The Limits of Democratizing Science: When Scientists Should Ignore the Public

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Abstract. Scientists are frequently called upon to "democratize" science, by bringing the public into scientific research. One appealing point for public involvement concerns the non-epistemic values involved in science. Suppose, though, a scientist invites the public to participate in making such value-laden determinations, but finds that the public holds values the scientist considers morally unacceptable. Does the argument for democratizing science commit the scientist to accepting the public's objectionable values, or may she veto them? I argue that there are a limited set of cases where scientists can, consistently with a commitment to democratized science, set aside the public's judgments.

Keywords. Science and values; democracy; citizen science; political philosophy of science; ethics of science; inductive risk; egalitarianism; pluralism

1. Democratizing science

Scientists are increasingly being called upon to "democratize" science — to bring members of the public without traditional scientific credentials into the research process. This can of course take many forms. In this paper, I want to discuss one particular type of involvement. As philosophers and other scholars of science have demonstrated, doing science can require making important, non-epistemic value judgments (Elliott 2017). Such value judgments might be needed, for example, to define concepts, create classification systems, set standards for hypothesis acceptance, or choose how to present a study's results. One way to democratize science is to invite the public to participate in making the value judgments that contribute to those decisions.

This has seemed to many philosophers to be a particularly appealing point for public involvement for several reasons. First, scientists typically don't receive much specialized training concerning ethical, social, or political values, and accordingly don't have any clear claim to expertise on those matters. There is therefore no clear reason to favor or prioritize scientists' judgments on those issues over the views of the public. Second, at least when the research in question may impact public policy, principles of democracy suggest that the public has a right to weigh in on value-laden matters. As many political philosophers and scholars of science have noted, democracy doesn't require putting empirical questions up for public vote. We don't (or at least shouldn't) have the public vote on whether CO_2 emissions cause global warning, or Covid vaccines prevent infections. We should, however, let the public weigh in on value-laden

questions like: how much economic sacrifice ought we endure today, to reduce the impact of climate change? How confident must we be that Covid vaccines work, in order to make them available to the public? When positions on these matters become embedded in scientific research (e.g. in the choice of economic discount rate used in an integrated climate assessment model, or in the standard of proof employed in a clinical trial), it seems reasonable to think that the public ought to have a say. Why should *scientists'* views about intergenerational justice or risk-benefit tradeoffs be the ones embedded in the research that policy-makers ultimately rely on when making their decisions?

In this paper, I will take for granted the value of democratizing science in this way. (For arguments, see Douglas (2005), Intemann (2015), Schroeder (2021), and Lusk (2021).) I will also sidestep the many empirical and normative questions that would need to be addressed before such an approach could be put into practice, and I will ignore concerns about feasibility. My goal will be to explore the *limits* of democratizing science. Specifically, I want to ask what, if anything, might justify scientists in asking for the public's input, but then rejecting what the public tells them.

Consider, for example, this scenario: you are an education researcher who is committed to democratizing science in the sense outlined above. Accordingly, at the outset of a new research project you convene a group of the public and ask them to help you operationalize concepts like *student:teacher ratio,* to construct classification systems for educational institutions, and to develop quantitative outcome measures for students. And suppose the public confidently reaches a consensus on positions that you find horribly misguided.[1] Perhaps they propose outcome measures that strongly focus on traditional subjects like literacy and numeracy, whereas you believe it is critical to also consider students' social and emotional development. Or perhaps they propose classification systems that will make salient differences among high-performing schools, while obscuring differences among poorly-performing schools, whereas you believe that it is more critical to pay attention to differences among that latter group. Further, let us assume that the judgments the public reaches are not traceable to empirically false beliefs or a lack of understanding; they simply represent ground-level differences in what the public values.[2] Faced with such a situation, you would likely ask yourself if you really must accede to the public's judgments. Or could you, *consistently with a commitment to democratizing science*, set aside public judgements that you take to be seriously mistaken?

(The caveat is an important one: presumably any commitment to democratizing science, like any commitment to democracy itself, is provisional. There are surely some situations where considerations of prudence, religion, or personal morality outweigh the value of democracy. Such cases are important and worth exploring further, but my suspicion is that there is less of interest to say about them philosophically. In this paper, I want to focus on whether there can be grounds for

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[1] Of course, on most controversial issues the public may be unable to reach a consensus. In this paper, I set aside cases in which the public is divided, since it seems easier for scientists to justify setting aside some public verdict if that position is endorsed by only a slim majority. It seems more questionable for scientists to set aside a position that the public strongly and univocally supports. Because they are more challenging, I focus on such cases in this paper.

