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Racial Representation and Diversity on Non-Elected Transit Advisory Bodies

By

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THESIS

Submitted in partial satisfaction of the requirements for the degree of

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in

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Abstract

Non-elected advisory and planning bodies of transit agencies help planners determine the agency's service, operations, and future developments. The FTA requires reporting of the racial and ethnic makeup of those bodies to receive federal funding. In this thesis, I examine whether those bodies are representative of the people they serve. To do this, I retrieve FTA data and compare it to the service area demographics of those agencies, using a variety of approaches, including diversity indexes and regression analysis. I further explore the representativeness of these bodies through analysis of public responses to policy and qualitative interviews.

I set forth metrics by which to judge representation, including expected representation derived from service population, and diversity indexes at the body and agency level compared to the diversity index of the service population. This analysis finds that most bodies in the United States are not representative, and instead over-represent the white population. This finding suggests that people of color in the United States are not being adequately represented in the decision making and planning processes of the transit agencies that serve them.

Finally, I analyze public comments from transit agencies and other interested entities on the draft of the regulations examined here, along with the FTA's own comments on this policy via their comments on agency's Title VI reports. I propose and pilot a qualitative interview method to examine whether or not members of bodies believe they are being discriminated against. These qualitative analyses are crucial to understanding the on-the-ground experience of the people working within these spaces, with the goal that their experiences are not lost among the minutiae of data and statistics.

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Acknowledgements

Data Sharing

The data collected for this study can be found here: https://docs.google.com/spreadsheets/d/1QF2biJJ8P7Irw0wsVshEzTMddNTrNJo3X3dyRKFGt6M/edit?usp=sharing

Chapter 1: Introduction

On October 1st, 2012, the Federal Transit Administration updated its Title VI requirements and guidelines for recipients of federal funding in Title VI Circular 4702.1B, setting a variety of new and updated standards for transit agencies to follow if they wish to continue receiving federal assistance (*U.S. Government Publishing Office*, 2012). One of the reinstated requirements was "that a recipient may not, on the grounds of race, color, or national origin, 'deny a person the opportunity to participate as a member of a planning, advisory, or similar body which is an integral part of the program.'" This took the form of mandating that agencies publish a "table depicting the racial breakdown of the membership of those bodies, and a description of the efforts made to encourage participation of minorities on such decision-making bodies".

This requirement was by no means a core requirement, as it had been removed previously, but neither was it reinstated without complaint. Agencies argued that they did not always have control over who was appointed to those bodies, making it unfair to judge them on a criterion they had no control over. The FTA clarified that this requirement was only for bodies the agencies oversaw the appointment process for. Additionally, the FTA had proposed a requirement for the bodies to be representative of the service population, but this requirement was removed in response to comments. Commenters also suggested that the guidance should cover other protected identities, like gender and disability, but the FTA clarified that Title VI only prohibits "discrimination on the basis of race, color, or national origin only" (*U.S. Government Publishing Office*, 2012).

Since 2012, the FTA has investigated fifteen agencies after complaints about the agencies' Title VI compliance, resulting in FTA compliance reviews (FTA, n.d.). FTA compliance reviews are in-depth documentation of the ways that race, national origin, and other protected statuses defined by the Civil Rights Act of 1964, influence the way that the agency provides transit service. This can involve reviews of route changes for disparate impacts on minorities and people of color, accessibility by people with

limited English proficiency, and of course, racial and ethnic representation on planning and advisory bodies.

Planning and advisory bodies make up a small fraction of these reports, with most of these compliance reviews dominated by other subjects. However, they provide an interesting look into the governance of these transit agencies, allowing for quantitative analysis of an undeniably qualitative subject. Denying a demographic group the ability to participate in the planning process is a form of epistemic injustice, denying their ability to advocate for their communities' needs, implying that their knowledge and experience is not valid in the planning process. While other avenues exist for members of the public to engage in the governance and operations of their transit service, this data provides a starting point for understanding how the voices of people of color and racial and ethnic minorities are sought, consulted, and implemented in the planning processes of transit in the United States.

The FTA does not define what a representative advisory body should look like, appearing to rely on a general instinct as opposed to a specific metric. This method has advantages and downsides. A body that appears representative on paper may actually be deeply unrepresentative of the service population. This is because the FTA only requires agencies to report data on race and ethnicity, not the infinite number of other identities that may alter a person's experience with the transit system, from gender, income, preferred transportation, and location of residence, making a holistic qualitative analysis more beneficial. On the other hand, having no metric of representation means that there is no easy way to compare two agencies, or judge all agencies on the same criteria. This makes it difficult to discuss large-scale trends among agencies, hampering the ability of communities, planners, and academics to discuss, critique, and develop solutions, or even identify if there is a problem. To this end, in this thesis, I seek to understand the level of representation on these bodies as a whole, the key issues surrounding this subject, and the views of the people impacted by the regulations using several quantitative and qualitative methods of analysis.

It is worth making a distinction between governance and advisory bodies. Many transit agencies are governed by appointed bodies, which are in turn advised by Citizen Advisory Boards. The former has

administrative powers, including authority to hire and fire executives, set policy and manage budgets. The latter, on the other hand, may be called to advise on any of those subjects, but they do not have the final say. Other bodies may serve to provide advice about more specific subjects, like paratransit service and community input (Semple and MNTRC, 2014). However, purely advisory bodies can have a policy impact, including independent information gathering by bodies members, developing their own policy suggestions, and gathering political support for those recommendations (Houghton, 1988). This study focuses specifically on non-elected advisory bodies, as those are the only type of body that the FTA requires reporting on, meaning that it is the only type of body for which there is publicly available data to collect.

In this thesis, I seek to identify and examine successes and failures of federal regulation of the diversity and representation of transit advisory bodies. To accomplish this, I present a thorough review of the relevant literature alongside the history of the regulation's development. In addition, I propose quantitative metrics to define and measure representation and diversity, while I use qualitative analysis to determine if the regulations are accurately addressing the key issues facing agencies and their advisory bodies.

Chapter 2: Literature Review

The role of non-elected bodies for transit agencies is not unique to the transportation sphere. Similar bodies exist in many levels, from schools, to taxation, to elections, to even county fairs (Lansford, 2014). Methods of appointment can vary wildly, from Metropolitan Planning Organizations (MPOs) that appoint a representative for each county or city (Yan, 2013), to appointments by elected officials. Some bodies are mandated by federal law, while most bodies were established by the local community. However, there have been issues with representation of marginalized groups, like low-income communities (White, 1983).

The make-up of non-elected bodies can drastically change the priorities of those bodies. For example, previous research (Nelson, 2004) has shown that the membership of MPO governing bodies underrepresented central cities in the vast majority of cases. Specifically, MPO membership distributed voting power by city governments, not by population, leaving central cities with fewer votes per person than suburban communities. Rarely is voting power ever doled out with respect to the populations served by these bodies. For a specific example of how representation influences policy outcomes, that same research showed that adding an additional voting member of an MPO from a suburban city would decrease transit spending by between 1% to 9%, pushing that money towards highways instead. Similar issues stemming from misrepresentation could impact the policy outcomes at the transit agency level.

Participation in administrative agencies by citizens can produce benefits for the participants. In addition to fostering community and imparting democratic ideals, participation in institutional decision-making leads institutions to be more attentive to the desires of the service recipients (Berry, Portney, and Thomson, 2002). From the agency perspective, truly authentic public participation can lead to more effective institutional performance and faster results. Authentic participation prioritizes collaborative interaction, with the public playing the role of an equal participant and designer, not a reactive participant whose participation is sought for buy-in (Kin, Feltey, Susel, 1998).

As entities of public engagement, non-elected bodies can fall into any of the rungs of Arnstein's Ladder of Citizen Participation (**Figure 1**). At their worst, advisory bodies are a perfunctory step, falling

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on the lowest rung of Arnstein's Ladder, Manipulation, where bodies are practically told what to do. Slightly better is the third rung of Arnstein's Ladder, Informing, where bodies simply exist to be "educated" about the issues, without the chance to share their own experience with the issues. In these cases, representation is immaterial, as they have no power, not even the ability to advise. Moving up the Ladder are the slightly better Consultation and Placation rungs, where the public is consulted, and plans and operations are adjusted just enough to make it appear like their experiences and preferences are being accounted for. Crucially for this discussion, Arnstein points out that handpicked "worthy" have-nots can be placed on these bodies to have the appearance of influence but can easily be outvoted by the traditional majority. By their nature of being appointed bodies, it is incredibly difficult for these bodies to rise to the sixth rungs and above, since the appointment process relies on those in power making those appointments (Arnstein, 1969).

