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What kind of mixed race/ethnicity data is needed for the 2020/21 global population census round: The cases of the UK, USA, and Canada

Peter J Aspinall

Abstract

In western countries the mixed race/ethnicity population is experiencing a rapid increase in numbers and growing diversity, raising challenges for its capture in censuses and surveys. Methods include exact combinations of interest, multi-ticking, and open response, as exemplified by the censuses of England and Wales, the USA and Canada, and Scotland and Ireland, respectively. However, investigations of question face validity, reproducibility of findings, and efficacy of capture reveal quality problems with all three approaches. The low reporting reliability of this population urgently requires research and testing to identify optimal strategies. While there is clearly no one gold standard method of capture and current approaches have developed within national contexts, it is timely to review these methods across the three countries and to make recommendations for the upcoming 2020/21 censuses.

Keywords: Mixed race, mixed ethnicity, census, face validity, reproducibility, efficacy of capture

1. Introduction

Throughout much of the twentieth century the salient view in ethnicity data collection was that people belonged in separate and mutually exclusive racial/ethnic categories[1], an approach termed ethnic absolutism (Gilroy 2004). This status quo was maintained by some statistical agencies in the UK through the claim that persons of mixed race/ethnicity preferred to identify with a single group (Sillitoe and White, 1992). Moreover, in the USA, the 'one drop rule' privileged the minority ethnic component in a mixed person's racial identity, requiring only one race to be assigned to a person (Davis 1991). Mixed persons who utilised 'other' categories or unofficially multiticked went uncounted. However, as the mixed population began to increase in recent decades and respondents in censuses and surveys demonstrated their wish to self-identify their mixedness in free-text (Aspinall 2009), this approach was no longer sustainable. In consequence census and other official organizations across the world and especially in western countries have been faced with the challenge of how to count this mixed/multiple population. This has led to the adoption of a plurality of measures (Morning, 2008) that belies the complexities with respect to conceptualisation and the proliferation in type of mixes or combinations. Moreover, several countries are now approaching their second or third decennial census in which the mixed population has been measured, yielding an evidence base on

optimal strategies. It is therefore timely to take stock of these practices and to explore what kind of mixed race/ethnicity data is needed for the upcoming 2020/21 global population census round.

1.1 The increase in the global mixed race/ethnicity population

While South Africa and some Latin American countries, notably Brazil, have had a substantial mixed race/ethnicity population for centuries, brought about by processes of colonisation, the presence of a growing mixed population in most countries is a recent phenomenon or one made more visible through measurement. Increased international migration in response to processes of globalisation has given rise to substantial population mixing. While there remains a dearth of statistics to derive trends, available census data reveal a high growth rate. In the 2006 Canadian Census 458,240 people (1.5 per cent of the population) reported multiple responses in the population group question, a 39.7 per cent increase since 2001 (compared with 5.4 per cent in the general population). There was a commensurate increase in the proportion of the population entering mixed marital and cohabitation unions. In the 2011 England and Wales Census 1.2 million persons of 'mixed/multiple' ethnicity (2.2 per cent of the general population) were enumerated, up from around 670,000 (1.3 per cent) in 2001. The proportion of people living as part of a couple who were in an inter-ethnic relationship increased from 7 to 9 per cent over 2001-11. Nine million persons of 'two or more races' (2.9 per cent of the population) were recorded in the 2010 US Census, compared with 6.8 million (2.4 per cent) in 2000. In the USA since 1980 the share of marriages between spouses of different races has increased almost fourfold (from 1.6 per cent to 6.3 per cent in 2013). New Zealand's 2013 Census enumerated 443,000 persons of multiple ethnicity (11.2 per cent of the population), a rise from 10.4 per cent in 2006 and 9.0 per cent in 2001.

These data relate to people self-identifying as mixed, some studies indicating that operational definitions of mixedness (based on parentage or more distant ancestry) capture a substantially larger (by a multiple of over 3) mixed population (McFall 2012). Nearly all statistical agencies in western countries project substantial increases in the size of the mixed population based on its current youthful age structure, while representations of the group in the media hype the idea that mixedness is our foreseeable future (Aspinall 2015).

1.2 Methods to capture mixed race/ethnicity in global decennial censuses

The growing size of the mixed race/ethnicity population has resulted in a number of countries attempting to capture this population by various methods in national censuses over the last two decades or so. While there is heterogeneity in the methods used, several distinctive approaches can be distinguished[2].

