Title: Does Descriptive Representation Affect Who Testifies?[1]

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Abstract: Open hearings in state legislatures were designed to enhance the public's ability to participate in the legislative process. Ideally, open hearings allow citizens to directly communicate support or opposition on specific policy proposals to the legislators tasked with reviewing and voting on those policy proposals. The literature on descriptive representation has shown many secondary effects including increasing turnout in elections among historically marginalized groups to increasing the introduction and passage of bills that directly affect descriptive groups. Here we ask: do sponsor demographics impact who testifies in public hearings? We seek to understand if descriptive representation affects political participation in a more time intensive setting. We investigate this question using a case study of environmental policy hearings in the 2021 state legislative session for the Maryland General Assembly, including 909 testimonies across 187 bills. Our findings suggest that while white testifiers are equally likely to testify on a bill introduced by a white legislator as a bill introduced by a non-white legislator, non-white testifiers are 5.63 times as likely to testify on a bill sponsored by a non-white legislator as they are on a bill sponsored by a white legislator. However, we find no evidence that female bill sponsorship increases participation among women. Our findings indicate that not only does the election of non-white legislators make the legislature more diverse, it also increases diversity in the voices from which the legislature hears.

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Introduction

"Sunshine Acts" were adopted by states to increase transparency and public involvement in the lawmaking process. One part of the lawmaking process that was particularly important to the reformers who lobbied for sunshine laws was open hearings. Specifically, open hearings were designed to enhance the public's ability to participate in the legislative process by allowing citizens to directly communicate support or opposition on specific policy proposals to the legislators tasked with reviewing and voting on those policy proposals. However, how well these laws work at gaining public participation in the policymaking process is not clear. The literature to date suggests that public meetings do not necessarily increase public engagement, but do appear to increase trust in the legislative process and public lawmaking bodies (Abney & Hutcheson, 1981; Henson & Wood, 2023; Kirkland and Harden, 2022). Some studies suggest that not only does it not necessarily increase political participation, but it also lifts the voices of lobbyists and powerful elite organized interests but not citizens or organizations representing those who have little influence in politics (Schlozman et al., 2012). Kirkland and Harden's (2022) recent study, for example, concludes that "representative behavior does not change in the wake of transparency reforms; the public does not engage with new information provided by these reforms enough to motivate adaptation by legislators." In short, open meetings do not actually achieve their goals of a more informed electorate or more equitable information getting to the legislature.

Yet open meetings we have. In Maryland, for example, the 2021 state legislative session included over 2,000 hours of open committee meetings in which lobbyists, organized interest groups, and citizens testified before the legislature. The state legislature spends the vast majority of its time holding open hearings on proposed bills. Each committee holds a hearing on every bill, allowing anyone who wants to sign up to have a few minutes to speak to the merits of the bill and to explain to the legislature how the bill will affect a group, a company, or a citizen's life. Recent evidence suggests that these hearings only serve to elevate the voices of the few. For example, a recent study of the Maryland State Legislature found that testifiers in state legislative meetings were unrepresentative of the state's population: 83 percent of testifiers were white and 60 percent were male, despite the fact that the population of Maryland is only 57% white and 48.5% male. Further, 89% of those who testified did so on behalf of an organized interest

(Pearson-Merkowitz, Vangelov, and Frost 2024). These findings suggest that open hearings may elevate some voices at the expense of others because white and male citizens, lobbyists, and businesses participate at higher levels than non-white, female, and community groups.

The literature on descriptive representation suggests that the presence of legislators who hold minoritized descriptive traits in democratic bodies has secondary effects, including increasing turnout in elections and increasing the introduction and passage of bills that directly affect minoritized groups (Banducci et al., 2004; Barreto et al., 2004; Branton et al., 2012; Jeong, 2013; Logan et al., 2012; Washington, 2006). This suggests that descriptive representation could help level the playing field, at least to some extent, in open meetings and help to ensure that state legislators hear from minoritized groups. We suggest that since the presence of minoritized legislators can manifest in bills being introduced that represent the substantive interests of minoritized citizens and their presence can increase feelings of political efficacy among those they represent, that as a result, when minoritized legislators introduce bills, there should be a corresponding increase in the diversity of those who participate during legislative hearings that aligns with the demographic traits of the sponsor.

We contribute to the literature by analyzing if a bill sponsor's race and gender changes the demographic makeup of the witness pool in the hearing. We utilize a case study of the Maryland General Assembly's (MGA) 2021 open hearings regarding environmental policy bills. Our data includes every testimony given on every environmental bill in the 2021 legislative session: 909 testimonies delivered across 187 bills. We analyzed the testimony for the demographic data (e.g., race, ethnicity, gender) of the person testifying as well as the legislator who sponsored the bill.[3]

We find that when non-white legislators sponsor environmental bills, it drastically changes the population that is present at bill hearings. While we found no effects for female bill sponsorship,, we found that, on average, when a bill has a non-white bill sponsor the proportion of non-white testifiers doubles compared to when the bill's sponsor was white. This evidence suggests that the presence of non-white legislators has important implications for the voices that legislators hear in open meetings.

Descriptive Representation and Political Participation

[3] For bills that had multiple bill sponsors, the first sponsor listed on the MGA website was selected as the primary sponsor.