Figure 1 Arnstein's Ladder of Citizen Participation (Lithgow, 2004)
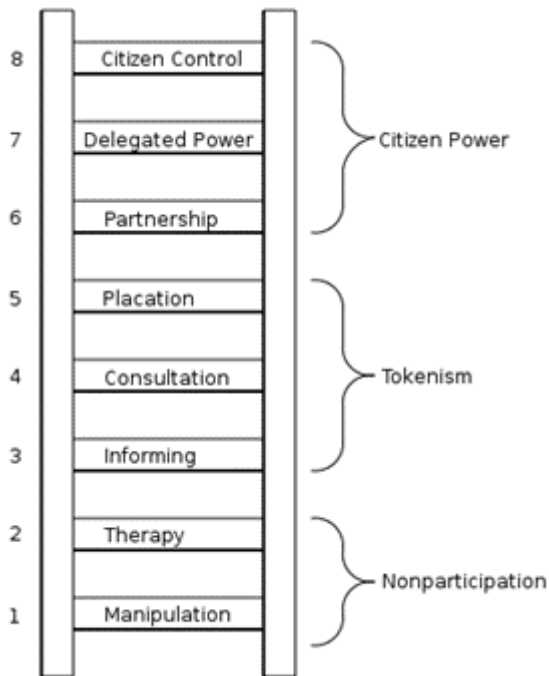
More specific to the transportation sector, academics have argued that the discrepancy between the burdens and benefits placed on people of color and low-income residents is caused by a lack of meaningful public involvement. Karner and Marcantonio propose a three-step model that agencies can implement to actively include residents in the planning process (Karner, Marcantonio, 2018). The first step of this model is to identify deficiencies that require immediate attention in disadvantaged communities by providing resources to allow the community to fully engage with this process. The second is simple: dedicate funding to meet the needs identified. The third is as crucial as the first two, guiding agencies to set specific metrics to measure their progress towards those goals. If broadly implemented, this model could have wide-ranging benefits, and limited implementations have shown promise, like in the development of the One Bay Area plan. A similar approach could be applied to increase the effectiveness of advisory bodies.

Non-elected governance of public services exists internationally, like Local Authority Implementation Agencies in the United Kingdom. Established in the 1970s by the Labor Party as part of a wider restructuring of government, Local Authority Implementation Agencies were expanded in the 1980s by the Thatcher-led Conservative Party, which Stoker (Stoker, 1991) argues was because non-elected bodies were easier to politically influence due to the ability of politicians to make appointments to the agencies. Stoker also reports incidents of dominant groups explicitly working to keep out other groups in similar United Kingdom user organizations.

A report by Simon & Simon Research and Associates, Inc from 2002 (Elkridge, 2002) prepared a thorough review of the makeup, purpose, design, and effectiveness of public transit boards of directors. Notably, boards of directors largely do not fall into the scope of this study, but this paper can serve to provide additional context. The authors found that most boards' members are appointed by elected officials, serve three-to-four-year terms, meet monthly, receive no compensation, are responsible for setting policy and priorities, approving budgets, and selecting CEOs. CEOs and board chairs reported that their boards of directors were most effective at gaining political support and were generally effective for governance.

Crucially for this study, the 2002 report from Simon & Simon Research and Associates also included data on ethnic makeups of boards of directors. Historically, the majority of board members are white men, with men making up 75% of board membership. The authors did not report the average minority to non-minority ratio among board members, but they did report that about half of all boards surveyed did not have any African American members, three quarters had no Hispanic board members, ninety five percent had no Asian board members, and all but one had no Native American board members. Ninety percent also had no board members described as "Some Other Race". All in all, about a third of transit CEOs reported their agency had an all-white board. The authors found that the boards of bus only systems were less diverse than those of multi-modal systems (Elkridge, 2002).

Several studies on quantifying or measuring equity via metrics have found that the specific method or unit of analysis can significantly impact the outcome of the analysis, even if all methods are reasonable on their face. In their 2015 paper, Karner and Gould examined different methods of estimating equity impacts of transit service changes, comparing ridership survey data and census data from the Phoenix, Arizona metropolitan area. These two datasets were not identical for the purposes of transit planning: for example, the ridership data over-represented the African American population and under-represented the Latino population compared to the census data. Differences such as these led to vastly different conclusions around hypothetical service changes, with the ridership data approach showing disproportionate burdens on people of color and of low income, and the census data approach showing disproportionate benefits for those same populations. The authors point out that the use of one dataset would allow the proposed plan to progress without intervention while the other would require intervention (Karner, Golub, 2015).

Chapter 3: Public Comments on FTA Circular 4702.1B

A detailed examination of the rule-making process that produced the rule that underpins this research can reveal the way that agencies interpret the rule. To accomplish this, I examine the public comments submitted to the FTA in response to a draft version of the policy. Comments could be submitted from September 28 to December 2, 2011 and 140 comments were submitted. The comments were diverse, both in subject matter and origin, ranging across transit agencies, MPOs, advocacy groups, and private citizens (FTA, 2011). This study examines comments that discuss the specific rules about non-elected advisory bodies.

Seven of the comments were essentially the same form letter, which highlighted a number of concerns, including the advisory body requirement. The form letter's comments on this subject included noting that many agencies do not appoint their own board of directors, meaning they had no control over the racial breakdown of that body, and should not be judged on that metric. Additionally, the form letter noted that the collecting and reporting of the racial breakdown data was an unfunded mandate with no obvious intention, which the letter described as "a solution looking for a problem" (Ashbaugh, 2011, DeRock, 2011, Ida, 2011, McPherson, 2011, Sadoryk, 2011, Turcotte, 2011, Tripp, 2011).

Curiously, the form letter does not have an obvious point of origin. Some of the commenters were relatively close geographically, specifically San Luis Obispo Regional Transit Authority (McPherson, 2011), the City of San Luis Obispo (Ashbaugh, 2011), Monterey-Salinas Transit (Sadoryk, 2011), and the City of Culver City (Ida, 2011), all coastal California cities, but the other three were more scattered. The St. Cloud Metropolitan Transit Commission from Minnesota (Tripp, 2011), the Chelan – Douglas Public Transit Benefit Area from Washington (DeRock, 2011), and Tompkins Consolidated Area Transit, Inc. from New York (Turcotte, 2011) all sent in almost identical letters. The link between these agencies is not obvious; it is possible that a national industry organization sent a version of this form letter to agencies, and these were the ones who chose to submit it in this form, but that is pure speculation.

The form letter's concerns about the point of the reporting requirement were echoed in other comments, with the Wisconsin Department of Transportation writing in its comment "...what is the

purpose of collecting such information? What does FTA intend to do with it? What is the correlation between the racial makeup of non-elected boards and the transit decisions made by them?" (Boardman, 2011) These questions strongly suggest a disconnect between the FTA and agencies; with the decision to include this requirement coming without a clear explanation of how the FTA chose this metric and why they believe it important.

Another major concern that agencies reported was the lack of control they had over certain bodies, especially boards of directors. As the New York State Metropolitan Transportation Authority put it in their comments, "The provision appears to presuppose that a transit provider has the legal capacity to determine the composition of such boards, advisory councils or committees. Under the MTA's governance structure, that is not the case. … We suggest that FTA clarify that the requirement is intended to apply to boards, councils and committees that are selected by a recipient, and not those decision-making or advisory bodies the composition of which are outside the control of the recipient" (Garten, 2011). This complaint and suggestion was a common refrain from other large agencies, like Atlanta's MARTA (Diamond, 2011), the Texas Department of Transportation (Kirkland, 2011), and San Francisco's MTA (Reiskin, 2011). The suggestion appears to have been incorporated into the new language by the FTA in their post-comment revisions.