The *'tick all that apply'* approach across predesignated ethnic/racial categories was used by New Zealand in its 1996, 2001, 2006 and 2013 Censuses. The US 2001 and 2010 Censuses used this format (as did the US Virgin Islands 2011 Census and Puerto Rico's 2000 Census, but not the 2010 Censuses for Guam and American Samoa), the US Office of Management and Budget (1997) requiring 'a method for reporting more than one race should be adopted' which 'should take the form of multiple responses to a single question and not a "multiracial" category' (OMB 1997, p. 58786). The 1996, 2001, 2006, and 2011 and 2016 (long form National Household Survey) Canadian Censuses invited respondents to mark or specify more than one if applicable. The 2001 Jersey (UK Crown Dependency) Census question on 'cultural and ethnic background' offered multi-ticking *within* broad pan-ethnic groups like 'White' or 'Asian' or 'Black', although, confusingly, also offered a 'mixed' open response option.

Some countries used *predesignated or specific combinations of groups*. The ethnic group question in the 2001 and 2011 England and Wales Censuses provided 'White and Black Caribbean', 'White and Black African', and 'White and Asian' (as well as an 'Any other' open response) options for its 'Mixed' categorisation ('Mixed/multiple' in 2011). Jersey adopted this same 'mixed' categorisation in its 2011 Census 'cultural and ethnic background' question. The 2010 Bahamas Census question on racial group listed 'Black and White', 'Black and Other', and 'White and Other' amongst the nine options and Bermuda's 2010 Census also offered these options. Macau SAR (Special Administrative Region)'s 2006 Census question on ethnicity included four exact combinations amongst its seven options: 'Chinese & Portuguese'; 'Chinese, Portuguese & other'; 'Chinese & non-Portuguese'; and 'Portuguese & non-Chinese'. Respondents were prompted that: 'If one's father is of Portuguese descent and mother if of Chinese-British descent, the ethnicity of the children is 'Chinese, Portuguese and other'.

Some censuses give the respondent a *write-in question* to describe their 'mixedness' in their own words, including Scotland and Northern Ireland in 2001 and 2011. Jersey's 2001 Census question used an 'Other or Mixed' write-in option. Ireland's 2011 Census ethnic or cultural background question also offered a write-in 'Other, including mixed background', the duplex free text box suggesting two groups. Some countries restrict the number of groups to be specified. For example, Hong Kong SAR's 2011 Population Census states that 'for a person belonging to more than one ethnic group, record two major ethnic groups and specify other ethnic groups, where appropriate, in the box'. The Federated States of Micronesia asked about the person's ethnic origin in its 2010 Census, listing as examples Yapese, Satawalese, Pohnpeian, Mortlockese, American, etc. and instructing the applicant to: 'List two main groups. Write 'None' on the second line if (the person) has only one ethnicity'.

Finally, some countries collect minimal data on the composition of a person's mixedness by using *a single closed term*. Amongst censuses that just listed a predesignated generic 'Mixed' option were Grenada (2001), Guyana (2002), Jamaica (2011), St Lucia (2010), St Vincent and the Grenadines (2001), Trinidad and Tobago (2000), Barbados (2010), Antigua and Barbuda (2001), Anguilla (2001), Dominica (2001), Guyana (2002), and Solomon Islands (1999 but not 2009). South Africa used the term 'Coloured' in its 2011 Census. Belize's 2010 Census ethnic group question prompted the interviewer to indicate 'maximum of two responses allowed', the 14 options including 'Mestizo/Spanish/Latino' (though its 2011 Census just listed 'Mestizo' without the instruction). The six options in Costa Rica's 2011 Census question included 'Mulatto' and 'White or mestizo'. A variant of this method is *the use of 'part' with respect to particular ethnic groups*, giving the minimal indication of the person's mix. The Cook Islands 2001 Census listed 'Part Cook Island Maori' in a set of three options. In Fiji's 2007 Census the fifteen ethnic group options included 'Chinese/Part Chinese' and 'Part European'. The Singapore 2010 Census offered the predesignated option of 'Eurasian'. The 2009 Vanuatu Census listed 'Part Ni-Vanuatu' and the 2006 Tonga Census 'Part Tongan'.

Several approaches were thus used and some countries changed methods in a following census, suggesting their provisional or experimental nature. Clearly, which method a country uses may depend on many factors, including the overall size of its 'mixed' population, the number of ethnic/racial groups involved in population mixing and size of different mixes, and the reasons why a state might wish to capture this population, including the prominence a country may wish to give to *different* ethnic/racial mixes. However, only 'tick all that apply', specific combinations of interest, and 'mixed' open response provide information on the composition of a person's mixedness. These options, exemplified by the USA, Canada and the UK, are evaluated with respect to face validity, consistency (or reproducibility) of findings, and capture of mixedness. Finally, an assessment is made of the optimal approach in these three countries.