President John Adams once said that the representatives within elected legislatures in the United States should "be an exact portrait, in miniature, of the people at large, as it should think, feel, reason and act like them" (Pitkin 1967, 60). The foundational theories of descriptive representation are founded on this same idea that legislatures should "mirror" the traits of the populace but that thinking, feeling, reasoning, and acting like the people requires having the same experiences and socialization as the people (e.g. Mansbridge 1999). In American politics, the discussion surrounding "descriptive" representation has focused specifically on the relative merits of female and minority representation in legislative bodies, though some studies exist on descriptive traits of religion (e.g. McTague and Peason-Merkowitz 2013; 2015; 2023) as well as traits such as being a smoker or a teacher prior to entering office (e.g. Burden, 2007). A growing literature suggests representatives with descriptive traits do not just think and feel like those they represent, but also they have substantive success changing the legislative game both in terms of bill introduction and successful bill passage that positively impacts the communities they mirror (Bratton and Ray 2002; Haider-Markel, Joslyn, and Kniss 2000; Preuhs 2005; 2006; 2007; Mctague and Pearson-Merkowitz 2014; Rouse 2013) and also blocking bills that are harmful to their communities (Filindra and Pearson-Merkowitz 2013).

Increases in descriptive representation also results in increases in discussions of topics important to minoritized communities (Gershon, 2008; Juenke and Preuhs, 2012; Wallace, 2014). Gershon (2008) finds that minority House members more frequently connect general issues to race, ethnicity, and gender compared with white and male House members, reinforcing Juenke and Preuhs' (2012) argument that there is a racial dimension to legislative voting impacted by descriptive representation in congressional seats. Similarly, Wallace (2014) finds that when examining representation on three areas most salient to the Latino public, Latino congressional members substantially increased the number of co-sponsored bills. All of the above has significant implications not only for the descriptive representation of minoritized groups, but also for how issues affecting these communities are framed in relation to more politically prominent concerns.

A long established literature also suggests that the presence of "descriptive" representatives can change who participates in electoral politics. For example, many studies suggest Black voters turn out at higher rates when there is a Black candidate on the ballot (Abney and Hutcheson 1981; Bobo and Gilliam 1990; Griffin and Keane 2006; Preston 1983; Stout, 2018;

Tate 1991; Washington 2006). For women, the relationship has been less clear. As Wolak (2020) argues, "Increasing women's representation in politics has been argued to be an important factor in closing the gender gap in political engagement." And, an extensive literature suggests that having women in elected office or running for office does increase political interest and political discussion among women (Atkeson 2003; Burns, Schlozman, and Verba 2001; Hansen 1997; Koch 1997; Reingold and Harrell 2010). But the evidence regarding if the presence of female candidates actually increases political participation among women is mixed (Broockman 2014; Dolan 2006; Lawless 2004; Wolak 2015; 2020). Similarly mixed evidence exists for Hispanic voters (e.g. Sanchez and Morin, 2011).

The mechanism by which having a candidate with a shared set of descriptive traits as a constituency drives political participation is theorized to be related to a variety of factors. Early work suggested that higher levels of political participation, specifically among Black voters, was due to changes in external efficacy (Bobo and Gilliam 1990). Several studies find evidence in favor of this causal mechanism. McDermott (1998) finds that Black voters perceive Black candidates as more concerned with advocating for minority rights than white candidates (see also Tate 2001) and others find that Black candidates are seen to be more compassionate, moral, hard working, and competent (Siglemen et al. 1995; Williams 1990; Weaver 2012)., Henson and Wood (2023, p.97) also find evidence to suggest an interaction between race and gender with "white participants [expressing] significantly higher levels of empowerment with a white man representative and lower levels of empowerment with a Black man representative," and "Black participants [having] marginally significantly higher levels of empowerment with a white woman as their representative."

While much of this literature looks at micro-level associations and the presence of a single descriptive candidate on the ballot, an important systemic view is also critical. For example, Rocha et al. (2010) find that minority representation (Black representation *and/or* Latino/a representation) in the legislature is a necessary condition to increase minority political participation: in their study, minority communities were more likely to vote as their representation within a state legislature increased, with the probability of voting increasing between 10 percent to 40 percent. Likewise, Atkeson and Carrillo (2007) argue that there are additive effects. Their study of female empowerment and its effects on political efficacy among women suggests that "higher levels of collective female descriptive representation promote

higher values of external efficacy for female citizens, suggesting that collective female descriptive representation has important benefits to a democratic society" (Atkeson and Carrillo 2007, 79).

The Case of Public Testimony

Almost all of the literature on the effects of descriptive representation on political participation either looks at voting or on secondary elements such as self-reported behavior or feelings of empowerment or efficacy. Here we are interested in the potential systemic changes brought about by descriptive representation. Voting is critical to electing members who represent the views of the public, but voting is also amorphous. When a citizen votes for a candidate who looks like them, are they endorsing all of their platforms and values? All of the bills they will introduce? Surely not. People make choices to prioritize and many people vote based on trust, not on issues. As a result, it is important to understand if descriptive representation can also drive political participation in higher impact forums where elected officials of all backgrounds hear directly from citizens on the matters before them.