Notably, two comments expressed concerns that the proposed policy would be discriminatory - against the majority population, which in the United States context should read as white people. One comment was submitted by the Center for Equal Opportunity, a conservative think-tank that describes its mission as promoting colorblind non-discrimination in the United States (Center for Equal Opportunity, n.d.), and the other was submitted by OATS Transit, Inc., a private rural transit provider in Missouri. Specifically, their comments focused on the phrase "a description of the efforts made to encourage participation of minorities on such decision making bodies." The Center for Equal Opportunity stated in their comment that they "fear that the current wording will actually encourage such discrimination by affording preferences to "minorities." Such discrimination would be unfair, divisive, and in violation of Title VI" (Center for Equal Opportunity, 2011). OATS Transit echoed this position, saying "OATS finds

this wording vague and fears it would actually encourage recipients to afford preferences to minorities, which would itself be discriminatory" (Yeager, 2011). Both used remarkably similar language to suggest that the FTA replace the offending phrase with language that would "encourage the nondiscriminatory and nonpreferential participation" of body members (Center for Equal Opportunity, 2011, Yeager, 2011). While it is possible the two groups produced very similar comments without coordination, the possibility of some level of coordination is present. The possibility of influence from strongly politically aligned think-tanks on transit providers may present a future avenue of research.

Within public comments, there was disagreement about which metric should be used for representation; the Santa Clara Valley Transportation Authority argued that the bodies should reflect an agency's ridership, not their geographic service population (Fadal, 2011), while the California Rural Legal Assistance argued that the bodies should reflect the service area, especially in the context of bodies that represent specific subregions (Massie, 2011). The concern about specific subregions was echoed by Metro Transit in Minneapolis, Minnesota, who asked for clarification on whether bodies that represented specific subregions should be representative of the service area as a whole or of the specific subregion (Lamb, 2011). The FTA did not appear to make substantive comments or changes to the policy in response to any of these comments. This observation is based on Federal Register Vol. 77, No. 167, which included several responses from the FTA to these comments (*U.S. Government Publishing Office*, 2012).

There was also confusion about the definition of "representative", and which efforts were sufficient to encourage minority participation. For example, Chicago's Regional Transportation Authority recommended that "additional guidance be given on the types of efforts that are considered sufficient to encourage the participation of minorities on decision-making bodies and how it may be determined whether the composition of a board is "representative" of the demographics of the community they serve" (Costello, 2011). There was additional confusion on what the consequences of non-compliance would be, from agencies like Portland's Metro MPO (Bennett, 2011), and the Wisconsin Department of

Transportation (Boardman, 2011). The FTA did not address these comments in their responses (*U.S.*

Government Publishing Office, 2012).

Chapter 4: Methodology

In this section, the process of scope setting, data collection, cleaning, transformation, and analysis will be discussed, starting with selecting agencies and demographics of interest for this research, and comparing the current data to previous studies. Then, two metrics will be proposed for measuring representation and diversity, and their statistical significance and independence examined. Finally, the qualitative public comment analysis and interview methods will be described.

Identifying Agencies of Interest

The first step in this analysis was to identify agencies of interest, relying on two criteria to generate the list of potential subjects. Agencies of interest included large transit agencies, specifically bus agencies with high ridership, as buses historically have higher proportions of minority and low-income passengers (Dickens, 2020). This list of the largest bus agencies in the United States was based on the American Public Transportation Association's 2019 fourth quarter "Public Transportation Ridership Reports" and included any agency with annual bus ridership of over one million unlinked passenger trips (Simpson, 1949). Agencies that were investigated for non-compliance with the FTA's regulations were also of interest, as those agencies may exhibit committee member selection bias in addition to other forms of bias and discrimination. These agencies were identified using the FTA's list of Title VI compliance reviews (FTA, n.d.), since 2012, when the requirement to report advisory body makeup was implemented.

This list of agencies totaled 67 in number, from 29 States and other jurisdictions, of which California was the most represented, with a total of 15 agencies. Texas was the second most represented state, with 5 agencies, followed by a four-way tie for third between New York, Washington, Florida, and Ohio. Body makeups were found via internet searches for agencies' most recent Title VI reports, both on the FTA's website, and on the agencies' websites themselves. Of the 67 agencies in this sample, only 46 agencies had Title VI reports that were available for the public, which eliminated 21 agencies from this sample. Another 6 agencies claimed to have no non-elected transit advisory bodies, leaving the total

number of agencies in this sample at 40. From those 40 agencies, data was collected on a total of 103 bodies across the country.

These bodies served a wide range of purposes, but they fell into eight broad categories: Generic (39), ADA or Accessibility Focused (26), Region Focused (11), Business or Financial Focused (7), Modal Focused (7), Boards of Directors (5), Equity Focused (3), or Other (5). "Generic"' bodies did not appear to have specific purposes, besides general policy suggestions. ADA or Accessibility Focused bodies were often focused on directing and advising accessibility and paratransit policy. Region and Modal Focused bodies are respectively set up to provide guidance on the service and operation in specific geographic areas and for specific modes. Boards of Directors and Business or Financial Focused bodies were concerned with the administrative and fiscal aspects of an agency's operations. Equity Focused bodies were explicitly concerned with the equity and justice concerns of an agency's operations. Bodies classified as Other did not fall into any of the above categories, defying any meaningful categorization.

Identifying Demographic Data

There are dozens, if not hundreds, of possible identities that could be examined, including gender, income, residential location across the urban-suburban-rural spectrum, ability, and mode use. However, the FTA only requires that agencies report the "racial breakdown of minority representation on planning and advisory bodies" (*U.S. Government Publishing Office*, 2012), so I limit this analysis is limited to race and ethnicity by the data publicly available. Hopefully, future research can expand into these other identities. The categories that are used to describe race and ethnicity are often limiting as the FTA does not set universal definitions for ethnic groups. For example, in the following analysis, some bodies combine Asian Americans with Pacific Islanders & Native Hawaiians, while others keep the two separate-if they do not ignore the existence of Pacific Islanders and Native Hawaiians. Where possible, the two have been kept as separate categories for the highest level of resolution. Obviously, relying on heterogeneous data is less than satisfactory, but the main point of analysis is the comparison between the body's and the service area's percentages. This does represent a known limitation of this analysis.

To compare the racial and ethnic makeup of these advisory bodies to the demographics of the population they served, I relied on the Title VI reports for the demographic makeup of their service areas. There is currently no standardized format to report this data, which means that the format of the self-reported data varies from agency to agency. In this survey of agencies, agencies were found to report service area demographics based on the American Community Survey (15 agencies), the 2000 (2 agencies) or 2010 Census (6 agencies), or Ridership Surveys (6 agencies). Several also did not report where the data came from (4 agencies) or did not report demographic data at all. In the latter case, when available, I relied on data from the 2020 Census (5 agencies) and assumed that the entire city or region was the service area. There were two agencies for which demographic data could not be gathered, bringing the final number of agencies in the sample to thirty-eight, with a total of ninety-nine bodies. To recall Karner and Gould's 2015 paper, this dichotomy of data sources could lead to divergent analysis outcomes, but excluding those who do not conform would leave us with too small a sample to analyze. This suggests the need for regulations which require consistent data reporting.

Comparison to Previous Studies

Given that the most recent research on this subject was conducted over two decades ago by Simon & Simon Research and Associates, it is worth comparing the results of this study to that historical study. The 2002 report was published before the FTA's 2012 update to the Title VI requirements and guidelines, so it can act as a useful baseline for comparison. However, the samples and data collection methods differ between the 2002 report and this study. In this study, I focus only on non-elected advisory bodies, while the 2002 report focuses on transit Boards of Directors, including elected boards. Additionally, this study relies on publicly reported data, while the 2002 report relies on surveys of agency general managers or CEOs, and board chairs. Even with these differences, it can be useful to compare the two, to get a sense of the change over time. Direct comparisons cannot be made, as the raw data for the 2002 report was not made available. The 2002 report did not discuss diversity on boards in depth but did

provide the percentage of boards with at least one member of a given ethnic group. The equivalent statistic has been produced from this study (Elkridge, 2002).

Weighted Representation

I postulate that there is a practical limit to representation in republican systems. A body has a practical limit to the number of people on it, meaning that some viewpoint or viewpoints may go unrepresented or underrepresented. However, this analysis further proposes, this under-representation of viewpoints could be minimized if desired, by selecting the body's membership to represent the population it serves. Given these bodies are unelected, that may be difficult to implement, but is not impossible. To develop a representative body under this definition, the committee appointing members could ensure that the body's membership is weighted by the demographics of the population it serves. For example, if the Census identifies an area as having a population that is 40% white/Caucasian, 40% Black/African American, 15% Asian American/Pacific Islander, and 5% Native American/Alaskan Native, a ten-member body would represent 10% of the population per seat. Ideally under this approach, a body serving this community would have four white members, four Black members, and at least one Asian American member, along with a final member of any ethnicity.