All three countries differ in terms of histories of collecting data on racial/ethnic groups, with the USA and Canada having long traditions. Each census in the USA since the first in 1790 has included a question on race. In Canada the British North American colonies of Nova Scotia and St John Island were the first to identify racial/ethnic origins in their censuses of 1767 and, since Confederation in 1867, such information has been collected in every national census (except 1891). Britain is a relative latecomer with ethnic group first asked in the 1991 Census. Furthermore, the manner in which multiple reporting first emerged has varied across these national contexts. In the USA Prewitt (2013) has argued that the context of immigrant-driven multiculturalism allowed the multiraciality movement in the census to gain political traction. Changing political realities - the rise in mixed racial/ethnic unions - and activist organisations that argued for personal choice sustained the momentum. In Canada the population group question, introduced in 1996 because of the growing

popularity of 'Canadian' in the ancestry question, imported the multiple reporting instruction from the latter. By contrast the impetus for 'mixed' categorisation in Britain was driven by census data user needs in the absence of advocacy groups. Thus, in the USA and Canada, multiticking was grafted on to an already existing racial hierarchy while in Britain the exact combinations drew on the main pan-ethnic section headings.

2. Methods

The study uses the method of narrative review to identify relevant literature on the capture of the mixed race/ethnicity or multiracial population in censuses and surveys. The Web of Science, Science Direct, Scopus, Population Index, and Popline databases were searched, using keywords and Boolean search terms encompassing country names, terms for the 'mixed' population, instruments of capture such as censuses/surveys, and quality criteria (such as reproducibility). Searches were also undertaken on the ONS, US Census Bureau, and Statistics Canada websites. The United Nations 2010 World Population and Housing Census Programme website was used to access national census questionnaires. The findings were analysed with reference to key aspects of data quality.

With respect to theory, the paper draws on Jenkins' (1996) basic model of the *internal-external dialectic of identification* that proposes that group identities (as constituted by members of the group) and social categories (the collective external definition by others) are mutually implicated in and feed back upon each other. This theorisation references Barth (1969) who offers a model of ethnic and other social identities as fluid and dynamic, situationally and contextually contingent, and the continual subject and object of negotiation at their boundaries. These characteristics have significant implications for the classification of populations where self-identification is now the accepted method of assignment. Moreover, such challenges are magnified when it is necessary to communicate the option of choosing multiple races. Given the social and psychological fluidity in multiracial identities, the search for questions that best capture stability may, in reality, be difficult and demanding to construct.

3. Results

3.1 The Cases of the United Kingdom, USA, and Canada

The methods of multi-ticking (USA and Canada), exact combinations of interest (England and Wales), and open response (Scotland and Northern Ireland) have been used across at least two censuses, to yield an evidence base on the quality of the data.

United Kingdom:

Face validity: 'Mixed' categorisation has been included in the England and Wales 2001 and 2011 Censuses, with the same exact combinations asked in both censuses, the section label and the free-text 'Any other' option being changed from Mixed to Mixed/multiple in 2011. Moreover, the composition of the 'White and Asian' category is likely to have changed in 2011 as 'Chinese' was relocated from the Other ethnic group section to Asian/Asian British. All the exact combinations privilege White (as listed first) and these two-group combinations select for mixed parentage (or 'dual heritage'). There is no *explicit* provision for three or more groups or for mixed minority groups, except in the write-in option (which provides just 17 character spaces in one free-text box, rather than the 20 in the duplex box in 2001).

In Scotland's 2001 Census, the 'Mixed' section provided a tick option 'Any Mixed background' and a duplex free-text box (two lines of 10 characters each) to write in a response. In 2011, the section label was changed to 'Mixed or multiple ethnic groups' and the tick option 'Any mixed or multiple ethnic groups'. The write-in space was increased to two lines of 17 characters each (twice the provision of England and Wales's free-text option). Northern Ireland's 2001 Census ethnic group question also included a 'mixed ethnic group' tick box and duplex free-text box (two lines of 10 characters), reduced to one line of 17 characters in 2011. There are no issues regarding face validity as the questions in both home countries invite unprompted open response.

Reproducibility of the data

In England and Wales two types of data allow testing of response consistency: long-term stability and change between decennial population censuses; and short-term change (over a year or two), as revealed by linked responses to the ethnic question in surveys and data collections. By comparing responses to the ethnic question in the 2001 and 2011 Censuses amongst ONS Longitudinal Study participants, a matrix of transitions can be compiled. Only modest proportions stayed in the same 'mixed' group from one census to the next: Mixed White and Black Caribbean, 76.4 per cent; Mixed White and Asian, 58.8 per cent; Mixed White and Black African, 56.8 per cent; and Other Mixed, 29.6 per cent (Simpson *et al*, 2015), all proportions below the White (99.2 per cent) and constituent minority ethnic groups. The poor stability in the Other Mixed group is to be expected, given its heterogeneity, but the modest proportions in the 'White and Black African' and 'White and Asian' groups – not much over half – is a matter of concern. It is clear that the specification of exact combinations, unexpectedly, does not deliver stability, except in the 'White and Black Caribbean' group.