Public testimony may also counter the efforts of descriptive representatives to be "in place of" those they represent. Imagine a scenario in which a Black legislator introduces a bill important to the black community. For example, a measure to require local governments to study the impact on air quality before permitting a new facility that will have polluting effects. The Black legislator may argue to their colleagues that this is important to the Black community because of historic environmental racism and the fact that Black neighborhoods already have more polluting industries present than their white counterparts. But when the hearing occurs, the only voices present represent white neighborhoods, large businesses, and local governments who oppose the bill. Opposition voices are known to be more effective than voices in support (McKay 2012; Dyck and Pearson-Merkowitz 2020) and since white people and organized interests are more likely to show up to testify (e.g. Pearson-Merkowitz, Vangelov, and Frost 2024), the hearing could result in the Black legislator's argument being tempered.

However, if the presence of the Black legislator increases the likelihood of substantive bills important to the Black community being introduced *and* increases the feelings of empowerment and efficacy among the Black community to the point that members come to the hearing to have their own voices heard in support of the measure, it could compound the legislator's impact

ensuring that white legislators understand that the member is representing a real need in their community.

Moreover, recent studies suggest that public testimony in legislative hearings is extremely unrepresentative of the public. As noted above, even in a state with a high level of descriptive representation among Black and female legislators, public testimony is overwhelmingly white, male, and well-resourced (Pearson-Merkowitz, Vangelov, and Frost 2024). But public testimony is important: while public hearings have been found to benefit regulated industries more than other groups, they can still be a mechanism by which legislators gain awareness of positions held by active actors (e.g. Checkoway, 1981). It can also increase legislator's awareness of issues, make issues more salient to legislators, and increase legislator information about the different sides of an issue (Moreland-Russell et al., 2015). As a result, if open meetings do not equitably represent the views of various parties, biased policy outcomes are more likely (Browne, 1990; Schlozman, 2010). If descriptive representation increases the diversity of the witness pool, this could have systemic effects on legislative outcomes even if individual bills are no more likely to be passed.

Thus, we propose that the presence of non-white and female legislators could change the makeup of state legislative meetings by raising the voices of those who have historically been marginalized. Our specific research question is: Do state legislator demographics (race and gender) impact the diversity of witnesses in public hearings? We proposed that (H1) when a non-white legislator is a bill sponsor, the hearing will have a higher share of non-white witnesses than when a bill is sponsored by a white legislator. And (H2) that when a bill is sponsored by a female legislator, the hearing will have a higher share of female testifiers than when a bill is sponsored by a male legislator.

Data/Methods

To test our hypotheses, we use a case study of hearings regarding environmental bills in the Maryland General Assembly. The data was created from Zoom recordings of the 2021 Maryland General Assembly's (MGA) committee hearings on all bills that pertained to environmental policy. Committee sessions were moved online due to the COVID-19 pandemic, and they were made available to the public via YouTube. This change has persisted. The General Assembly

now allows people to testify at hearings either in person or through Zoom and all hearings are posted publicly.[4]

Environmental policy was selected as our case study for two reasons. First, and most importantly, because of the longstanding legacy of environmental racism and injustice within the United States. Persistent racial and economic segregation often means that policies that affect the environment have very different effects for minoritized and low income communities than white and higher income communities with more power in the legislative process (Bullard & Johnson, 2000; Newell, 2005; Taylor, 2015). Second, environmental policy presents a hard test of our hypothesis. Most studies of descriptive representation focus on easier to code policies that have clear associations with the demographic group of the study–for example, reproductive rights for female legislators (Reingold, 2008), and LGBT rights for LGBTQ legislators (Haider-Markel, 2007). Environmental policy is a harder area. As Arianna Kelly, a former leading female leader of the Maryland General Assembly noted in a speech recognizing her achievements for women while in office, such as leading the passage of paid family leave, "In my office, we had a formula. I introduced 20 bills every session. Five would be my priorities for women. The other 15 would be bills that were generally necessary and would increase my political capital that I could then spend on my priority bills." To Senator Kelly, the key was not to be pigeonholed as a legislator who only worked on women's issues and therefore would not be taken seriously by her male counterparts. However, a brief look at the testimony on her bills shows that even when the issue was not a "women's issue", her hearings had more women testifying than on similar bills introduced by men. Environmental issues may be substantive and addressing environmental justice needs of minoritized communities, or they may be just bills important to legislators for

[4] While the pandemic made it easier for researchers to collect data, we cannot determine whether the witness pool differed due to the Zoom environment or if legislators and witnesses behaved differently in pre-pandemic, in-person hearings. Zoom does enhance accessibility for testifying by eliminating the need to travel to the state capital, which might occur during work hours, and instead allowing people to participate from their home computer or phone. Despite varying access to Zoom-capable technology, we believe this shift is likely to bias our data against supporting our hypotheses, thus providing a rigorous test of them.

other reasons. As a result, environmental bills present a harder test than looking at bills on more clearly "women" or "minority" interest areas.