To determine the representation of each body, this analysis asks if the body has proportional representation of all demographic groups with a share of the service area population higher or equal to the percentage share of a single seat on the body. Specifically, the number of members on each body is used to generate the number of expected seats given the population's demographics, assigning one seat to a demographic for each 1/n share of the population, n being the number of body members. If a body's number of members is equal or greater than the number of expected body members determined by the population, it will be considered representative.

Chi Squared Test

A Chi Squared Test can be used to determine if there is a statistically significant difference between the service populations and the advisory bodies-as well as the agencies' bodies as a whole. I used the Excel and the CHISQ.TEST function to conduct this test. Originally, the demographics of interest used were African American, white/Caucasian, Asian American/Pacific Islander, Hispanic/Latino Alone, Native American/Alaska Native, and Other, but Chi Squared tests are generally require most cells to have at least five observations (McHugh, 2013), something this data does not. Thus the analysis will instead use white and non-white, dropping any bodies or agencies with fewer than 5 members in both categories. This produced a dataset of 27 agencies and 32 bodies valid for analysis. The null hypothesis is that there is no difference between the body or agency makeups and random sampling from the service populations. The alternative hypothesis is that there is a statistically significant difference between the body or agency makeups and random sampling from the service populations.

Diversity Index

To broadly understand the level of diversity of a given body, I rely on calculating a Diversity Index for bodies and their service population. This avenue of analysis will use the Simpson Index (Simpson, 1949) (**Equation 1**), and the US Census implementation of the Simpson Index for populations (US Census Bureau, 2022) (**Equation 2**). Both methods measure the likelihood of two randomly selected members of the population being from the different categories-in this case, racial and ethnic classifications.

$$diversity\ index_{Body} = 1 - \frac{\Sigma\ n_{Bi}(n_{Bi}-1)}{N_B(N_B-1)} \textbf{ Equation 1}$$

n_{Bi} = Number of Members of ethnic group i on body B

N_B = Number of Members on body B

$$diversity\ index_{Service\ Area} = 1 - \Sigma n_{Si}^2 \textbf{ Equation 2}$$

n_{Si} = Percentage of people of ethnic group i in a service area s

To understand the diversity of a body compared to the diversity of its service population, I subtract the diversity index of the service area from the diversity index of the body, to find the difference. This way, if a body is more diverse than the service area, it will have a positive difference. I investigated an alternative version that used a ratio, but I discarded that version as the regression analysis presented later was conceptually simpler.

$$Difference_{Body} = diversity\ index_{Body} - diversity\ index_{Service\ Area}\ \textbf{Equation 3}$$

In addition to comparing individual bodies to the service populations, it is worth examining the diversity of agencies as a whole as compared to their service populations. This is approached in this study by estimating a diversity index for the agency as a whole, using a similar methodology to the Body Diversity Index.

$$diversity\ index_{Agency} = 1 - \frac{\Sigma\ n_{Ai}(n_{Ai}-1)}{N_A(N_A-1)}\ \textbf{Equation 4}$$

n_{Ai} = Number of Members of ethnic group i in Agency A

N_A = Number of Members in Agency A

I use a similar methodology to compare differences between agency-wide diversity indexes and service population diversity indexes as with body diversity indexes as previously presented in Equation 3.

$$Difference_{Agency} = diversity\ index_{Agency} - diversity\ index_{Service\ Area}\ \textbf{Equation 5}$$

These methods are blind to the actual representation on the body or agency, but they do serve as useful proxies for the diversity of representation on a body or in an agency. Diversity indexes will be calculated by excluding members whose ethnicity was not reported. Diversity indexes are presented in a box and whisker chart, to show averages and distribution and are aggregated by US Census region, which are presented in **Figure 2**.

Figure 2 Census Regions and Divisions of the United States (US Census Bureau, 2000)
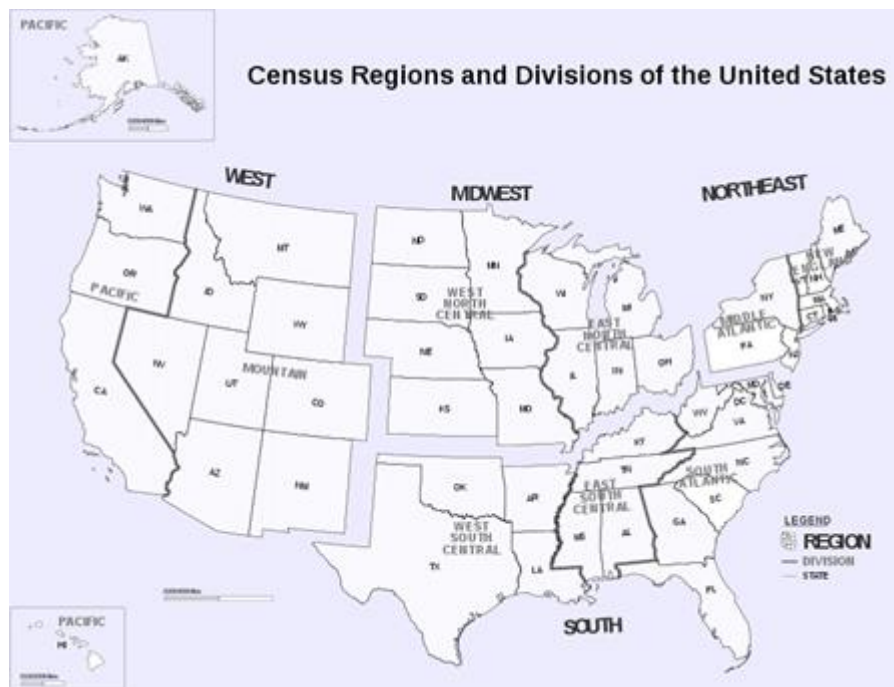
Regression analysis

As a final step in the statistical analysis of the data gathered, regression analysis can be applied to understand which factors are associated with a more or less diverse advisory body. Using the Board Diversity Index as the dependent variable, I analyze this data using the set of descriptive and categorical statistics I have gathered to look for correlations.

Four broad categories of independent variables of interest will be used here. Firstly, the Population Diversity Index of an agency's service area will be used to measure the underlying diversity of a region. Secondly, the body's size will be used to test the hypothesis proposed earlier about whether or not larger bodies have more "opportunities'" for diversity. Thirdly, the broad Census region will be used to test for broad cultural differences across the country, with the West used as the base case. Finally, the ridership of that agency, as reported in the FTA's corresponding 2019 transit agency profile in terms of unlinked passenger trips, will be used to see if the size of a service area is a predictor of the body's

diversity. Total ridership will be supplemented by three other attributes: total bus ridership (defined as bus, bus rapid transit, and commuter bus ridership), total rail ridership (light rail, heavy rail, commuter rail, and hybrid rail), and "other" (demand response, streetcar, ferry, etc.). This will also be paired with attributes describing the percentage of the total ridership each broad modal category represents, so as not to introduce undue effects of larger metropolitan regions, instead representing the overall focus of the agency.

There is a possibility that some of the variables are correlated. To include both without knowing the correlation between independent variables could lead to erroneous conclusions. First, all numeric variables will be tested against each other for correlation, and then Region, which is a categorical variable, will be used as the independent variable in regressions on each continuous variable.

As can be seen in Table 1, most variables are weakly correlated with each other. Total, Bus, and Rail Ridership are all strongly correlated, and the Bus, Rail, and Other Fractions are all moderately correlated. Body Size is generally not significantly correlated with any variables. Each type of ridership is correlated with the other forms of ridership, suggesting that it is better to use Total Ridership or each mode individually, as opposed to both Total Ridership and each form of ridership. Population DI is weakly correlated with most variables as seen in Table 1, and strongly correlated with Region, as seen in Table 2. This finding suggests that Region and Population DI together can control for variation between regions.

All regression models will be calculated with all 98 bodies, giving us an N of 98.