Broadly similar findings were reported in a study that compared ethnicity recording for the same children (6.7 million matched records*) in the same year but across two different sources*, linked

recorded ethnicity in the 2011 Census and the 2011 English School Census (ONS 2014). The stability levels were 62 per cent for 'White and Black Caribbean', 55 per cent 'White and Black African', 54 per cent for 'White and Asian', and 47 per cent for 'Other Mixed'. Amongst the discrepancies 12 per cent of records that held a 'White and Black Caribbean background' ethnic classification on the 2011 Census were recorded as 'Any other mixed background' on the English School Census. Again, these stability levels were worse than White British (95 per cent) and the constituent minority ethnic groups.

The reproducibility of findings for open response is more difficult to establish and no reports have been found for 'mixed' options in the Scotland and Northern Ireland censuses.

Efficacy of capture

The England and Wales question captures the three exact combinations of ethnic/racial groups though with poor consistency. With respect to the 'White and Asian' option, 2001 Census data on ethnic group stratified by country of birth showed that some respondents born in West, East and South-east Asia interpreted the 'Asian' component as relating to continental Asia. This heterogeneity has worsened in 2011 as ONS now defines 'Asian' to include 'Chinese', thus creating a problem of comparability. Amongst the 71,094 migrants in this mixed group in 2011, 11.3 per cent were born in India and 2.9 per cent in Pakistan, but 6.2 per cent in Iran, 5.8 per cent in Turkey, 4.8 per cent in Thailand, 4.6 per cent in the Philippines, 3.4 per cent in Iraq, and 3.3 per cent in Hong Kong. The category has therefore shifted from a 'Mixed' White and South Asian option (as ONS intended in 2001) to one where Asian is continental.

The Census options clearly lack efficacy in capturing multiplicity (three or more groups) through use of exact two-group combinations. This suggests first generation 'mixedness' - 'mixed parentage' ('dual heritage'), equivalent to 'biracial' in the US - rather than multigenerational mixedness (where one or both parents are mixed). This is a drawback as studies show that around a fifth of those identifying as 'mixed race' choose unprompted to name three or more groups (Aspinall and Song, 2013; Lincoln 2008). Also, the options are likely to undercount mixed minority combinations as the predesignated options select for mixes including White and may signal this for the open response option, including its availability as a space to indicate *detailed* two-group combinations. Aspinall and Song (2013)'s self-selected study sample included 4 per cent who were minority mixed.

A further criticism is that the options favour minority ethnic collectivities that have an association with Britain's colonial past (Aspinall and Song, 2014). Since the early 1990s Britain has seen unprecedented international migration. The latest (2015) data on country of birth in the UK reveals substantial migrant communities from countries not captured in the decennial census:

estimates include 831,000 Polish, 132,000 Sri Lankans, 132,000 Filipinos, 114,000 Somalis, 53,000 Brazilians, and 289,000 Romanians and Bulgarians (combined). In areas which have received large numbers of international migrants, such as London and metropolitan districts, new patterns of population mixing have emerged between communities that are frequently dissociated from Britain's colonial past. These patterns are now impacting on the use of the four 'mixed' categories, especially amongst the very young 'mixed' group, with increasing numbers utilising the catch all 'Any other mixed/multiple' category. Clearly, when this category substantially exceeds the size of other categories (or even the aggregate size of the exact combination categories), then the utility and validity of the classification must be questioned.

Annual School Census data at January 2014 shows that in England 66,495 children in state-funded primary schools were enumerated in the 'Any other mixed background' category, 36.0 per cent of all 184,785 'mixed' pupils[3]. The next largest group was 'White and Black Caribbean', accounting for 51,550 (27.9 per cent) pupils. As expected, a smaller proportion of state-funded *secondary school* pupils (46,755, 34.9 per cent) fall into the 'Any other mixed background' category but this was still the largest 'mixed' category. However, there is substantial variation across local authorities in England in the importance of this catch-all mixed category. Amongst *primary school* pupils, it represented a half or more of all 'mixed' pupils in four of the 14 Inner London boroughs (Islington, 53 per cent; Kensington and Chelsea, 63 per cent; Newham, 55 per cent, and Westminster, 59 per cent); Hillingdon (55 per cent) in Outer London, and ten local authorities elsewhere in England. In all, a dozen local authorities had 'other mixed' group populations that exceeded the sum of the three exact combinations. Even amongst older (secondary school) pupils, 10 local authority areas exceeded the 50 per cent threshold. Whilst this is an emerging problem in the second decade of the 21st century, it is likely to be significant by 2021 and, indeed, through the 2020s when this data will be the primary source of ethnic data.

