Should trans people be postmodernist in the streets but positivist in the spreadsheets? A reply to Sullivan

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Abstract. Accurate census data is essential for a variety of government planning functions and plays an important methodological role in social science. This article responds to issues raised by Alice Sullivan concerning how the UK 2021 census will ask about sex and gender. The two-centuries-old question about male/female sex is not ideal, even with the new guidance proposed; however, I will argue that the proposed changes are unlikely to cause harm. The new open-ended census question on gender identity is welcome and will yield important data. I also respond to Sullivan's worries that "queer postmodernists" are "coming for" questionnaires and threaten the sanctity of scientific fact. Sullivan misrepresents trans-inclusive gender theories and how scientific research explaining sex/gender differences is carried out. Finally, I discuss how questioning the ontological reality of trans gender identities leads to transphobic harassment and worse.

Accurate census data is essential for a variety of government planning functions. It also plays an important methodological role in social science, supporting generalisation from non-representative samples (Hanretty, 2019). Discrimination and violence against woman and girls are major human rights violations; therefore, the precise wording of questions on sex/gender is important for monitoring social progress. Given the discrimination and violence faced by intersex, trans, and nonbinary people, it is important that reliable data are collected for them too. In this article, I will respond to issues raised by Alice Sullivan concerning how the 2021 UK Census will ask about sex and gender. I am trans nonbinary and queer, which informs my views; however, I obviously do not represent the views of all trans or nonbinary people.

Conceptualising and measuring sex and gender

Sullivan criticises a "postmodernist project" that is "explicitly anti-scientific", holding it responsible for proposed changes to the Census. Queer postmodernists are allegedly "coming for" our questionnaires and threatening the sanctity of scientific fact. However, underlying this criticism is a misrepresentation of social science and trans-inclusive gender theories.

Theories in social science are underdetermined by evidence. They are produced by people who have biases and differing values, so two theorists may interpret the same evidence in different ways. Quantitative research is no exception since researchers have to choose what to measure and how to model it. For non-experimental data, many causal models are mathematically equivalent, so assumptions beyond the data are required (Pearl, 1995). Although there are criteria for preferring one theory over another, such as accuracy, simplicity, and scope, applying them is not always straightforward, even in natural sciences (Kuhn, 1977).

Example phenomena illustrating the challenge of social theorising include political attitudes (Thurstone, 1928), social class (Savage et al., 2013), pain (Bendelow & Williams, 1995), and happiness (Ballas & Dorling, 2007). Some concepts, such as happiness and pain, are at core ontologically subjective (Searle, 1998): although observers may witness a giggle or grimace, the feeling itself exists only for the person having the experience. These experiences matter and are rightly measured, e.g., via self-report, however imperfect that measurement is. They are also routinely used in applied settings, from Treasury debates (HM Treasury, 2008) to the back of ambulances ("How painful is it on a scale from 0 to 10?").

The distinction between sex and gender seems straightforward. Sex refers to biology, e.g., chromosomes and genitalia. Gender refers to psychosocial processes, e.g., roles and expression. However, they are more complex than this neat division. Like happiness and pain, gender is partly ontologically subjective. Gender identity is "deeply felt" and "not necessarily visible to others" (American Psychological Association, 2015, p. 862).

Sex has social facets. The classic sociological work *Doing Gender* by Candace West and Don Zimmerman (1987, p. 127) illustrates how a sex category is assigned at birth:

> "Sex is a determination made through the application of socially agreed upon biological criteria for classifying persons as females or males. […] Placement in a sex category is achieved through application of the sex criteria, but in everyday life, categorization is established and sustained by the socially required identificatory displays that proclaim one's membership in one or the other category. In this sense, one's sex category presumes one's sex and stands as proxy for it in many situations […]."

This assigned sex category affects children's social life in a variety of arbitrary ways, e.g., how they are dressed and expectations about behaviour, and feeds into the development of gender. For the majority of social contexts where sex category is applied, chromosomes and genitals are concealed and irrelevant.