Table 1: Correlations between numeric regression variables

	Body size	Body DI	Population DI	Total Ridership (2019)	Bus Ridership (2019)	Rail Ridership (2019)	Other Ridership (2019)	Bus Fraction of Ridership	Rail Fraction of Ridership	Other Fraction of Ridership
Board size		-0.02	0.05	0.04	0.04	0.01	0.09	0.13	0.04	-0.22
P Value		0.8665	0.6067	0.6696	0.6651	0.8964	0.3753	0.1928	0.6943	0.0286 *
Board DI	-0.02		0.34	0.34	0.35	0.25	0.17	-0.02	0.22	-0.19
P Value	0.8665		0.0006 ***	0.0005 ***	0.0004 ***	0.013 *	0.0887 .	0.8546	0.0301 *	0.0681 .
Pop DI	0.05	0.34		0.33	0.34	0.22	0.22	0.18	0.14	-0.4
P Value	0.6067	0.0006 ***		0.0009 ***	0.0006 ***	0.0265 *	0.0298 *	0.0688 .	0.1603	0 ***
Total Ridership 2019	0.04	0.34	0.33		0.96	0.88	0.28	-0.23	0.4	-0.13
P Value	0.6696	0.0005 ***	0.0009 ***		0 ***	0 ***	0.0054 **	0.0208 *	0 ***	0.1927
Bus Ridership 2019	0.04	0.35	0.34	0.96		0.74	0.23	-0.09	0.25	-0.14
P Value	0.6651	0.0004 ***	0.0006 ***	0 ***		0 ***	0.0256 *	0.3681	0.0123 *	0.1736
Rail Ridership 2019	0.01	0.25	0.22	0.88	0.74		0.06	-0.39	0.6	-0.19
P Value	0.8964	0.013 *	0.0265 *	0 ***	0 ***		0.5739	0 ***	0 ***	0.0593 .
Other Ridership 2019	0.09	0.17	0.22	0.28	0.23	0.06		-0.14	-0.08	0.29
P Value	0.3753	0.0887 .	0.0298 *	0.0054 **	0.0256 *	0.5739		0.1661	0.4285	0.0033 **
Bus Fraction	0.13	-0.02	0.18	-0.23	-0.09	-0.39	-0.14		-0.64	-0.49
P Value	0.1928	0.8546	0.0688 .	0.0208 *	0.3681	0 ***	0.1661		0 ***	0 ***
Rail Fraction	0.04	0.22	0.14	0.4	0.25	0.6	-0.08	-0.64		-0.33
P Value	0.6943	0.0301 *	0.1603	0 ***	0.0123 *	0 ***	0.4285	0 ***		0.0009 **
Other Fraction	-0.22	-0.19	-0.4	-0.13	-0.14	-0.19	0.29	-0.49	-0.33	
P Value	0.0286 *	0.0681 .	0 ***	0.1927	0.1736	0.0593 .	0.0033 **	0 ***	0.0009 **	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 ' ' 1

Table 2: Correlations between Region and numeric variables

	Body Size		Body DI			Population DI			Total Ridership (2019)		Bus Ridership (2019)		
Region	Estimate	P Value	Estimate	P Value		Estimate	P Value		Estimate	P Value	Estimate	P Value	
Midwest	-0.9615	0.525	-0.14055	0.02916	*	-0.14101	9.39E-06	***	-4.7E+07	0.1455	-34687487	0.0877	
Northeast	3.8718	0.133	-0.28592	0.00923	**	-0.10659	0.0394	*	61482503	0.2641	20598954	0.5469	
South	1.2607	0.439	-0.06635	0.33322		-0.04946	0.1297		-6.5E+07	0.0625	-56444975	0.0105	*
	Rail Ridership (2019)		Other Ridership			Bus Fraction			Rail Fraction		Other Fraction		
Region	Estimate	P Value	Estimate	P Value		Estimate	P Value		Estimate	P Value	Estimate	P Value	
Midwest	-3097122	0.819	-9563255	0.00961	**	-0.00137	0.981		-0.05655	0.301	0.07652	0.09544	
Northeast	44643956	0.054	-3722251	0.5453		-0.00169	0.986		0.06494	0.483	-0.04464	0.56356	
South	-130876	0.993	-8830152	0.02547	*	0.097307	0.118		-0.0593	0.314	-0.0194	0.69216	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 ' ' 1

Comments from the FTA

This thesis examines the specific judgements and recommendations made by the FTA about agencies' compliance in their representation of minorities in the membership of their bodies. Descriptive statistics will be presented, and the specific FTA recommendations will be discussed. The hope is that this will lead to insights about how the FTA sees the importance of this subject, and where they draw the line between non-representative and representative.

Qualitative interviews

This research has been largely quantitative, while the qualitative aspects have focused on high level transit agency statements and government agency analysis. The voices of members of the transit agency bodies have been missing from this discussion and prior research, a significant oversight. To this end, a protocol for qualitative interviews with body members was developed. The objective of this protocol was to determine if transit agencies were tokenizing body members of minority groups. In this case, tokenizing means to include a member of a minority group on the advisory body, without actually listening to their ideas and incorporating their input into policy and/or service changes. This level of tokenization would have been estimated by asking the body members if they believed that the agency listened to, respected, and incorporated their experiences, opinions, and suggestions and how that varied across race and ethnicity, gender, income level, and any other demographic that a body member identified.

This approach has several advantages and disadvantages. This method elevates the voices of the advisory body members, whose voices have thus far been excluded from this and prior research. Additionally, it permits a closer examination of where a body falls on Arnstein's Ladder, something that would be difficult to discern from the outside. On the other hand, it is time consuming to recruit, interview, and analyze the data from interviews, meaning the number of people interviewed will be necessarily smaller than the number of bodies that could be studied through quantitative work.

Additionally, there may be selection biases; the members of the bodies with positive experiences may be the most willing to discuss their experiences.

The interview process was designed to be semi-structured, with preset questions and clarifying questions if an answer required further explanation or discussion. Questions covered the motivations behind joining the body, the member's background, how the member believes they are listened to or not, whether or not the member believes they are treated differently from other members, what dynamics influence the body's work, and what they believe could be changed. A full list of questions can be found in the appendix. Interviews were expected to take between half an hour and three quarters of an hour.

Interviews were solicited from the members of the Unitrans Advisory Committee, the Yolobus Citizens' Advisory Committee, the Yolobus Technical Advisory Committee, and the Sacramento Regional Transit Mobility Advisory Council. These agencies were selected because they operate in the Greater Sacramento metropolitan area, while serving distinct communities. Unitrans serves the relatively small city of Davis, its service largely focused on the University of California Davis student population's needs, and the Unitrans Advisory Committee includes multiple seats specifically for student appointments. Yolobus on the other hand, serves a role closer to an intercity bus service, connecting the cities of Yolo and Sacramento counties. Sacramento Regional Transit serves a large metropolitan area, catering to the diverse needs of a large region.

Interviews were solicited via mass email, staff contacts, and personal inquiries. Despite several rounds of requests, I was only able to secure one interview. I would suggest that future research devote more time to interviewing a wider pool of candidates or soliciting individual members for interviews with more persistence than I was able to bring. Providing reimbursement for the subject's time may also be a practical way to increase response rates, as announcing the study during the body's meetings, if they have a public comment period.

Chapter 5: Results

In the results I present here, I find that only a small fraction of advisory bodies are representative of the populations they serve, several to a statistically significant degree. In both cases, most over-represent the white population. I find that there are large regional gaps between the diversity of service populations and the bodies, individually and at an aggregate level. Regression analysis is used to narrow in on correlations as to why this may be, with mixed success.

On the qualitative side, I find that the FTA does not strongly weight the presence, absence, or un-representativeness of an advisory body highly in their Title VI reviews. Additionally, interviews with advisory body members suggest that marginalized identities not covered by Title VI protections may be an important angle of future analysis.

Summary Statistics

Over the ninety-eight bodies examined, 1344 members, including vacant seats, were observed. As can be seen in **Table 3**, white members strongly dominated the bodies, with that group representing almost 60% of the entire sample, far ahead from the second largest group, African Americans, who represented just 16% of the sample. The average body has 13.7 members, ranging from a minimum of 3, to a maximum of 30, with a median of 13, and a standard deviation of 5.95. California was the most represented state in the sample, with thirty bodies, followed by Washington with 12, and Minnesota with 9.

Table 3: Breakdown of overall frequency in sample by Ethnic Group

Ethnic Group	Member Percentage	Average Service Population Percentage
Vacant seat	2.8%	
White/Caucasian	59.7%	53.2%
African American	16.2%	20.5%
Hispanic/Latinx	8.8%	17.5%
Asian American/Pacific Islander	6.1%	10.8%
Native American/Alaska Native	0.4%	0.9%
Two or More/Multiracial	1.4%	0.7%
Other	1.9%	2.3%
No Response	3.1%	

Note: Does not add to 100% due to rounding.

Comparison to Previous Studies

In 2002, Simon & Simon Research and Associates conducted a survey of transit agencies, collecting basic data on the racial make up of their boards of directors. Specifically, the 2002 report collected data on whether or not a board had a member of a given ethnic group. Here, I compare the results of that study to my own data. It is crucial to note that this is not a one-to-one comparison: the data I collected includes much more than just boards of directors, so direct comparisons are difficult, but the broad strokes of the comparison reveal interesting insights.