The Scotland and Northern Ireland Census 'mixed' options appear satisfactory for the capture of their relatively small mixed populations. The Scotland 2001 Census enumerated 12,764 'mixed' persons (0.3 per cent of the population), increasing to 19,815 (0.4 per cent) in 2011. In Northern Ireland 3,319 mixed persons (0.2 per cent of the population) were enumerated in 2001, increasing to 6,014 (0.3 per cent) in 2011. However, an analysis of the Scotland 2011 Census[4] 'mixed' responses reveals poor information content, over a quarter (25.9 per cent) being coded 'Scottish' and a further quarter (25.1 per cent) 'Other mixed and multiple ethnic groups'. Moreover, a further 8.6 per cent were coded 'Other British' and 4.7 per cent 'Other Western European'. Thus, almost two-thirds of responses fell into these broad collectivities and lacked utility with respect to what the mixes comprised. Also, many respondents just wrote in a single nationality, like Turkish, Brazilian, or Albanian. Only 14.9 per cent (n=2,947) of responses gave specific combinations: White and Asian (unspecified) (4.0 per cent), White and South Asian (2.6 per cent), Black and White (2.3 per cent),

White and Black Caribbean (1.7 per cent), Chinese and White (1.1 per cent), Anglo-Indian (1.0 per cent), White and Black African (0.9 per cent), White and Arab (0.5 per cent), Black and Asian (0.3 per cent), White and East Asian (0.3 per cent), and South Asian and Chinese (0.1 per cent). Thus, in Scotland the open response method mainly captures disparate responses that reveal little about mixed ethnic identities. Results for the write-in option in the 2011 Northern Ireland Census show greater efficacy in capturing types of mixedness[5]. Almost half (47.1 per cent) of the write-in descriptions named two groups: 'White and Asian' 27.5 per cent, 'White and Black' 18.8 per cent, and 'Black and Asian' 0.9 per cent, the remainder (52.9 per cent) being coded to 'Other mixed ethnicity', findings more in accord with research studies.

United States

Face validity: In the US 2010 Census respondents were given the opportunity (as in 2000) to multitick across 15 options in the race question, the instruction being given on the line of the question without further prominence. Given the number of options and extent of mixing across population groups, this method is optimal. However, it does not capture mixes between Hispanics and the groups listed in the race question as Hispanics are considered an ethnic group and captured in a separate question. In the US there is an additional reason for prioritising this form of capture: it enables responses to be reassigned to the main minority race groups for the purposes of civil rights enforcement. However, in producing standard tables from the question, the US Census Bureau aggregates the options into pan-ethnic groups or races (such as White, Black, and Asian), the published analyses focusing on broad multiple-race categories (e.g., White-Black; Black-Asian; White-Black-Asian; etc.). Of the 2010 population of two or more races (9.009 million), 8.3 per cent comprised three or more races, up from 6.7 per cent in 2000. In the Pew survey the proportion reporting three or more races was 11.0 per cent (Pew Research Centre, 2015). Only limited data is available on combinations of the detailed 15 options in the race question. The US Census Bureau released a 2010 Census Public Use (PUMS) file that includes a variable ("RACECHKBX") which provides insights into multiple detailed responses, combination groups such as White and Korean; White and Vietnamese; Black or African American and Asian Indian; and Black or African American and Chinese.

Reproducibility of the data

Tests of reproducibility indicate that the US Census option to multitick produced problematic data: in a post-census validation survey, of non-Hispanic panel respondents reporting two or more races in the US 2000 Census, only 40 per cent (724,686/1,814,610) also reported two or more races in the Census Quality Survey (CQS) initial contact (Bentley *et al*, 2003). Further, several months after

the CQS interview, an independent telephone interview was undertaken (Martin and Gerber 2003). Once again respondents were asked to report their race but on this occasion to choose one race, with a follow-up probe for respondents who persisted in reporting two races. 9.4 per cent of respondents who reported two races in the initial CQS interview reported a race different from either race initially reported. Moreover, 2.5 per cent continued to report more than one race, all of them different from those initially reported. 16 per cent of respondents would not provide single race answers and the recontact question was not answered by about 13 per cent of respondents. These findings further suggest problems of unreliability with the multiple answers format.

There is evidence of substantial variation in inconsistency of reporting across different particular race combinations (Bennett 2003; Liebler *et al*, 2004) that is concealed in aggregate cross-sectional data. The latter have shown that the multiple-race groups have very high levels of response churning. The most consistent multiple-race response was non-Hispanic white-black; 37 per cent of people in this group in either 2000 or 2010 reported it in both 2000 and 2010. This compares in this population with 35 per cent for White and Asian, 29 per cent for Black and Asian, and 7 per cent for American Indian/Alaska Native and Asian. Moreover, with this scale of churning, these various combinations would seem to offer little potential basis for group-formation or 'groupness' (in the sense of internally homogeneous and externally bounded solidary groups). Barth (1969) envisaged some movement across ethnic group boundaries rather than substantial turnover.