Gender has biological facets: minds do gender identity and are embodied in the brain and nervous system, so even the phenomenology of gender identity has a biological correlate somewhere (Serano, 2013, pp. 138–168). There is emerging evidence that gender identity is a complex trait that is part-heritable and polygenic. A recent systematic review suggests that its heritability is likely in the range 30−60% (Polderman et al., 2018).

The interwoven biopsychosocial nature of sex and gender has led some scientists to use the combined concept *sex/gender* (e.g., Rippon, Jordan-Young, Kaiser, & Fine, 2014). This does not mean that the multiplicity of facets blend into an amorphous blob. It does mean that it is important to clarify what particular facets are intended when discussing measurement and theory: chromosomes, genitalia, gender identity, socialisation, etc. The view of sex as only biological and gender as only psychosocial is too simplistic to progress theorising.

There are many theories of gender identity. Given their propensity for precise definitions, theories in an analytic philosophy tradition may be easier for quantitative scientists to use than the "postmodernist" theories Sullivan condemns. (See also Sally Hines' response, which challenges Sullivan's portrayal of trans-inclusive feminist theories.)

Katharine Jenkins' (2018) account of gender self-identity theorises that we have an (often tacit) map of the gender norms which apply to us in particular situations. These norms are relative to a particular society and time and include, e.g., how we should dress, whether we should shave our armpits, and what public toilets we should use. We do not have to comply with these norms, according to the account; rather we experience norms of a particular gender as relevant to us. So, the account is compatible with cis people who are gender non-conforming.

The social position we occupy does not always correspond with our self-identity. Robin Dembroff and Catharine Saint-Croix (2019) build upon Jenkins' account to theorise a bridging identity called *agential identity*. If you agentially identify with a particular social group, you (i) self-identify as a member of the group; (ii) express that identity in some way that is recognisable; and (iii) accept that others may take you as belonging to the group. Others will not always accept an expression of identity, sometimes for good reason, e.g., when Piers Morgan declared himself a "two-spirit penguin" as an obvious rhetorical stunt. Cis women who are not gender conforming may be harassed and misgendered if their agential identity does not fit cis and heteronormative ideas of gender expression (see, e.g., Ahmed, 2017, p. 233). In some contexts, trans people may try to conceal their identity for fear of harassment and worse.

Jenkins' account of self-identity concerns tuning into the norms around us and deciding, for most people with little conscious thought, which fit best. Dembroff and Saint-Croix's account concerns what we do to broadcast our gender identity so others can infer who we are. Together, they illustrate theorising which helps conceptualise individual and social aspects of gender and are compatible with cis women's and trans rights.

Proposed Census questions

Census legislation is devolved in Scotland and Northern Ireland, though there is agreement to harmonise statistics across the nations where possible. In the 2011 Census, which asked only about male/female sex and not gender, answers were missing for 225,000 people in England and Wales (Office for National Statistics, 2015, p. 224). It seems possible that a proportion of these omissions were because respondents were neither male nor female. The question used in the 2019 rehearsal of the 2021 Census for England and Wales also just asked about male/female sex, but noted that a "question about gender will follow" later in the form (Office for National Statistics, 2019). The guidance (which is planned to be on a separate web page; ONS, personal communication, April 30, 2020) said:

> If you are one or more of non-binary, transgender, have variations of sex characteristics, sometimes also known as intersex, the answer you give can be different from what is on your birth certificate.

> If you're not sure how to answer, use the sex registered on your official documents, such as passport or driving licence, or whichever answer best describes your sex.

The cue for nonbinary people like me that "the answer you give can be different from what is on your birth certificate" suggests that an interwoven sex/gender concept is intended and that I should prioritise information about my identity now. However, "nonbinary" is not an option, so presumably this wants my sex category assigned at birth and that is how I would answer the question – as Sullivan would want. Intersex people are also specifically mentioned but there is no option for those who identify as neither male nor female (intersex people identify as a variety of sex/genders; see Government Equalities Office, 2018, Annex 10, Gender Identity).

