2359	1732
State hwy	323395	272562	36016	8609	487	2476	3245
County road	83004	58824	20405	1337	146	834	1458
City street	484820	360582	95981	14676	733	4619	8229
Other	73232	50312	18924	838	119	605	2434
Driver Gender	.	.	.	.	.	.	.
Male	837542	642649	140122	32021	1584	9454	11712
Female	529119	410772	95910	10714	704	4694	6325
Driver Age	.	.	.	.	.	.	.
17 and under	51848	44509	4795	1387	66	298	793
18-29	466674	342160	93532	17966	943	5249	6824
30-39	331029	243388	67160	11866	556	3335	4724
40-64	440378	356289	62913	10952	653	4700	4871
65 and over	75616	66982	6599	563	69	562	841

Table 4 Note: Data reported by the agency to the Attorney General's Office covering all traffic stops in 2023.

TABLE 5:
SEARCH STATISTICS BY RACE FOR MISSOURI

	Total	White	Black	Hispanic	Native American	Asian	Other
Probable cause	.	.	.	.	.	.	.
Consent	28185	22109	4389	1021	41	148	477
Inventory	5557	3981	1227	270	3	21	55
Drug/alcohol odor	3124	2209	695	163	3	16	38
Incident to arrest	29199	20337	6949	1554	49	167	143
Plain view contra.	2677	2020	531	88	1	13	24
Reas. susp-weapon	1608	862	673	54	6	3	10
Drug-dog alert	2352	2043	226	63	2	0	18
Other	951	727	185	29	0	3	7
What searched	.	.	.	.	.	.	.
Driver	18502	12754	4466	1044	37	111	90
Car/property	10730	8174	1833	547	15	101	60
Driver & Property	31929	24480	5957	1136	40	113	203
Search duration	.	.	.	.	.	.	.
0-15 minutes	55155	40523	11389	2525	89	311	318
16-30 minutes	5444	4443	778	173	4	12	34
31+ minutes	6444	966	159	5308	2	4	5
Contraband found	.	.	.	.	.	.	.
Drugs	11036	9144	1593	228	8	29	34
Alcohol	2537	1928	358	203	2	19	27
Currency	176	94	60	16	3	2	1
Weapon	1851	968	824	45	0	7	7
Stolen property	544	377	142	16	0	0	9
Other	805	660	104	26	0	7	8

Table 5 Notes: Data reported by the agency to the Attorney General's Office covering all traffic stops in 2023.

NON-COMPLIANT AGENCIES

- **Belle Police Dept**
- **Berkeley Police Dept***
- **Blackburn Police Dept***
- **Country Club Village Police Dept**
- **Cuba Police Dept***
- **Duenweg Police Dept**
- **East Prairie Police Dept**
- **Fair Grove Police Dept***
- **Fairview Police Dept**
- **Farmington Police Dept**
- **Foley Police Dept***
- **Glasgow Police Dept**
- **Hawk Point Police Dept**
- **Holt County Sheriff's Office**
- **Kahoka Police Dept**
- **King City Police Dept**

- **Knob Noster Police Dept**
- **Lexington Police Dept***
- **Louisiana Police Dept**
- **Maplewood Police Dept**
- **Marceline Police Dept**
- **Marshfield Police Dept***
- **Matthews Police Dept**
- **Merriam Woods Police Dept**
- **Montgomery City Police Dept**
- **Morley Police Dept**
- **New Florence Police Dept**
- **Polo Police Dept**
- **Strasburg Police Dept**
- **Sugar Creek Police Dept**
- **Unionville Police Dept**

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

APPENDIX:
WHY NO DISPARITY INDEX

Previous VSR reports have calculated a "Disparity Index" for traffic stops by race and ethnicity for the state overall and for each agency. However, after close study, the research team has recommended removing the disparity index from the VSR as it is of limited analytical value. The VSR already provides detailed information on traffic stops and rates relative to subgroup population, so no new objective information is provided by calculating the index. Moreover, as discussed below, the disparity index is not comparable across agencies serving populations with different demographic compositions and driving patterns, and it is often incorrectly interpreted.

Historically the "Disparity Index" was calculated as the ratio of a group's share of traffic stops relative to that group's share of the population. For example, if Black motorists account for 10% of traffic stops and account for 10% of the population, then the Disparity Index would be equal to one. This number is of limited value as it does not account for the peculiarities of a dynamic operating environment. For example, it considers neither the originating location of a stopped driver (e.g. a transient driver who is not part of the local population), nor the frequency with which an individual motorist is stopped (e.g. a motorist stopped for repeatedly violating the same school zone speed limit would be counted multiple times), both of which may artificially inflate the disparity index in a given community.

Moreover, the Index suffers from a variety of other comparative problems. Because the Disparity Index is a ratio, the units have no substantive meaning and cannot be reliably compared across communities with different demographic composition or within the same community as demographics change over time. A community with 50% Black population cannot have a Disparity Index for Black motorists greater than two, but a community with 10% black population could have a Disparity Index as high as ten.[5] And if both communities had a Disparity Index for Black drivers of two, it would mean very different things about the nature of traffic stops in each community. The same intuition applies to comparing within a single community over time as its population changes. The Index has limited interpretative value when comparing communities, because driving patterns are not similar across the State. For example, drivers in a larger region that has numerous small municipalities, such as the many towns and villages in northern St. Louis County with small geographic areas, may frequently cross municipal boundaries, whereas the frequency of cross-border driving patterns is less in other regions of the State. Consequently, the Disparity Index is something of a "rubber ruler" that is not directly comparable across different communities or over time, as population demographics change.

Due to the issues described above and the misleading simplicity of the disparity index, the VSR no longer reports the index, but still contains all the underlying stop information contained in prior reports and required to be collected by law.

---

[5]For example, if only Black drivers were stopped in both communities, the disparity index would be 2 in the community with 50% Black population and 10 in the community with 10% of the population Black, even though in both communities only Black drivers were stopped. The community with 10% of the population Black would have a disparity index of 2 if 20% of their stops were of Black motorists instead of 100% of their stops, which is very different from the first community, yet the disparity index is the same.

Missouri Attorney General's Office

Missouri Attorney General's Office
Supreme Court Building
207 W. High St.
P.O. Box 899
Jefferson City, MO 65102
573-751-3321