Maryland also presents an interesting case. The Maryland Open Meets Act requires "State and local public bodies to hold their meetings in public, to give the public adequate notice of those meetings, and to allow the public to inspect meeting minutes." Like many states, the legislation's stated goal is "to increase the public's faith in government, ensure the accountability of government to the public, and enhance the public's ability to participate effectively in our democracy" (OAG-Maryland.gov). But Maryland also has additional processes that increase transparency and at least attempt to allow participation in the legislative processes. For instance, every bill introduced during a legislative session is guaranteed a public hearing, all of which are announced publicly, allow for anyone who signs up to give testimony, and every hearing is video recorded and made available online (MGA, n.d.). This makes it a good test of the case as the bills and who testifies is not filtered by a legislative leader. Maryland also has a significant, well-educated middle-class Black population that is relatively well represented in its legislative processes compared to other states or the national average (Nichols & Schak, 2017). Approximately one-third of Maryland's state assembly members are Black, an almost perfect reflection of the population of the state, and 4.26 percent are Asian - slightly below the state population average (Maryland Department of Planning [MDP], 2021; MGA, n.d.). Moreover, Maryland has the one of the largest proportions of female legislators in the nation,[5] making it one of the most racially gender reflective legislatures in the nation (Shwe, 2020; National Conference of State Legislatures [NCSL], 2020). In short, if open meetings were to achieve their goals anywhere, Maryland should be the place.

Data Collection

We referenced the Maryland General Assembly (MGA) website to identify all environmental bills introduced in 2020.[6] We identified 232 pieces of environmental legislation using the search feature on the MGA website. The website then lists all hearings for each bill and

[5] https://cawp.rutgers.edu/facts/levels-office/state-legislature/women-state-legislatures-2020

[6] The MGA classifies bills according to subject area; searches on the following subject areas were used to identify legislation: Environmental Matters, Environmental Health, Conservation, Pollution, Natural Resources, Environment Services, Department of Environment, Recycling, Renewable Energy, Solar Energy, Wind Energy, and Wildlife.

includes a YouTube link to the video of the hearing. Based on those 232 bills, there were a total of 187 bill hearings are utilized in our analysis. The 45 bills excluded from our dataset were either withdrawn before the hearing took place, had a hearing in which no witnesses testified, or there was no video of the individuals who testified (i.e., audio-only). We use the bill as our unit of analysis. Across all bills, there were 909 unique testimonies given by 481 unique witnesses (e.g. some witnesses testified on multiple bills).

A team of research assistants coded each of the 187 MGA environmental bill hearings. Data collected for each hearing included all pertinent information about the bill and demographic information of each person who testified. The bill number, sponsoring legislator, bill topic, and geographic pertinence (whole state versus locality) were also coded by the research assistants and then confirmed against information on the Maryland General Assembly Website or through additional resources like Legiscan or Billtrack50. Researchers then coded the demographic characteristics of each person who testified including the approximate age, race and ethnicity (Hispanic/Non-Hispanic), and gender.

Our goal was to mimic the legislator's experience of observing witnesses. As a result, coders were instructed to use their own judgment when coding witness demographics. Intercoder reliability scores [available in Pearson-Merkowitz, Vangelov, and Frost (2024) and in the appendix] showed the coding was highly reliable. Due to the Zoom format, some witnesses called in to give their testimony and did not appear on video or had their camera turned off; when a coder was not able to determine the witness's age, race, ethnicity, or gender because there was only audio included, research assistants selected "audio-only" and those testimonies were not included in the data. However, audio-only testimonies were very rare. Researchers used the following demographic categories to code the demographics of those who testified that are used in this analysis.

Age: 18 or younger, 19-29, 30-39, 40-49, 50-59, 60-69, over 70

Race: Black, White, Asian (Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam), or Other

Gender: Male, Female, Non-Binary.

Each hearing has a corresponding bill legislation page on the MGA website. Bill sponsors were captured from the bill page for each bill. Sponsor demographics were coded based on the MGA members page . An example bill page and member page from the MGA website as examples are included in Supplemental Appendix Figure 1A, Figure 2A, and Figure 3A.

Dependent Variables

In order to test our hypotheses we start with descriptive statistics and then employ OLS regression analysis. Our data was originally collected at the testifier level (e.g. Pearson-Merkowitz, Vanegelov, and Frost 2024). To create our dependent variable, the testifier-level data was collapsed at the bill level to create two dependent variables: The first is the proportion of non-white testifiers for each bill. This dependent variable ranges from 0 to 1 and represents the true variation in diversity in the bill hearings. The second is the proportion of female testifiers for each bill: Again, this variable ranges from 0 to 1 and represents the true variation in gender balance during the bill hearings.

The main independent variable for Model 1 (proportion of non-white testifiers for each bill) is the bill sponsor's race and the main independent variable for Model 2 (proportion of female testifiers for each bill) is the bill sponsor's gender. The other independent variables for each model include demographic information on race and ethnicity for the primary bill sponsor's district, the primary sponsor's party affiliation and number of years in the legislature, the number of cosponsors on the bill, the chamber the hearing took place in (House vs. Senate), and the committee of the bill.[7] For each model one committee is left out of the model for comparison purposes. For these models, the excluded committee is the Appropriations committee.

Results

Race:

The 187 environmental bills introduced in the MGA in 2020 were introduced by 115 different legislators: 138 bills were introduced by white legislators, 49 bills were sponsored by

[7] For Model 1, we originally included a variable controlling for if the bill was a priority of the Black Caucus. This variable was dropped due to collinearity with the primary independent variable – non-white legislator. Similarly, in Table 2, we originally included a variable controlling for if the bill was a priority of the Assembly's Women's Caucus but again, this had to be dropped from the model due to collinearity with the primary independent variable.

non-white legislators (44 Black legislators, and 5 Asian legislators). Just over 30% of the bills were introduced by Black legislators and 3.6% by Asian legislators, almost a perfect reflection of the racial distribution of the members of the MGA, indicating bill introductions in the area of environmental legislation is just as likely to be introduced by Black and Asian legislators as white legislators.