One reason for these findings may be changes in racial/ethnic identity: in the Pew Survey around three-in-ten adults with a multiracial background said that they had changed the way they described their race over the years, with some saying they once thought of themselves as only one race and now think of themselves as more than one race, and others saying the opposite. However, the design and wording of the question may have also contributed to inconsistency. Cognitive testing of this method by the US Census Bureau found that many respondents were less likely to read the instructions than the list of options in the question stem (Gerber, de la Puente, and Levin, 1998) and, even when they did, the cognitive interviews revealed that they may not absorb its meaning. Respondents often did not realize they could multitick, even when they had just read the instruction to 'mark one or more races' aloud. In the July 2000 Current Population Survey Race and Ethnicity Supplement, cognitive testing of the question 'please select one or more of the following categories to describe his/her race' indicated that one third of respondents were unaware that they could choose more than one category (Fisher, Fricker, and Schwartz 2000). Similar findings with respect to instructions have been reported in the UK, with form-fillers going straight to the question options.

The National Research Council (2004, p. 320)'s Panel to Review the 2000 Census concluded that 'This significant inconsistency in multirace reporting indicates that membership in the multiracial population is highly unstable and therefore that the multiracial population identified on Census Day is

only one of many multiracial populations that might have been enumerated'. Such instability suggests the need to accord greater prominence to the instruction or, according to Martin and Gerber (2003, p. 2699), '…a need for a question that puts some emphasis on the one or more option without leading respondents toward it'.

Efficacy of capture

As in the UK censuses, the US censuses only capture respondents who self-assign as two or more races, the question instruction in 2000 (but not 2010) asking the respondent 'to indicate what this person considers himself/herself to be'. The Pew Research Centre reported in its 2015 survey findings that 1.4 per cent of the US adult population self-described in this way. However, a further 2.9 per cent were of multiracial background based on their parents and an additional 2.6 per cent were of multiracial background based on their grandparents, making 6.9 per cent in all. Only four-in-ten adults with a mixed racial background (39 per cent) said they considered themselves to be 'mixed race or multiracial', a similar proportion to that in the UK. Moreover, as noted, the question does not capture mixes of two or more races that include Hispanic, as Hispanic origin is asked in a 'Hispanic, Latino, or Spanish origin' question. Several exploratory approaches to combining the race and Hispanic origin questions into one item (an approach endorsed by Kenneth Prewitt, along with a national origin question and parental place of birth to identify children of immigrants) reported a two or more responses population of between 3.9% and 6.8% (Compton et al., 2013).

Canada

Face validity: The option to multitick in the Canadian Census (1996, 2001, 2006, and more recently on the National Household Survey) is well suited to the diverse population of Canada and its state policy of multiculturalism. Indeed, Canada is the only country that reports *granular* 'mixed' categories such as 'White and Filipino', 'White and Latin American', and 'multiple visible minority', two-thirds of the dozen combinations of multiple responses in 2006 being selected by 20,000 people or more. Clearly, it would be impractical to capture such diversity by the option of specifying exact combinations of groups. Moreover, it is notable that multiple visible minorities comprised 22.7 per cent of all multiple responses. However, as the self-reporting Aboriginal population was not included in this question, the multiple responses exclude mixes involving this group (including the Métis population). Thus, it is not a 'whole population' measure of mixedness. The 'White and multiple visible minority' option reveals that more than 6 per cent of the multiple responses were three or more

groups, while others might be concealed in the 'multiple visible minority' category. No particular prominence in the question is given to the multi-ticking instruction.

Reproducibility of the data

No studies have been found (and none indicated by Statistics Canada) that test the reproducibility of the data yielded by the 'mark more than one or specify' instruction.

Efficacy of capture

The question appears to satisfactorily capture multiple responses across the White and visible minority ethnic groups. However, as the Aboriginal Population is excluded from the population group question, the count of multiple ethnic groups excludes combinations that include Aboriginals.

3.2 An England and Wales experiment to test the utility and validity of different question options

One of the key objectives of an ESRC-funded study on mixed race identities (Aspinall and Song, 2013) was to investigate whether there were better ways to capture the 'mixed' population than the 2001 England and Wales Census 'combination categories' and to share results with the UK census agencies as part of their 2011 Census Development Programmes. Respondents (n=326 aged 18-25) were asked to evaluate the three main variants: the England and Wales 2001 Census *exact combinations* question; a version in which the 'mixed' categories were replaced by a 'mixed' *open response* option; and a 'mixed' option to *multi-tick* across the other 12 categories (of the kind adopted in the 2000 US and 2001 Canadian Census questions) (Aspinall 2003). Respondents were asked which of these variants was easiest and most difficult to complete and which best enabled them to describe their racial/ethnic identity, by completing the three questions. Respondents reported that they found the 2001 Census question easiest to complete and the multi-ticking option most difficult and that the open response question best enabled them to describe their ethnic or racial identity (followed by the census question).

Additionally, two quality measures were derived. Respondents' *understanding* of the question (using a rule-based method incorporating items such as non-response, misreporting, etc.) was best for the census question, followed by open response. However, the *information content* yielded by the question (again, using a rule-based method that measured the accuracy, precision, and completeness with which the multiple groups were described when set against other extensive racial/ethnic information in the questionnaire) was highest for open response, followed by the census question.