It is immediately clear from **Table 4** that the presence of people with non-white ethnicities on bodies has increased drastically since the 2002 report. Of course, this diversity has not increased to the same degree across all ethnicities. For example, African Americans were present on over half of boards of directors, and the share of bodies with African American members today has increased by 10 percentage points. This suggests an upwards trend but compared to the 35 percentage points increase (an eight-fold increase) in bodies with at least one Asian American member, it appears that the growth of inclusion depends on the prior percentage. In short: the more underrepresented a group was on boards of directors, the more its representation will be on advisory bodies. The counterexample is Native Americans, who

were the most underrepresented group in both studies and did not see the same double digit percentage point increases of other non-white groups.

Table 4: Percentage of Bodies With At Least One Member of a Given Ethnic Group

	White/ Caucasian	African American	Hispanic/ Latinx	Asian American	Native American	Other
2002 Report (Boards of Directors) (Elkridge, 2002)	100%	52%	23%	5%	1%	10%
2022 Study (Advisory bodies)	99%	62%	46%	40%	5%	29%

It is also worth discussing the percentage of bodies with at least one white member. The results of this study found one all-African American advisory body, while the 2002 report did not find any boards without at least one white member. This suggests a slight change, but broadly, white membership of bodies appears to be firmly entrenched, even as diversity increases. Also of note, the original study did not appear to make a distinction between Asian American and the broader category of Asian American *or* Pacific Islander. The comparative statistic produced from the results of this study only includes body members who specifically identified as Asian American, but if the definition is expanded to the broader category, the 40% of bodies with at least one of that group increases to 42%.

Weighted Representation

Using the service area population demographics to estimate what a representative body would look like, this analysis found that twelve bodies were roughly representative of their service population. None of them were "perfectly" representative of their population, with all having one demographic being over-represented by one or two body members, or two demographics over-represented by one member. These over-represented groups were split evenly between members who identified as either white, Hispanic or Latinx, African American, or "Other" or "No Response".

Generally, these representative bodies were smaller on average than the rest of the bodies, with an average of 6.6 members, compared to the sample average of 13.8 members. This suggests that the smaller the body, the easier it is to qualify as representative, but this is likely an artefact of the metric. A smaller body means that each seat on the body represents a larger fraction of the population, thus meaning that smaller groups are less likely to be a large enough percentage of the population that they would "qualify" for a seat. TriMet's Finance & Audit Committee makes for a good practical example: the Committee has three members, so each Committee member can be said to represent 33% of the population they serve. The Committee has two white members and a single African American member. The service population of TriMet is 70% white, which, by this metric, assigns two seats to that demographic, leaving the rest "up for grabs", as no other demographic can mathematically reach the 33% threshold.

Chi Squared Test

Here, I use a chi squared test to determine if the observed racial make-ups of advisory bodies are statistically significantly different from expected distribution derived by the service populations. Only thirty-two of the ninety-eight bodies and twenty-seven of the thirty-nine agencies were valid for analysis under this approach.

Of those thirty-two bodies, five had a statistically significant difference from the service population: MARTA's Board of Directors and Accessibility Committee in Atlanta, the LYNX Regional Working Group in Orlando, the Ride On Transit Advisory Group in Montgomery County, Maryland, and the NFTA Citizen's Advisory Board in the Buffalo–Niagara Falls region. All were significant at the 99% level. All except the NFTA's Citizen's Advisory Board (a twenty-six member body with thirteen white identifying members and thirteen Black identifying members in a 80% white service area) were made up of significantly more white members than would have been expected from a random sample.

At the agency level, thirteen of the twenty-seven valid bodies were statistically significantly different at the 95% level from the service population, and ten were significantly different at the 99% level. Of those thirteen, only four under-represented the white population: the Portland area's TriMet, the

Cincinnati area's SORTA, NFTA (as it has only the one body, discussed above, and significant at the 99% level), and El Paso's Sun Metro (also significant at the 99% level).

These results show that, in general, most bodies and agencies have too small advisory body membership to be analyzed under this method, but those who have large enough memberships often are statistically insignificant from their service populations. Some bodies and agencies are statistically significantly different, allowing me to reject the null hypothesis in those circumstances, with most of those significant bodies and agencies having more white members than would be expected from a random sample. These results are not surprising. When it comes to insignificance; the bodies are relatively small, meaning that random chance could play a large role. When it comes to over-representation of white members, this reflects the literature. I also argue that differences between a specific group's expected occurrence on a body and their real occurrence do not tell the entire story; overall differences in diversity between bodies and service populations are useful to examine. Diversity indexes, for example, can help describe the overall diversity of a body.

Diversity Index

To briefly review the concept of a Diversity Index, this metric measures the likelihood of two randomly selected people from a population (in this case, a body, or a service population) being of two different racial or ethnic groups. It is measured on a scale from 0 to 1, with 0 representing a 0% chance of the two individuals being of two different groups, meaning the population is of a single race or mono-racial. 1 represents a 100% chance that two individuals are of two different groups, meaning that everyone in the group has a different racial or ethnic identity to everyone else. I present two different analyses here: one at the level of individual bodies from a greater whole, and one merging all of an agency's bodies together into one that models the overall diversity of an agency.

Body Diversity Indexes range from 0.00 to 0.84, averaging 0.45 overall, with a standard deviation of 0.27. Twenty bodies had a diversity index of 0.00, meaning that they were mono-racial after excluding those who did not report their ethnicity. Excluding the bodies with 0.00 diversity indexes, the average

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diversity index jumps to 0.55, with a standard deviation of 0.17. Population Diversity Indexes range from 0.20 to 0.79, averaging 0.53 with a standard deviation of 0.14.

As can be seen in **Figure 3**, the range in differences between body diversity indexes and Population diversity indexes is extreme. At the high end, there are remarkably diverse bodies and less diverse populations in El Paso's Sun Metro, with a diversity index difference of 0.44 for its Citizens Advisory Committee. This means that in this body, there is a forty-four percentage points higher chance that two people will be of different ethnic groups than in the population. On the low end, there are extremely homogeneous bodies, like Fairfax County's Transport Advisory Commission, which has a diversity index difference of -0.54. This is because the Transport Advisory Commission was made up entirely of white members, yielding a body diversity index of 0.0, compared to the Population diversity index of 0.54. The standard deviation of diversity index differences is 0.24.

Figure 3 Regional Differences Between Population and Body Diversity Indexes
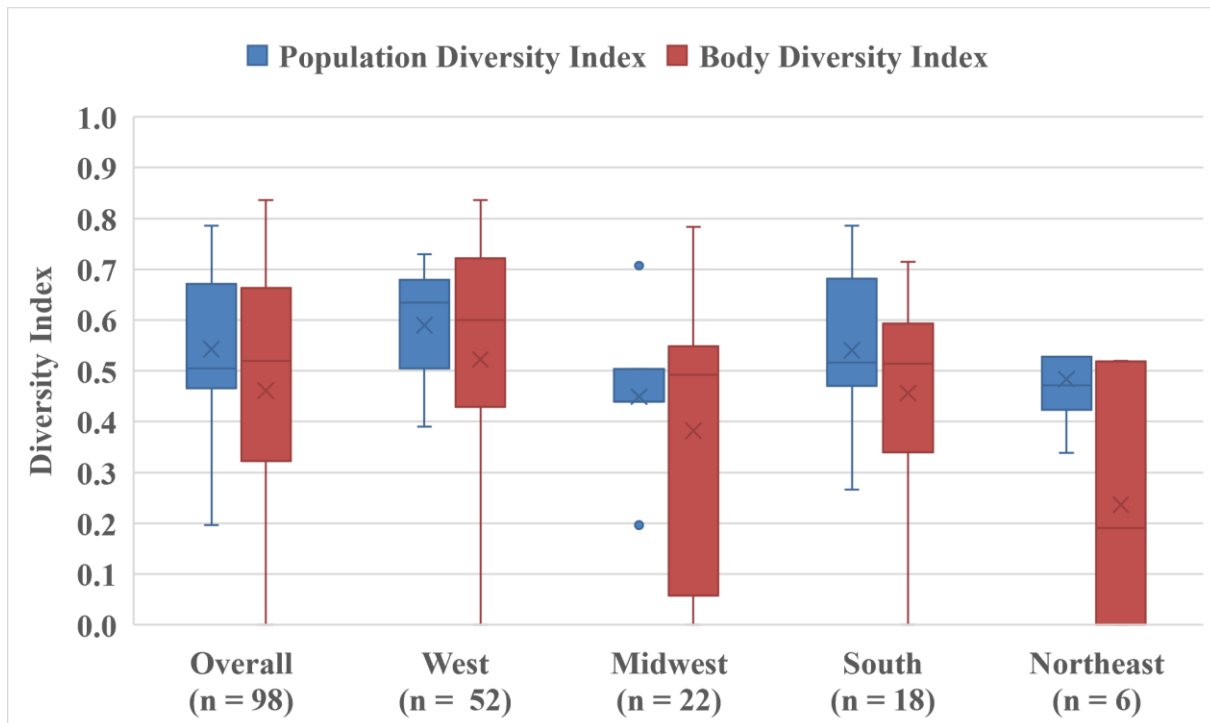
Figure 3 is a box and whisker chart. The X denotes the average, and the T denotes the 0th to 25th and 75th to 100th percentiles, while the line in the center of the primary boxes denote the median, or 50th percentile.