Despite Maryland's diverse population, those who testify are much more likely to be non-Hispanic white (Pearson-Merkowitz et al. 2024). For the model on racial demographics 902 usable testimonies were presented across all environmental bills; 7 testimonies were excluded because the race of the testifier was unknown. Of the 907, 774 of the testimonies (86%) were presented by white witnesses, and 135 (14%) were presented by non-white witnesses (11% Black, 2% Asian, and approximately 1% by other non-white witnesses).

Across all the hearings, the average proportion of non-white testifiers is .13. This indicates that for every 87 white testifiers the committee heard from, they heard from only 13 non-white testifiers. According to the 2020 Census, just under sixty percent (57.2%) of Maryland residents identify as white and no other race, and just under thirty-two percent (31.6%) identify as Black.[8] Thus, Black and other non-white testifiers are greatly underrepresented in hearings about environmental policy (e.g. Pearson-Merkowitz, et al 2024).

In 121 (64.71%) hearings, the committee heard from *only* white witnesses. The remaining 66 bill hearings ranged from having 10% (1 bill) non-white testifiers to 100% non-white (6 bills) testifiers. In regard to our first hypothesis, we first look at a bivariate relationship and find substantial evidence in favor of our first hypothesis. Bills introduced by white legislators had fewer non-white testifiers. While the average proportion of non-white testifiers for bills sponsored by white legislators was .105, for bills sponsored by a Black or Asian legislator, the proportion of non-white testifiers was .208–twice the size. The distribution of the diversity of the witness pool was also different if the sponsor was white or non-white. For hearings with a white sponsor, 69% had no non-white testifiers and only 1.5% had all non-white testifiers. For hearings on bills with a non-white sponsor, 53% had all white testifiers, whereas 8% of bills had no white testifiers.

[8]https://www.census.gov/quickfacts/fact/table/MD/POP010220

However, with all studies of descriptive representation, it can be hard to sort out the effect of the sponsor's race with that of the community they represent or other factors that could affect the witness pool. For example, perhaps more non-white people show up to testify when a non-white legislator introduces a bill because the legislator simply represents more non-white people. To control for this and other factors, we turn to OLS regression.

Table 1 presents the regression analysis. Our primary variable of interest is the sponsor's race, which is a dummy variable indicating if the sponsor of the legislation is not white (1) or white (0).

The models are clear that even when controlling for district and individual level variables, the sponsor's race remains highly statistically significant. Holding other variables at their means, a bill sponsored by a non-white legislator has 14 percentage points more non-white testifiers than a bill sponsored by a white legislator. Several control variables are also significant. For committees, all variables are dummy variables and the reference category is the Appropriations Committee. Only one committee (Rules and Executive nominations) was more likely to have non-white testifiers than the Appropriations committee. However, there was only one hearing on an environmental policy in Rules and Executive Nominations and, as a result, no meaning can be derived from this coefficient. Also significant were several of the district demographics including percent Black and percent Hispanic. However, given both are in a counter intuitive direction, it is unclear what to make of this. Overall, the model performs quite well explaining approximately 30 percent of the variation in the diversity of the committee hearings between bills.

We find significant support for our hypothesis: When non-white legislators sponsor bills, it does appear to increase the diversity of witnesses present in the hearings. does appear to increase political participation in public hearings among non-white citizens. An OLS model was also run where the dependent variable was Proportion of Black testifiers and the primary independent variable was bill sponsor being Black; the results were similar to those in Table 1 and can be found in Appendix Table 1.

Table 1: Proportion of Non-white Testifiers in Bill Hearings, Maryland General Assembly, 2021

	(1) Prop Non-white Testifiers	(2) Prop Non-white Testifiers	(3) Prop Non-white Testifiers
Non-white Sponsor	0.110*	0.141**	0.119**
	(2.44)	(3.12)	(2.78)
Senate		-0.0124	0.0899
		(-0.42)	(0.74)
Democrat		-0.00318	0.0598
		(-0.04)	(0.65)
# of Cosponsors		0.0138*	0.00724
		(2.58)	(1.52)
District Black		-0.264*	-0.392**
		(-2.37)	(-2.63)
District Asian		0.225	-0.285
		(0.51)	(-0.74)
District Other		-1.250	-1.501
		(-0.62)	(-0.80)
District Hispanic		-0.484**	-0.488***
		(-3.33)	(-3.78)
Years in Legislature			0.00102
			(0.57)
Economic Matters Com.			0.157
			(1.61)
Environment and Transportation Com.			0.142
			(1.50)
Health and Gov. Operations Com.			0.0942
			(0.77)
Judiciary Com.			0.479
			(1.36)

Ways and Means Com.			0.256
			(1.72)
Rules and Executive Nominations Com.			1.214***
			(14.56)
Finance Com.			0.157
			(1.95)
Judicial Proceedings Com.			0.0265
			(0.48)
Budget and Taxation Com.			0.106
			(0.98)
Cons.	0.0976***	0.271	0.139
	(6.13)	(1.96)	(0.75)
R^2	0.0465	0.1571	0.2596
N	187	187	187

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Gender:

We now turn to our second hypothesis testing the effect of descriptive representation on women's political participation in bill hearings. The bills were similarly distributed in terms of bill sponsorship and reflective of the distribution of gender among legislators: 115 bills (61%) were sponsored by male legislators and 72 bills (38.5%) were sponsored by female legislators.