[2] I exclude cases where normative disagreement can be traced to empirical disagreement because there are straightforward ways a democratic approach could attempt to minimize their occurrence. The most obvious (though not the only) is to include an education stage in the deliberative process used to solicit public views.

rejecting the public's judgments that are internal to democracy, or that are consistent with retaining the benefits that come from democratizing science.)

For many scientists — for example, those studying controversial topics, or those who hold unpopular moral and political views — this question is likely to be a critically important one. I suspect that many scientists would find the costs of democratizing science to be unacceptably high, if it might require them to work from public value judgments that they found morally wrong or repugnant. In this paper, I will partially alleviate this worry, by arguing that there are indeed certain situations in which scientists can reject the public's judgments while remaining committed to democratizing science — though I will argue that this "veto" power held by scientists is a very limited one.

2. Framing the problem

I will begin by arguing for two claims that, together, will show us what kind of an answer we are looking for. The first claim is: *merely disagreeing with the public's value judgments can't justify scientists in rejecting them.* To democratize science involves deferring to the public on certain decisions — it means granting them the authority to make those decisions. Deference need not be total. I can grant you the authority to decide where we will eat dinner tonight, but nevertheless veto your selection of the most expensive restaurant in Los Angeles. But for a grant of authority to have any meaning, it has to extend to a significant number of cases in which one disagrees with the resulting decision. To be committed to democratizing science in a meaningful way must therefore involve going along with what the public decides in at least a significant number of cases in which the scientist disagrees with those decisions.

The second claim is: *there are at least some cases where scientists can permissibly reject the public's judgments without thereby showing a lack of commitment to democratizing science.* Suppose, for example, that the public offers a horribly racist set of value judgments. Perhaps they propose that, in studying a drug's side effects, black patients' self-reported pain levels should be questioned, while white patients' self-reported pain levels should be taken at face value.[3] Given such value judgments from the public, surely the right thing for scientists to do is to reject them and instead to insist on treating white and black patients' self-reports as equally reliable. Now, it might seem that this is the sort of case I said earlier I was setting aside — where scientists should set the racist judgments aside because they should set democracy aside, in favor of morality. But I don't think we should accept that. It seems to me that a scientist who rejected such racist judgments could quite reasonably still claim to be fully committed to democracy. Being anti-racist, even in a racist society, needn't mean being anti-democratic. (For those not convinced, I'll offer a defense of this claim below.)

If those two claims are correct, they tell us what sort of solution we are seeking. They show that the question of when scientists must defer to the public isn't going to have a simple answer; it's not going to be "always" or "never". Scientists must *sometimes* defer to the public. The

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[3] There is evidence that many people (including many medical professionals) hold this view — though it may be grounded in false empirical beliefs about (supposed) differences between white and black individuals (Hoffman *et al.* 2016).

challenge we face, then, is to figure out how to distinguish the cases where scientists should defer, from the cases where they shouldn't (or needn't).

3. Two promising but unsuccessful solutions

The most obvious way to mark the distinction, I think, would be to say that whether scientists ought to defer to the public depends on how strongly they disagree with the public's judgment. If the disagreement is relatively minor, then it doesn't seem like much of an imposition to tell the scientist that she must go along with the public's values. (Imagine an economist who thinks that the line for "employed" should be drawn at 20 hours/week, but he finds that the public places it at 25 hours/week.) But it might seem completely unfair to tell a conservation biologist desperately committed to preserving biodiversity that she has to employ a very conservative definition of "threatened ecosystem", or to tell a researcher studying sexual violence that he must use a very restrictive definition of "sexual assault".

This is an appealing idea, and it delivers reasonable verdicts in many cases. But I nevertheless think it is mistaken.[4] The main problem is that it protects the wrong people. This view essentially tells scientists that they needn't go along with the public when doing so would be very hard *on them*. In that respect, it looks a lot like the "conscience protections" some jurisdictions give to religious workers, to prevent them from having to do things that conflict with their beliefs. But when I think that a scientist shouldn't go along with racist value judgments from the public, I don't say that to protect the scientist. My concern is for the victims of racism. Further, conscience protections deliver permissions, not requirements: they tell a religious pharmacist, for example, that he has the option of not filling a prescription for emergency contraception. But I don't think a scientist should merely have the option of not accepting racist values. She has an obligation to reject them.