Trans (binary) men and women may wish to record their affirmed sex/gender here, whether or not it is their legal sex. This would be reasonable, given the interwoven nature of sex/gender discussed above. Alternatively, they may record their sex category at birth. I agree with Sullivan that this ambiguity is not ideal.

The gender question is clearer and allows the previous answer to be clarified:

> "Is your gender the same as the sex you were registered at birth?"

Participants who answer "no" are invited to provide their gender as open text. This question is voluntary which may affect data quality. The open-text format may also make coding difficult, but a national study in New Zealand suggests it can be done (Fraser, Bulbulia, Greaves, Wilson, & Sibley, 2019) and ONS have experience coding complex open-text for occupations.

On the face of it, Stonewall (2016, pp. 21–22) solved the issue of how to ask about sex and gender. The first question they proposed was:

1. "What best describes your gender?" (Female, Male, Prefer not to say, Prefer to self-describe)

They then suggest that surveys use one of these follow-up questions:

2a. "Do you identify as trans?" (No, Yes, Prefer not to say)
2b. "Is your gender identity the same as the sex you were assigned at birth?" (No, Yes, Prefer not to say)

There are potential problems. One is that nonbinary people are not explicitly asked the sex category they were assigned at birth and it cannot be inferred, whereas it usually can for trans binary people. Some may not wish to provide sex category at birth; others may be happy to. Another problem is that some cis people might misunderstand the meaning of sex "assigned" at birth. An alternative term such as the Census's proposed "registered" at birth may be used. Not everyone whose gender identity differs from sex category at birth considers themselves trans (Darwin, 2020), so participants could be asked a variation of both 2a and 2b. Additionally, a question could be added asking if participants are intersex or have some variation of sex characteristics. Such people are not "noise or error" as Sullivan implies.

ONS argue that it is important to leave the sex question as-is since it has been used since 1801. But Census questions evolve as society changes and society has surely changed since 1801. For instance, the Census first asked about ethnicity in 1991 with nine options. By 2011, there were 18 options and different instructions (Office for National Statistics, 2012). Sex/gender questions could change too so that they are more relevant to 21st century UK.

What happens if people provide "false" data about their sex/gender?

Sullivan worries that permitting first-person authority on sex in the Census and other questionnaires may mean that a proportion of participants provide a "false response". By this, she means answer other than sex at birth. One way to explore the effect of "false" responses is to assume that we know

the true mean for men and women on some measure and randomly recode a proportion of men as women. To illustrate, I have used gender pay gap data cited by Sullivan (Joshi, Bryson, Wilkinson, & Ward, 2019, Annex, Table A1) for participants aged 23 and 42 where the gender pay gap was the smallest and largest, respectively. We can calculate the biased women's mean by a mixture distribution with the true men's mean (μ_M) and true women's mean (μ_W) using the formula

$$p \times \mu_M + (1 - p) \times \mu_W,$$

where p is the proportion of the women sample who have provided a false response. Since men have been recoded randomly, their population mean remains the same. Figure 1 shows the results. The effect is most marked where the gender difference is largest (age 42), but even then, 1 in 10 of the women sample would need to have provided a false response to drop the gender gap by 1.7 percentage points. I suspect that far fewer than 1 in 20 people in the women's sample would provide a false response (e.g., using the 2011 UK census count for females, that would be 1.6 million people), so the effect is 1 percentage point at very worst.
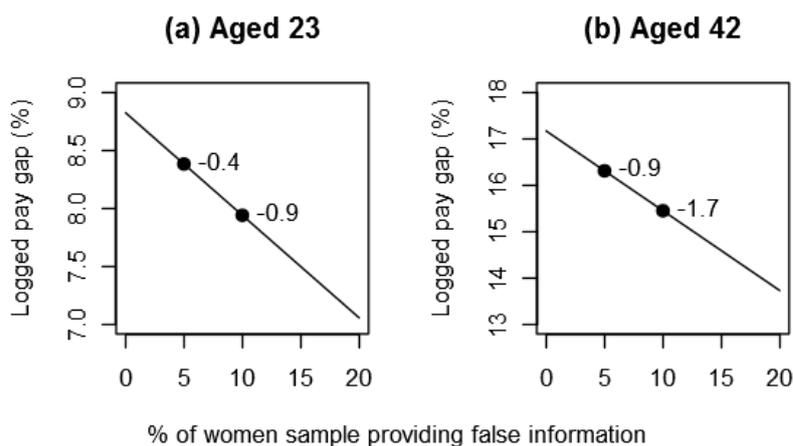