On average, the difference between a given Population diversity index and Body diversity index is -0.085, meaning that, on average, bodies have less diversity than the populations they serve by about 8.5 percentage points. The standard deviation of this measure was 0.24. Excluding the mono-racial bodies, the average is 0.005 (with a standard deviation of 0.18). There are six bodies whose diversity index differences come in between -0.01 and 0.01, and nineteen that have differences between -0.05 and 0.05, inclusive. These bodies have a level of diversity that is close to their populations. This doesn't mean that they are necessarily representative of their service populations, of course. For example, Long Beach Transit's Paratransit Advisory Committee has a difference of exactly 0.05, but it over represents the white and African American population and underrepresents the Hispanic and Asian American populations.

The chart (**Figure 3**) above is an excellent representation of the wide range seen between both the diversity indexes overall and the diversity indexes within US Census regions. Notably, overall and in each region, the diversity indexes of bodies are, on average, lower than the diversity indexes of populations. This is most apparent in the Northeast region of the United States, which includes the Middle Atlantic and New England states. This huge discrepancy has several factors. Firstly, the Northeast region has the fewest bodies in this sample, with only six bodies, compared to twenty-two in the Midwest, eighteen in the South, and fifty-three in the West. Of those six bodies, two are monoracial. Two bodies do have higher diversity indexes than the populations they serve, but overall, the Northeast bodies imply a large discrepancy. However, given the limited data collected in that region, it would be irresponsible to make broad statements based on such a small sample size. However, this discrepancy suggests that further investigation is warranted.

Agency Diversity Indexes range from 0.00 to 0.80, averaging 0.46 overall, with a standard deviation of 0.22, all relatively close to the values seen at the individual body level. Four agencies had a

diversity index of 0.00, meaning that they were mono-racial after excluding those who did not report their ethnicity. Population Diversity Indexes range from 0.20 to 0.79, averaging 0.53 with a standard deviation of 0.14.

By and large, agencies on average had less diverse body makeups overall than the populations they served. The average difference between Populational and Agency Diversity Indexes was -0.09, meaning that there was roughly a nine-percentage point lower chance that two members of any advisory body were of a different reported race than the service population, with a 0.24 standard deviation. At minimum, the difference was -0.71, an artefact of the data. This datapoint reflects SunTrans, which reported one body with seven white members, and one member who did not report their race. Due to this lack of data, the agency's Diversity Index is counted as 0.00, reflecting a 0% chance that two members of the agency's body would be of different races, despite the high diversity of the service area, 0.71. At most, the difference was 0.36, from Sun Metro, reflecting a very low service population Diversity Index of 0.27, with a comparatively high agency Diversity Index of 0.63.

Figure 4 shows that some of the extreme variance and disconnect seen in **Figure 3** is mitigated in some regions, but the variance is still high in the South and Northeast. In the Northeast region, this is still due to a low amount of data, while in the South, the same cannot be said, with twice as many agencies, suggesting a wide variance of diversity within agencies in the South. In all regions, the South has the lowest average agency diversity index, despite the average service population diversity index being relatively close to the overall average. These results suggest that more investigation is required.

Figure 4 Regional Differences between Population and Agency Diversity Indexes
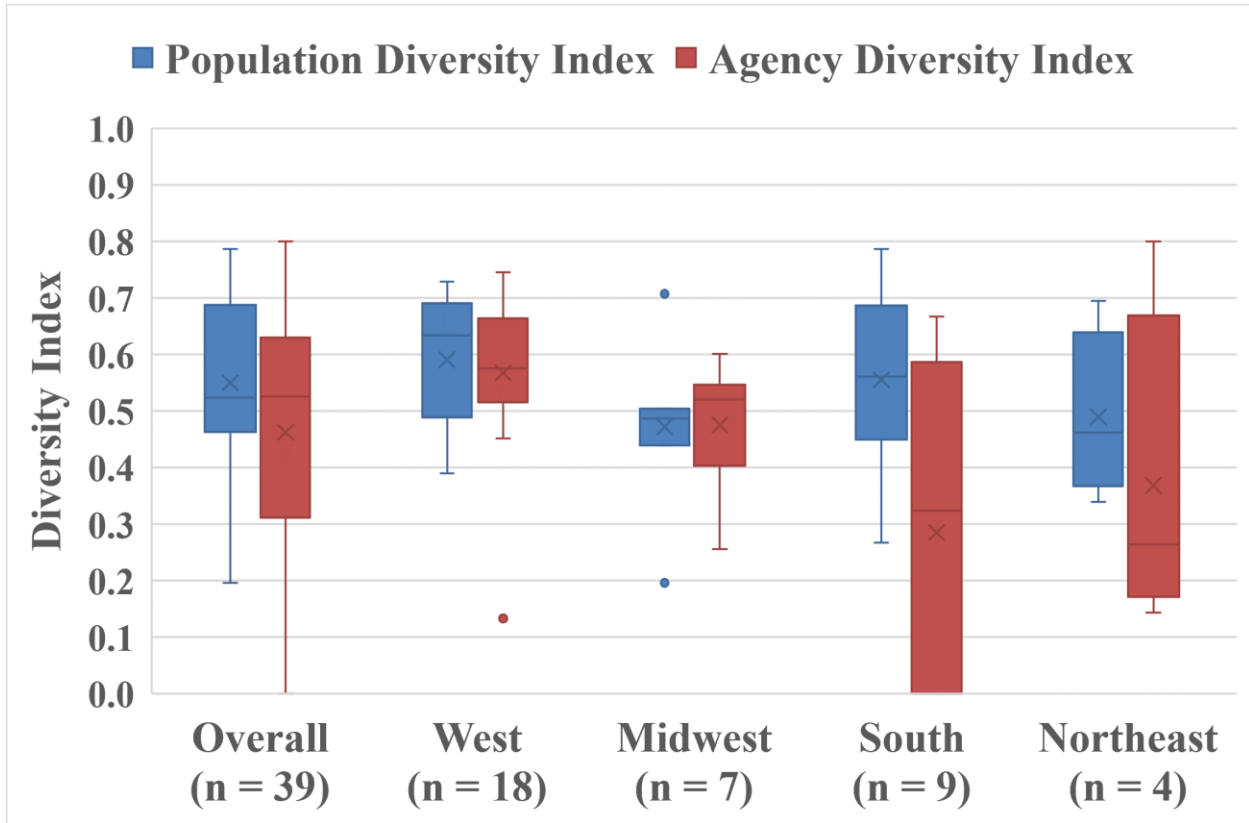
Regression analysis

  For the sake of illustrative purposes, presented in **Table 5** is the result of all variables used at once to predict Body DI. As is clear from the regression results, Body Size has next to no impact on diversity, and of the Ridership variables, Rail is the most significant predictor of a body diversity index. I used this result to guide future formulations, dropping the most insignificant variables, and computing narrower models to focus on individual interactions.