I conclude that at least in a case where the public offers racist value judgments, this proposal isn't appealing. The problem with the racist value judgments is not that the scientist disagrees with them; it is that they're racist. That, in turn, seems to point towards a better proposal. If the problem is simply that the racist judgments are horribly misguided, we could say that scientists should ignore the public when the public makes a very serious moral error — when the public delivers a value judgment that is, objectively, very wrong or very harmful.

I think this proposal isn't obviously mistaken, and as we'll see in a moment it parallels a common view in political theory. But it also comes with a number of problems. The first is that implementing it would be both a disaster and counterproductive. Different scientists will overrule the public on different issues (since they'll disagree about what counts as a moral error) and with varying frequency (since they'll disagree about the seriousness of errors). The result would be

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[4] Something like this could potentially explain when considerations of morality or self-interest trump considerations of democracy — that is, when scientists can justifiably set aside democracy in favor of other goals. But as mentioned above, I am not interested in that sort of case in this paper.

that scientists' value judgments will end up influencing research results in a robust way — precisely the problem that democratizing science was supposed to avoid.[5]

A second problem is that the proposal has counterintuitive implications. According to common sense morality as well as most moral theories, the seriousness of a moral error is in part determined by its actual or prospective consequences. Driving drunk on a lightly-traveled road is a serious moral error, but driving drunk on a busy highway is worse. To assess the moral seriousness of a mistaken value judgment, scientists will therefore need to consider the expected or actual consequences that would follow from their employing it. This yields a number of surprising results. For example, it could turn out that the very same publicly-endorsed value judgment should be accepted by one research group but rejected by another. (This could happen if the latter group was more prominent, and so its work was likely to have a greater impact and thus greater potential for harm than the former's.) Intuitively, that doesn't seem right. If one research group should reject some publicly-endorsed value judgment as unacceptable, then any other research group should be able to do the same.

4. A detour through political philosophy

I conclude that the two most straightforward responses to our original question aren't good ones. How can we find a better solution? With a brief detour into political philosophy. A similar issue to the one we're considering comes up when thinking about democracy more generally. One view of democracy, which we might call *pure proceduralism,* says that democracy is simply a matter of majority rule (or some other procedure), and therefore that the democratic outcome is whatever the public wants or votes for. Very few people, though, hold this position. Most agree that there are at least some issues that shouldn't be put to the public or resolved via a vote, or on which policy-makers can justifiably overrule the public, and that such restrictions on the authority of the public don't curtail democracy. The justification for such restrictions comes from democracy itself, or at least doesn't compromise it. This is clearest in the case of something like voting rights: a constitution that prevents the public from stripping voting rights from a cultural minority isn't for that reason less democratic; it is more democratic.

Let us say that the issues that, in a democracy, shouldn't be left to the public lie outside the *limits of public authority* (*cf.* Christiano 2008). What are those limits? One common thought is that they are given by individuals' "basic rights". But that formula isn't very helpful, since, even if we know what rights are, it is unclear what makes a right "basic". Indeed, basic rights are often understood to be just those rights that the state can't permissibly infringe — obviously an unhelpful definition, if we are trying to identify what those rights are. If we want to get an independent grip on the limits of public authority in a democracy, we'll need to look elsewhere.

One thread in political philosophy, described by Stemplowska and Swift (2018) as the "conventional view" echoes the view we discussed earlier, saying that a majority decision is invalid if it is "gravely unjust". I doubt, however, that this really is the conventional view. In any

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[5] The lack of coordination could be lessened by taking judgments out of the hands of individual scientists and having scientific associations or societies adopt professional guidelines dictating what is to count as a "serious moral error". But that wouldn't help with the democracy problem: it would still be the values of the scientific community, rather than the public, that would guide research and thus indirectly shape policy.

case, I think it is clearly not the most intuitive position. A much more natural and appealing view says that it is not simply the magnitude of the wrong or the gravity of the injustice that matters; the *type* of wrong or injustice involved is critical. A look at the literature suggests that many political philosophers at least implicitly endorse such a view.[6] Although few theorists have attempted to carefully demarcate the limits of public authority, many have given examples of actions or policies that they think lie outside it. Conspicuously, nearly all of those examples fall into two categories: policies that are either racist or misogynistic.