These findings - which indicate that multi-ticking is not currently a recommended option for the UK - were submitted to ONS and the General Register Office (Scotland). After reviewing this evidence and further evaluation, both census agencies decided not to utilise this approach to capture the 'mixed' group in the 2011 Census (ONS 2008; Scottish Government and General Register Office for Scotland 2008).

Respondents were also invited to complete a further question developed by Berthoud (1998) - asking for their 'family's ethnic origins' (mother's family and father's family) - though this was subjected to only limited evaluation as ONS had ruled out the use of a status measure rather than a self-identity question in the 2001 Census Development Programme. While in the research 'White' was broken down and 'Mixed' added to Berthoud's list of ethnic origins, this question yielded the highest information content of all the classification options. However, it proved complex to code given the range of permutations of selected categories that included free text, further reducing its attractiveness as a census question.

In its shortlisted selection of options for the 2011 England and Wales Census ethnic group question, ONS (2009) used a prioritisation tool to select two changes to the question from the 22 identified (all relating to groups rather than question design changes). Two concerned 'mixed' groups: the additions of a mixed: Black and Asian and mixed: White and Chinese categories which came 7th and 12th in the rank-order and so were not adopted.

4. Discussion

The mixed racial/ethnic group is one of the fastest growing in the UK and North America, creating an urgency to find optimal methods for capturing this population but with no best candidate in view. Open response was a favoured approach in the aforementioned experiment (Aspinall and Song 2013) but with varied results in Scotland and Northern Ireland 2011 Censuses. In Scotland only 15 per cent of responses provided information on the composition of the 'mixed' group and around half in Northern Ireland. However, given the growing diversity of the population through increased population mixing amongst an ever-widening mix of ethnicities and national origin groups, the multi-ticking option would appear to offer the optimal method of capture. Yet this method yields poor reproducibility of the responses and encounters high levels of misunderstanding in tests. Clearly, there is unlikely to be a gold standard method of capture that is suitable for all national settings and all census/ survey contexts. Countries have different processes of ethnogenesis, including their own specific migration histories, different contexts supplied by colonial histories, and different histories of the racialisation of minority populations.

Moreover, ethnic group is a concept with fuzzy group boundaries, that is, ambiguity about the criteria of group membership, and is known to change depending on situation, context, and interpretation of underlying concepts. These problems are likely to be exacerbated in capturing mixed ethnicity persons as two or more racial/ethnic groups are involved. Further, many of the categories themselves which are multiticked or used in combinations are conceptually incoherent or inconsistent, encompassing colour labels, continental or regional descriptors, nationalities or national origins, and tribes, listed under such generic labels as race, ethnic group, and origins or ancestry. For example, the conceptual base in the England and Wales Census shifted from 'cultural background' (2001) to 'ethnic group or background' (2011). As respondents frequently interpret these overarching concepts and category labels differently, it is perhaps not surprising that there is instability in responses across different contexts and data sources. Also, as the mixed population is primarily youthful, instability in enumeration between censuses may be a product of a change in mode of assignment from head of household to self-assignment. Finally, the distinctiveness of specific geographical locales may produce particular configurations of mixedness in the census, as Nassy Brown (2009) has demonstrated for Liverpool. Thus, recommendations are tentative and belie an urgent need for further research to test the validity and utility of different methods of capture.

4.1 Recommendations for the 2020/2021 Census Round: USA, Canada, and UK

Multiticking options in the 2006 Canadian and 2010 US Censuses appear to have worked well. As the Canadian question on population group excludes aboriginal populations, the mixes between this group and the White and visible minority populations are unknown, though the Census provides a count of the Métis population. In this case the trade-off between comparability and increased capture of Aboriginal mixes probably favours the former, though *population* level mixing could usefully be measured in government social surveys. In both the USA and Canada the instruction to multitick could be emboldened to give greater prominence, as there was evidence in US testing programmes that some form-fillers did not notice the instruction and went straight to the options.

Martin and Gerber (2003) suggest that the juxtaposition in the 2000 Census Question of 'What is this person's race?' ('race' in the singular) with 'Mark one or more races' may have confused some form-fillers. They argue that the "one or more" option could be better communicated with plural grammatical forms, such as 'race or races', or to probe for 'Any more?', though compromising comparability.

This may be a secondary consideration if the US Census Bureau integrates the category of 'Hispanic' into the race question, as indicated in some candidate classification options for the 2020 Census which yield significantly larger multiple response counts (Compton *et al*., 2013). This would, of course, disrupt comparability with 2000 and 2010 Census findings on the multiticked population but would yield more meaningful data from the viewpoint of population diversity.