Table 5: Regression Model for Body DI – Population DI, Bodysize, Region, and Ridership

	Estimate	Pr(>|t|)	
(Intercept)	0.1973	0.06	
Population DI	0.3123	0.15	
Body Size	-5.91E-04	0.88	
Region - Midwest	-5.78E-02	0.40	
Region - Northeast	-0.2786	0.01	*
Region - South	4.60E-03	.98	
Bus Ridership (2019)	7.80E-10	0.11	
Rail Ridership (2019)	3.55E-10	0.62	
Other Ridership (2019)	1.08E-09	0.54	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 ' ' 1

R^2: 0.2448

As can be seen in table 6, the regression predicts that more diverse service areas will have more diverse advisory bodies, which is a reasonable prediction. A more diverse pool of potential applicants will likely lead to a more diverse pool of members. When controlling for region and service population diversity, regional differences between the West, Midwest, and South are not statistically significant, with only the Northeast having a statistically significant difference to the western states. This echoes previous findings and suggests a cultural difference present in the Northeast that leads to less diverse advisory bodies, even when a service area is more diverse.

Table 6: Regression Model for Body DI – Population DI and Region

	Estimate	Pr(>|t|)	
(Intercept)	2.02E-01	0.12	
Population DI	5.43E-01	0.01	*
Region - Midwest	-6.40E-02	0.35	
Region - Northeast	-2.28E-01	0.03	*
Region - South	-3.95E-02	0.55	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 ' ' 1

R^2: 0.158

As can be seen from Table 7, the only statistically significant measure of ridership share is Rail, where a higher fraction of service provided via rail predicts a more diverse advisory body. The insignificance of "other" is a sign of the limitations of the data available. As "Other" is largely made up of

demand response and paratransit service, the racial diversity data cannot report on the diversity in physical and mental abilities of a body's members.

Table 7: Regression Model for Body DI – Population DI, Region, and Ridership Fractions

	Bus Only			Rail Only			Other Only		
	Estimate	Pr(>|t|)		Estimate	Pr(>|t|)		Estimate	Pr(>|t|)	
(Intercept)	0.23852	0.08794		0.175	0.18		0.258	0.08	
Region - Midwest	-0.05932	0.39155		-0.058	0.39		-0.065	0.35	
Region - Northeast	-0.22457	0.03901	*	-0.249	0.02	*	-0.243	0.03	*
Region - South	-0.02957	0.66719		-0.028	0.67		-0.046	0.50	
Population DI	0.57686	0.00913	**	0.491	0.02	*	0.464	0.05	*
Bus Fraction	-0.08477	0.45773							
Rail Fraction				0.236	0.04	*			
Other Fraction							-0.135	0.37	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 ' ' 1

Bus: R^2: 0.163

Rail: R^2: 0.1944

Other: R^2: 0.1652

Overall, the regression analyses show the variables of interest bring little predictive power in these situations, suggesting that the forces driving diversity among these bodies lie in unobserved sources, suggesting further, likely qualitative, analysis is required.

Comments from the FTA

Of the thirteen agencies reviewed for compliance by the FTA since 2012 (FTA, n.d.), only two were found to be non-compliant when it came to the subject of minority representation on their bodies: the City of Detroit's Department of Transportation and the Delaware Department of Transportation. For both, the only deficiency found was that neither could describe the efforts made to encourage the participation of minorities on such bodies. Both were directed to prepare a detailed report describing the efforts made to encourage the participation of minorities on these bodies within the next sixty days, and

document future efforts. The results of these corrective actions are not recorded in the FTA's reports. The FTA recommend that four other agencies specify the actions they took to encourage minority participation, but it is unclear why those four agencies were not found to be deficient.

None of these agencies were found to be deficient in their body makeup, but the FTA recommended that the Fairfax County's Department of Transportation increase minority representation so that the Department's bodies are representative of the Fairfax county's demographics. The county had previously identified this as a deficiency itself and had drafted bylaws that would specifically guide the appointment of "a broad array of ages, genders, races, disabilities" that "will reflect the demographic composition of Fairfax County".

Two agencies had no bodies and the FTA neither directed nor recommended these agencies establish an advisory body. Instead, the FTA commented "It is an effective practice to establish an advisory committee representing riders and social service partners. Such a standing committee allows for ongoing input from key stakeholders in the transit system." This statement appears to imply that these agencies should establish a body, but that the FTA does not officially recommend they do so. This indirect language resembles the "Subtweet" phenomenon by indirectly addressing an issue or a specific entity while speaking to a broader audience, often in a negative light. These are behaviors that have been shown to be perceived as less effective communication styles by readers, lowering their perceptions of the message author (Edwards and Harris, 2016). I argue that this style of communication weakens the FTA's position and authority; a concrete suggestion as opposed to the current statement of common practice would be more likely to result in a policy change.

Qualitative interviews

Despite several rounds of interview requests via email invitations to the advisory body mailing lists, working with agency staff, and direct communication, only one interview was conducted with a member of the Yolobus Citizen's Advisory Committee. Due to this small sample size, conclusions cannot be drawn from the single interview, but the results can still be reported. The sole interviewee described

themself as a white-passing multi-ethnic woman. She did not report any unequal treatment of herself or other committee members by either the other committee members or agency staff, something she attributes to an intentional effort to elevate all voices on the committee via a process where the committee worked with agency staff and the board of directors to establish their objectives and values during the beginning of the COVID-19 pandemic. Prior to this process, she noted it was common for one member of the committee or agency staff to dominate the committee's meetings. Now, that is much less common. She did also describe the Citizen's Advisory Committee as needing more representation of women, but that she was comfortable with the current state of things, as she is familiar navigating spaces without many women.

This single interview is not sufficient to speak to the experiences of all members of the Yolobus Citizen's Advisory Committee, or advisory body members at large. More research is required to speak to whether or not members of advisory bodies believe they are being listened to by agency staff and other members, or if they are being tokenized in their positions. This research could take the form of further qualitative interviews, surveys, or a combination of both. A survey instrument was developed in tandem with this research, but not implemented. It can be found in the appendix, along with the interview guide.

Chapter 6: Conclusions

Twelve out of almost one hundred advisory and planning bodies examined of the United States transit agencies are not representative of the populations they serve. I argue that much progress to be made to elevate the voices of people of color in these spaces. When many bodies could be considered non-representative, it poses serious concerns about who is making decisions, advising planners, and "representing riders". The regression analysis conducted provides limited insights into why some bodies are more diverse. Generally, more diverse bodies appear in regions with more diverse service populations, with higher rail rider shares, and in the West, as compared to the Northeast. This analysis cannot identify specific policy decisions that lead to increases or decreases in diversity-such analysis is likely better conducted qualitatively.

These results can tell us who serves on these bodies, but they cannot tell us who should serve on them. Based on the results presented here, I suggest that agencies should reexamine how their advisory bodies are assembled. There are a number of possible approaches, but it is important to implement approaches that will have real-world impacts on planning and policy outcomes and are not perfunctory steps in a checklist. Roughly following the model proposed by Karner and Marcantonio (Karner, Marcantonio, 2018), the first step should be for agencies to evaluate how the membership of their body is selected, from the process of setting the size of the body, to recruiting and interviewing potential members. Metrics for representation should be set, prioritizing membership to underrepresented communities, and specific corrective actions should be identified at the same time to be taken if a body becomes unrepresentative. Finally, agencies should work to actively include bodies in the planning process, in the hopes that more community input will be included in the final product, creating a more equitable future.

I argue that the FTA should clarify why certain agencies are judged to have deficiencies, while others with similar issues are not. More than that, they should develop metrics that compare the representation of minorities on bodies to the demographics of their service area. In this realm, specifics are a useful starting point for agencies to self-reflect and the FTA to be proactive.

Obviously, there are methodological issues with the research conducted here. Agencies report their body membership and their service population in a variety of different ways, and this may cause issues with the analysis presented here. Addressing these deficiencies is an avenue that I strongly encourage further research into. I propose that, instead of relying simply on sporadic and variable Title VI reports, future research should replicate or refine the methodology of the 2002 Simon & Simon report on transit boards of directors (Elkridge, 2002). The methodology of that study allowed for a unified data set for easy comparison between diverse bodies. Included in a future survey should be questions about the service area demographics, both in terms of ridership and census level data. Furthermore, I believe that future research should include analysis of gender, disability status, transit use, home neighborhood (and regional transit use) and, if possible, income. All three of those attributes were excluded from this analysis due to the lack of data, but they add relevant and important dimensions to the public transit experiences of individuals participating in this system of advisory bodies.

Of course, it is worth emphasizing that the metrics presented here are not the only metrics by which to judge the equity impacts of a transit agency's planning process. This paper should not be taken as an endorsement nor a condemnation of these bodies. They have immense potential to be useful resources to guide transit agencies as they serve communities, but they also have the potential to be ignored and deprived of any authority. In the former case, these bodies contribute to a more just world, while the latter case can actively work against that quest for justice.

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