Nussbaum, for example, says that although the state must show respect and tolerance for "reasonable" perspectives, "'Unreasonable' doctrines may be denigrated…so long as the definition of the reasonable is the ethical one, thus licensing the state to criticize, *for example, doctrines that believe in slavery or the subordination of women*" (2011, 29; cf. 38).[7] Rawls, surprisingly, picks abortion as an example of the sort of issue that should not be up for public debate, saying, "[A]ny reasonable balance of…values will give women a duly qualified right to decide whether or not to end her pregnancy during the first trimester. The reason for this is that at this early stage of pregnancy *the political value of the equality of women is overriding*" (2005, 243n32). Gutmann and Thompson say, "When a disagreement is not deliberative (*for example, about a policy to legalize discrimination against blacks and women*), citizens do not have any obligations of mutual respect towards their opponents" (1996, 3). And Brettschneider says, "In order to understand how the Supreme Court can act democratically by counter-acting majoritarian decision-making, one need look only to the case of Loving v. Virginia [1967]. In this case, the Supreme Court struck down legislation endorsed by a majority of Virginians *that prohibited interracial marriage*" (2005, 435).

This convergence on racism and misogyny is striking, in light of the many different examples of bad political judgments that could have been chosen. If judgments were liable to be overturned whenever they were gravely wrong or unjust, we would expect to see a wider range of examples, including wasteful economic policies, an unduly harsh (but not racist) criminal justice system, destructive environmental policies, inadequate health care or education, capital punishment, and so forth. Indeed, Gutmann and Thompson explicitly comment on the exceptional nature of racism, noting that, "[L]iberals are more inclined to respect the person who favors capital punishment or opposes abortion than the person who favors racial discrimination. *They could show this respect even if they believed that capital punishment and a ban on abortion are just as wrong as racial discrimination*" (1996, 79).

As that passage implies, I don't think this convergence on racism and misogyny as paradigm examples of issues that shouldn't be put up for public debate is limited to political philosophers. The idea is broadly shared. It lies behind the widely circulated quote from the author Robert Jones, Jr.: "We can disagree and still love each other unless your disagreement is rooted in my oppression and denial of my humanity and right to exist."[8] And it makes frequent appearances in

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[6] My discussion will focus on work in the Rawlsian/liberal tradition. In part, this is because I think the perspective on democracy that comes from that tradition coheres with the general argument for democratizing science. But much of what I say could be generalized to other traditions.

[7] All emphases mine in this and the succeeding quotes

[8] The quote is often mis-attributed to James Baldwin, but its source is Jones, Jr. (who tweets under @SonofBaldwin): https://twitter.com/SonofBaldwin/status/633644373423562753

political discourse. When Bill Clinton was running for president on a platform that emphasized his willingness to compromise with political opponents, he was asked if there was any issue he wouldn't compromise on. He answered, "Racial equality, the absence of discrimination, the end of these terrible divisions that are gripping our country. I'll stand for it against all comers to the very end."[9]

So the idea that racism and misogyny are somehow special — issues a democracy shouldn't leave up to public opinion — is a widely shared one. Why, though? What is special about those wrongs, since there are other wrongs that are just as serious? A number of political philosophers have converged on a very natural answer to that question: the reason racism and misogyny raise special concerns for democracy is that they are fundamentally at odds with democracy's normative foundation.[10] Democratic government is legitimate because it is a form of government that treats its citizens as equals, or promotes social equality among its citizens, or makes possible egalitarian relationships. (Different theorists spell out the details differently, but the connection to equality is widely shared.) If democracy is grounded in equality, then actions or values or policies that are inegalitarian in the relevant sense can't receive support through majority endorsement. The reason we ordinarily ought to defer to the majority is because of a prior commitment to equality. So the majority's inegalitarian pronouncement won't carry any weight, because it would undermine the source of its own authority. Inegalitarian values contradict the basic idea that makes democracy appealing in the first place. They are fundamentally anti-democratic, and so rejecting them actually promotes (or at least doesn't undermine) democracy.

The idea that racist and misogynistic values lie outside the limits of public authority is therefore an intuitive thought, it is shared by many political philosophers, and it can be given a compelling philosophical defense. Let us now see what light that can shed on our original question.

5. Lessons for science

We began by trying to figure out when a scientist committed to democratizing science must defer to the public, and when she can set aside public judgments she regards as mistaken. After ruling out the two extreme positions (that scientists must always defer, or needn't ever defer) we reviewed two unsatisfying answers to that puzzle: that scientists can ignore the public when they very strongly disagree with the public, or that scientists can ignore the public when the public's values are (in some objective sense) very seriously wrong. Our detour through political philosophy suggests what I think is a much more satisfying answer:

> *Scientists can and should ignore the public when the public's values conflict with the foundations of democratic authority.*

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[9] Interview with Bill Moyers, 7 July 1992. I take the example from May (2017), who also argues that racist values are exceptional.