The UK presents a somewhat different case. Several question tests suggest that the introduction of multiticking may incur quality problems, though this may be due to the public's lack of familiarity with the format. While the exact combinations method might be expected to yield data with better reproducibility and greater capture as the options are pre-specified, there is only limited evidence for the former in the ONS Longitudinal Study. However, when Jersey switched to an England and Wales-type question, the mixed population increased from 366 to 692 (an 89.1 per cent increase) during the period 2001-2011[6].

Amongst other limitations to the England and Wales 'exact combinations' approach is the focus on combinations involving 'White' and the few broad minority ethnic groups in the pairings: 'Black Caribbean', 'Black African', and 'Asian'. Such collectivities all relate to Britain's colonial past and are only a subset of other potentially important pairings like 'White and Chinese', 'White and South-East Asian', 'White and Arab', and minority ethnic group combinations. Some such respondents only have recourse to the 'Any other Mixed/multiple ethnic background' category, now of burgeoning size in some parts of the country. Moreover, with the proportion in inter-ethnic unions varying between the White and Indian, Pakistani, and Bangladeshi groups, it is becoming increasingly unsatisfactory to lump the latter into an 'Asian' collectivity, particularly as the 'White and Asian' category is now being used by mixed Chinese, West Asian, and SE Asian populations.

Many of these drawbacks could be resolved by the introduction of multiticking, the space saved by eliminating the current mixed categories opening a space for other needed categories like 'Polish' (under 'White'), 'Sri Lankan' and 'Filipino' (under 'Asian'), and 'Somali' (under 'Black'[7]). There is a strong argument for including this option in cognitive research, small-scale tests, and large-scale trials ahead of the 2021 enumeration given its efficacy in capturing multiplicity.

Other countries across the world

With respect to the wider capture of mixedness across the globe, the substantial variety of country settings in terms of demography and measurement methods makes any recommendation for the 2020/21 census round problematic. However, where there is consistency of practice in particular world regions, sometimes facilitated by overarching organisations like the Organisation of Eastern Caribbean States, then recommendations become feasible. In the Caribbean islands, for example, there is a case to make the closed 'mixed' option an open response category. The 2011 Australian Census offered multi-ticking across the Aboriginal or Torres Strait Islander origin question. However, the Australian Census does not offer an ethnic or population group question. Instead, respondents are asked to complete an ancestry question with provision for up to two ancestries (from 7 predesignated options and a write-in category), such questions yielding much higher proportions of multiple responses than population group questions. In consequence the Australian census does not provide

information on the ‘mixed’ population, though the potential to do so in 2021 is available through the adoption of an additional New Zealand type question on ethnic group.

5. Conclusions

The ‘mixed’ populations of the UK, USA, and Canada are growing rapidly and this increase is projected to continue, placing a priority on the use of methods that optimally capture this population. Several countries have now included methods to measure mixedness in their decennial censuses and in some across multiple censuses but with variable findings. While multi-ticking yields detailed data on the composition of mixed racial/ethnic identities, post-census validation survey data for the USA reveals its poor reproducibility. The more specific exact combinations method used in the England and Wales Censuses might be expected to produce more stable counts, but linked records in the ONS Longitudinal Study show otherwise, except for the ‘White and Black Caribbean’ category. Similarly, the open response method, favoured by respondents in the England experiment, was found in Scotland’s 2011 Census to produce highly disparate findings that lacked utility for the understanding of mixedness.

The growing complexity of mixedness in terms of the diversity and multiplicity of the constituent groups favours multiticking. As ‘mixed’ people enter cohabitational and marital unions, in some cases with another mixed person, the exact combinations method will become increasingly deficient in capturing the ethnic identities of their offspring. However, extensive testing of this option in the UK is required, given current difficulties with this approach. Further, enhancing the prominence of the instruction to multi-tick in US and Canadian Censuses and Surveys may reduce the number of respondents who miss the instruction. This method for measuring the multiracial/ethnic population is still relatively new, so some improvement in capture may come about anyway with increased familiarity with the design of the question.

Notes

1. Terminology varies across national settings. The US Census since 1980 has insisted that Hispanic and Non-Hispanic are ethnicities and so excluded from the ‘race’ question that captures the multiple races population. The salient census term in the UK is ‘ethnic group’.
2. This section was based on a search of world census forms and questionnaires at: World Population and Housing Census Programme, National Questionnaires, July 2015, accessed at: http://unstats.un.org/unsd/demographic/sources/census/censusquest.htm and individual country searches.

3. https://www.gov.uk/government/statistics/schools-pupils-and-their-characteristics-january-2014
4. 2011 Census, Scotland. Ethnic group (detailed). Table AT_005_2011.
5. 2011 Census, Northern Ireland. Ethnic group (detailed). Table QS201NI.
6. http://www.gov.je/Government/Census/Census2011/Pages/2011CensusResults.aspx
7. The options in the England and Wales and Scotland Censuses are listed under broad pan-ethnic or colour categories as a 2006 Census Test in Scotland found that respondents misinterpreted labels like 'European', 'African or Caribbean'.

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