For this section, we can retain all 909 testifiers. Of the 909 testimonies, 532 (58.5%) were presented by male witnesses, and 337 (41.5%) were presented by female testifiers, while almost perfectly reflective of the percent of the legislature that is female, this is substantially different from the population as a whole.

Across all the hearings, the average proportion of female testifiers is .37. This indicates that for every 63 male testifiers the committee heard from, they heard from 37 female testifiers. Starting with a bivariate relationship, we do not find much support for a descriptive representation effect among women. The average proportion of female testifiers when the bill was sponsored by a man was .355, whereas when the bill was sponsored by a female, the proportion increased to only .395.

The distribution is also not extremely different. Across all hearings, 31% (58 bills) had an all male witness pool and 13% (24 bills) had an all female witness pool. When the sponsor was male, this changed to 35% (40 bills) and 11% (13 bills) respectively, and when the sponsor was female it was 25% (18 bills) and 15% (11 bills). While these distributions do lend support the hypothesis, the effects appear much smaller than in the case of racial representation.

Table 2 presents the OLS models which control for other compounding factors. In these models we find no support for our hypothesis. Interestingly, the only substantive variable that is statistically significant is the percent of the sponsor's district that is Black. The model does indicate that when the sponsor's district is more diverse, there is a greater share of female testifiers on the sponsor's bills. What explains this correlation, or if it is spurious, requires more research.

Table 2: Proportion of Female Testifiers in Bill Hearings, Maryland General Assembly, 2021

	(4) Prop Female Testifiers	(5) Prop Female Testifiers	(6) Prop Female Testifiers
Female Sponsor	0.0391	0.0429	0.0427
	(0.77)	(0.84)	(0.83)
Senate		-0.0112	-0.0719
		(-0.20)	(-0.49)
Democrat		-0.0719	-0.0667
		(-0.60)	(-0.51)
# Cosponsors		0.00384	0.000479
		(0.37)	(0.04)
District Black		0.480*	0.510*
		(2.36)	(1.98)
District Asian		0.218	0.154
		(0.44)	(0.28)
District Other		8.763*	6.948
		(2.17)	(1.67)
District Hispanic		0.588	0.406
		(1.90)	(1.27)

Years in Legislature			-0.00421
			(-1.01)
Economic Matters			-0.0407
			(-0.36)
Environment and Transportation			-0.0665
			(-0.51)
Health and Gov. Operations			-0.0103
			(-0.03)
Judiciary			0.267
			(1.92)
Ways and Means			-0.0997
			(-0.54)
Rules and Executive Nominations			1.229***
			(7.27)
Finance			0.155
			(1.21)
Judicial Proceedings			-0.0582
			(-0.40)
Budget and Taxation			-0.0310
			(-0.22)
Constant	0.356***	-0.263	-0.0677
	(11.20)	(-1.12)	(-0.24)
R2	0.0032	0.0576	0.1037
N	187	187	187

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Discussion

Witnesses who testify in high impact arenas are not representative of the population. Voices heard in these forums are demographically skewed in favor of advantaged groups. While research on descriptive representation highlights the positive impact on political engagement, how well this phenomenon has translated into affecting participation within open hearings on

specific policies has not been tested. This paper aimed to add to our understanding of how descriptive representation affects political participation by looking at the high impact, high time commitment act of participating in legislative hearings.

Our data indicates that bills sponsored by non-white legislators attract a far more diverse set of testifiers than bills sponsored by white legislators. However, we found no evidence that female bill sponsorship increases the proportion of female testifiers. The findings suggest that descriptive representation, particularly racial representation, influences who testifies in legislative hearings. While gender empowerment had no effect on the makeup of testifiers, the presence of non-white legislators increased the likelihood of non-white citizens testifying, emphasizing the role of racial representation in shaping diversity within public hearings.

While environmental policy presents a somewhat "hard test" of our hypothesis, the test is harder for women than minoritized groups. Given the reality of ongoing segregation in the United States, environmental policies have more[less] effects on some racial, ethnic, and economic groups than others. However, women are equally spread out across all neighborhoods. As a result, the translation of an environmental policy to a minoritized group may be more meaningful to some (segregated racial and ethnic groups) than others (women). Future research should expand our analysis to other areas including issues like education, health care, and judicial issues as a further test of the hypothesis.

In addition, future research could expand by including more states to the analysis. This additional data would provide important statistical information for determining if our findings are case specific or generalizable. In particular, we wonder if there is a "tipping point". For example, perhaps Maryland has such a large population of female legislators that the empowerment effect is now systemic. One could test this by looking at states with fewer female elected officials.

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Appendix

Data reliability

Our data consists of a census of all witnesses who testified on environmental legislation in the Maryland General Assembly during the 2021 legislative session. To check the validity of our data collection procedures, 10.6% of MGA committee hearings were double coded for intercoder reliability. Across all variables used in this analysis was over 90%. Full intercoder reliability can be found in Pearson-Merkowitz, Vangelov, and Frost (2024).