[10] See Christiano (2008), *cf.* Viehoff (2014).

For the reasons we saw, this will include racist and misogynistic values, as well as similarly anti-egalitarian values (e.g. homophobic or ablest values).[11] (It will also include any other values that undermine democracy's authority, e.g. perspectives that place little importance in voting rights — though I suspect that such values will not be relevant to most scientific research.) Further, we can see why scientists rejecting these values do not betray a lack of commitment to democratizing science. In fact, it is the opposite: since these are values that are themselves in conflict with democracy, in rejecting them scientists actually show a positive commitment to democratizing science.

For scientists hoping to retain a veto over the public's judgments, however, the news is not all good. There are many normative issues which don't have any connection to the foundations of democratic authority. My argument gives scientists no justification for setting aside the public's values on those issues, even in cases where the public is gravely mistaken.[12] Giving little weight to animal welfare, for example, may be a very serious moral error. But, even so, it does not seem to be an error that undermines democracy. Thus, according to the principle I've proposed, if scientists were to ignore the public's views concerning animal welfare, that would be anti-democratic. Scientists, at least so long as they are committed to democratizing science, would need to accept those judgments — a conclusion some may find uncomfortable.

6. Next steps

The challenge that remains is to make that idea concrete — to turn it into practical guidance that scientists can use. Given the very different views people have about what sorts of judgments are racist (sexist, ablest, etc.) that is no simple task. (For reasons discussed above, it would not be a good solution to simply leave these determinations up to individual scientists.) We might hope to make progress by returning to the political philosophy literature. But, unfortunately, that literature is not very helpful. Some philosophers suggest that, in order to be sufficiently egalitarian to count as legitimate, a government must provide every citizen with robust access to education, health care, and other social services. Others seem to think that only the most blatantly sexist or racist policies should be overturned (e.g. policies prohibiting interracial marriage). And others suggest complicated sliding scales.[13]

So does this lack of agreement among political philosophers mean that we shouldn't expect to come up with a generally-acceptable solution for scientists? Perhaps not. The problem scientists

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[11] As a referee pointed out to me, this conclusion may seem underwhelming, since in section 2 we took for granted that scientists ought to set aside racist judgments. What was the point of the argument, if it just led us back to where we began? The argument has shown us the *reason* it is justifiable to set aside the racist judgments, distinguishing it from other potential accounts (such as those reviewed in section 3, which I suspect many scientists implicitly hold). This, in turn, has two benefits. First, it can help us determine how scientists ought to respond to cases that are not as obvious as the case of racist judgments. And, second, it can clarify the consequences of ignoring the public. We have seen, for example, that scientists who set aside public values in these cases can still claim to be committed to democratized science, and thus can plausibly retain the benefits philosophers have argued accompany democratized science — e.g. that the resulting research can claim a kind of political legitimacy (Schroeder 2021; Lusk 2021).

[12] I leave open the possibility that there might be other grounds for setting aside such values, though I suspect that any such argument will involve setting democracy aside in favor of other considerations.

[13] Compare Stemplowska and Swift (2018), Brettschneider (2005), Viehoff (2014), and Pettit (2015).

face isn't the same one political philosophers have discussed. Political philosophers have focused on evaluating whether certain government policies or actions are racist or sexist. But scientists aren't tasked with evaluating actions; they have to evaluate value judgments. That task may be somewhat easier. It seems to me that labels like 'sexist' and 'racist' more naturally attach to value judgments than to actions. If we see a school district spending more on its male students than its female students, we may be uncertain whether this is sexist or not. To render a verdict, we'd want to know more about why they had done that - what values or goals had motivated them. But upon learning about their motives, I suspect we would have an easier time reaching a consensus on whether their policies were sexist. That suggests that the task scientists face may be easier than the one political theorists have discussed. Even if my suspicion is correct, though, it will clearly be challenging to turn the general approach defended here into useful advice for scientists. Nevertheless, it is a task well worth undertaking, given the increasing push to bring the public into scientific research in meaningful ways.[14]

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[14] It is also worth noting that practically-oriented philosophical work can itself drive theoretical advances. The recent explosion of work on bias and machine learning, for example, has led to important theoretical advances in our understanding of bias, discrimination, and equal treatment. It is not unreasonable to hope that the same could happen here: thinking about the scientific case could lead to a better understanding of the limits of public authority more generally.

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