Figure 1 The gender pay gap as a function of the percentage of people in the group coded women who have provided a "false" response to the sex question. The labelled points show the percentage point difference between the true pay gap and simulated gap for 1 in 20 (5%) and 1 in 10 (10%) false responses.

Measuring sex, really?

Sullivan argues that "If sex really was a spectrum, then presumably we would need to measure it according to some kind of scale, yet so far, no such scale has been proposed." Ticking a box labelled "male" or "female" is not measuring sex. However, there are biological methods available, such as karyotyping, and people fall outside the XX/XY dichotomy. Sex hormones may be measured via salivary samples and show continuous within-gender variation (e.g., Keevil et al., 2017). The ratio of second and fourth fingers indexes prenatal exposure to androgens (though see Richards, Gomes, & Ventura, 2019). Scientists who really want to study sex do indeed measure it.

Contrary to Sullivan's claim, sex *category* (male/female) is not an "explanatory" variable. It is "only an imperfect proxy" for explanatory factors like those above (Hampson, 2018, p. 49). The main function of a sex/gender category in models is to represent *unexplained* variance. In a comprehensive explanatory model of any difference, the coefficient for sex/gender category would be indistinguishable from zero. This is because the category would become conditionally independent of the outcome measure given explanatory variables.

For some differences, biological theory will be most helpful. For instance, to explain mean height differences between men and women, explanatory variables might include hormone concentrations at different periods in development, a huge number of genes and where and when they are expressed, and measures of nutrition (Perkins, Subramanian, Smith, & Özaltin, 2016). Joshi et al. (2019) provided social explanations of the sex/gender pay gap. For instance, parenthood appears to affect women more than men due to differences in parenting responsibilities. Caring responsibilities in older age, e.g., of parents, also seem to affect women more than men. The slower accumulation of full-time work experience in women compared to men, again due to caring responsibilities, seems to explain part of the gap.

Sex/gender categories, including whether someone is cis or trans, are important for *monitoring* discrimination but are not explanatory. Researchers who want to investigate sex/gender should ask questions operationalising what they really want to know, e.g., gendered socialisation, gender expression (including whether and in what contexts self-identity is concealed), hormone levels, experience of harassment, or number of dependent children.

Concluding thoughts

Public debate questioning the ontological reality of trans people has consequences. In England and Wales in 2018/19 there were there were 2,333 recorded transphobic hate crimes, up 37% from 2017/18 (Home Office, 2019). Some of my friends are included in these statistics. I have personal experience of a wildly disproportionate reaction to a tweet I sent last summer asking an airline to consider changing their greetings to include nonbinary people. Just before Christmas, the Sun published an "exclusive" holding me responsible for a proposed policy change and outing me far beyond my social media bubble as trans. This "story" piqued the interest of international media and led to stream of transphobic abuse, culminating in an angry handwritten letter to my work concluding: "You sickening pathetic f**king nobody. Just go and hang yourself you c**t." One tweet led to all this; others have experienced far worse.

Survey designers can ask people about their sex/gender in a way that provides reliable data without erasing any group. The Census question on sex is not ideal but unlikely to cause harm. The Census

gender question is welcome and will yield important data. There is no need to worry that gender identity is part subjective; ontological subjectivity is common in social life and even economists are satisfied relying on subjective report. Finally, it is also important to acknowledge that postmodernist theories are not required to understand the reality of trans and nonbinary people's lives. Other feminist theories may make it easier for more social scientists to promote trans rights.

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Bio

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