Figure 1A. Maryland General Assembly Website Bill Sponsor List

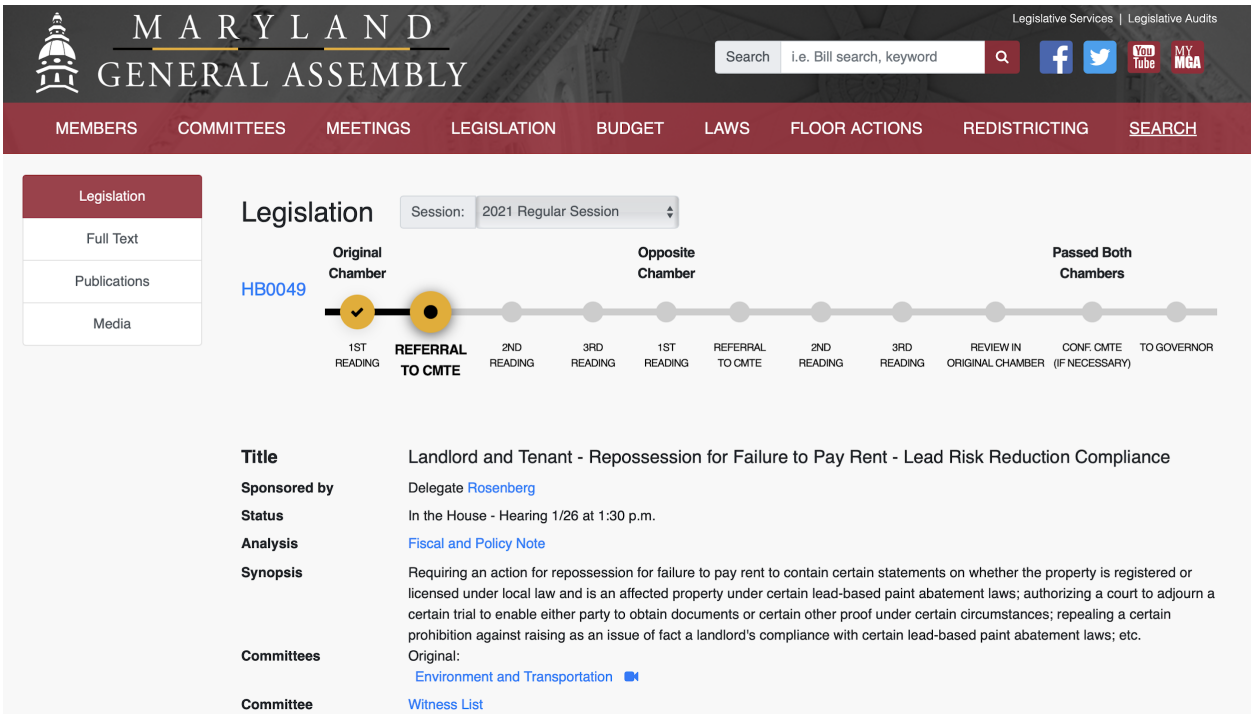

Figure 2A. Maryland General Assembly Website Active Legislators/Members

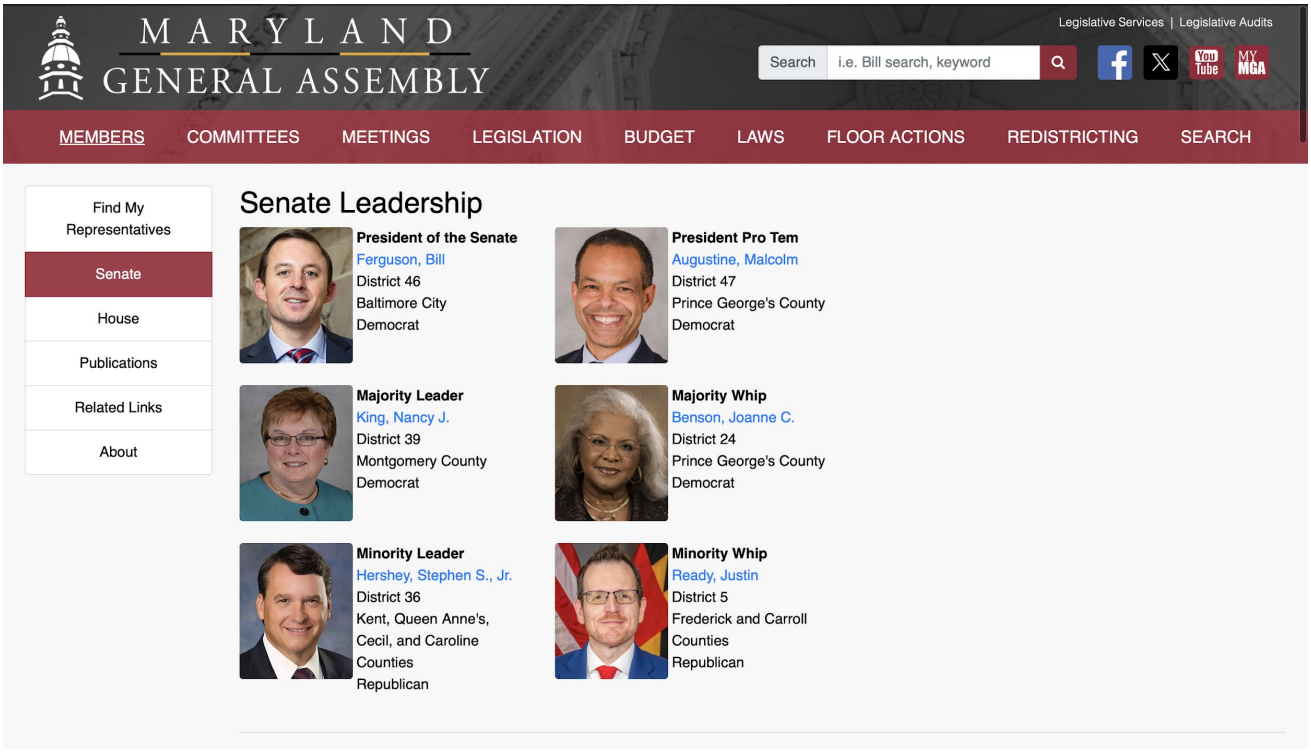

Figure 3A. Maryland State Archives Website Former Legislator Page

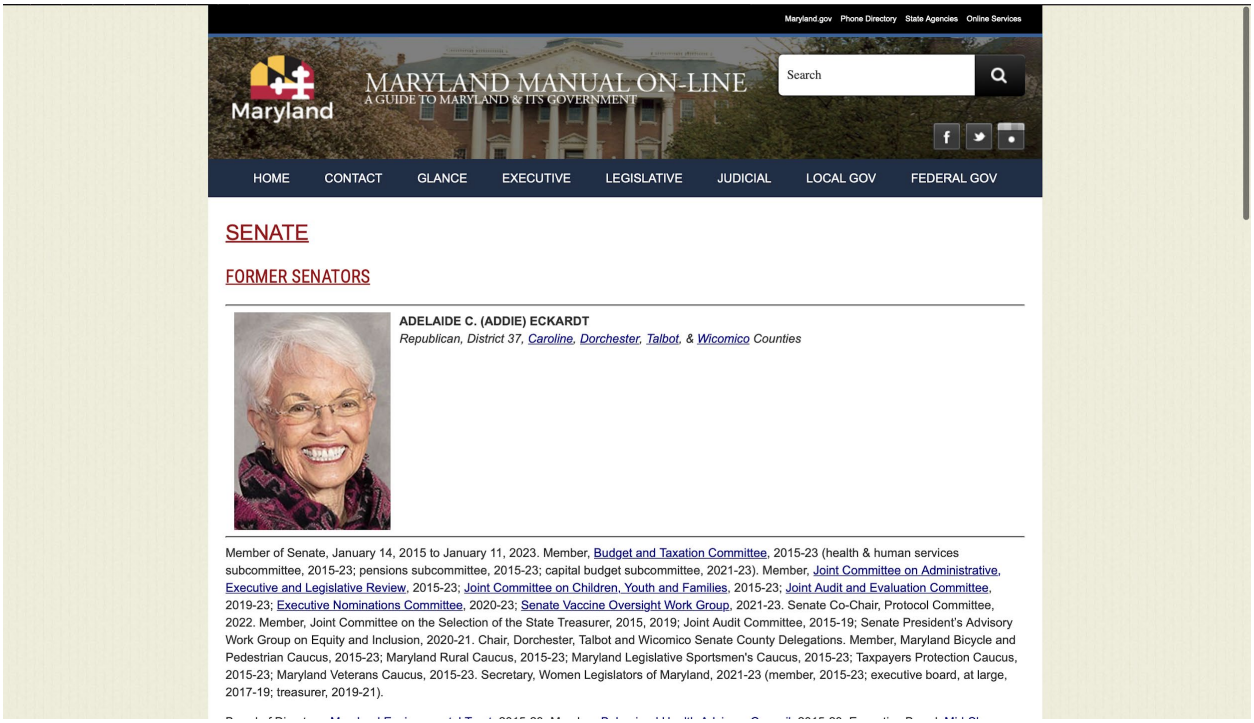

Table 1A: Proportion of Black Testifiers when Sponsor is Black, Linear Regression

	(7) Prop Black Testifiers	(8) Prop Black Testifiers	(9) Prop Black Testifiers
Black Sponsor	0.136**	0.153**	0.120**
	(2.90)	(3.18)	(2.76)
Senate		-0.0186	0.111
		(-0.79)	(0.97)
Democrat		0.0221	0.0673
		(0.34)	(0.93)
# Cosponsors		0.0133**	0.00821
		(2.69)	(1.83)
District Black		-0.159	-0.234
		(-1.75)	(-1.88)
District Asian		0.280	-0.0621
		(0.70)	(-0.17)
District Other		-0.464	-0.385
		(-0.27)	(-0.24)

District Hispanic		-0.361**	-0.333**
		(-2.81)	(-3.02)
Years in Legislature			0.000475
			(0.32)
Economic Matters			0.164
			(1.69)
Environment and Transportation			0.149
			(1.63)
Health and Gov. Operations			0.0940
			(0.80)
Judiciary			0.483
			(1.37)
Ways and Means			0.147
			(1.27)
Rules and Executive Nominations			-0.0578
			(-0.75)
Finance			0.0970
			(1.53)
Judicial Proceedings			0.0386
			(0.89)
Budget and Taxation			0.0813
			(0.99)
_cons	0.0647***	0.130	-0.0355
	(5.37)	(1.21)	(-0.22)
R^2	0.0832	0.1734	0.2525
N	187	187	187

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$