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RESEARCH

COVID-19 and Ethnic Inequalities in England

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Ethnic minorities have been particularly hard-hit by the COVID-19 pandemic, in terms of both mortality risks and economic impacts. This has been widely recognised in the UK and elsewhere, and there has been extensive analysis of mortality risks and a burgeoning number of reports reflecting on the wider inequalities associated with them. Yet, despite occupation being flagged as a key differentiator in the experience of ethnic minority groups, there has been little systematic investigation of how far the occupations of both immigrants and British-born ethnic minorities are linked to the negative consequences of the pandemic. In addition, most analysis has focused on the consequences of lockdowns and mortality risks for individuals, rather than considering the implications for the wider household and family. In this paper, I argue that, while not the only factors shaping vulnerability to COVID-19, we can shed further light on ethnic inequalities in the experience of COVID-19 if we pay greater attention to employment patterns and occupational distributions across ethnic groups and within families. It is also relevant to ascertain the extent to which these patterns do or do not dissipate across generations to identify enduring cleavages within the population and the longer, as well as the shorter, term implications of the pandemic for ethnic inequalities.

Keywords: Ethnic inequalities; COVID-19; mortality; occupational concentration; intergenerational change; England

1. Introduction: Ethnic Disparities in COVID-19 Risks in England

1.1. Health and mortality

The advent of the COVID-19 pandemic has laid bare and exacerbated multiple inequalities in society. These have ranged from inequalities in health and mortality to inequalities in the work and the public spheres and, particularly with the closure of schools, between children [1]. Analysis of families' experience of COVID-19 has also demonstrated the ways in which it has contributed to inequalities within families in, for example, the shares of paid and unpaid work [2]. One striking inequality in Covid-19's effects was the unequal mortality risks across ethnic groups, an inequality that appeared early on and has been substantiated by a range of analyses [3, 4, see also 5]. Racial inequalities in COVID-19 hospitalisations and deaths have been documented in the US [6], Canada [7], as well as the UK, where there is extensive and ongoing research on the experience of ethnic minorities [3, 4, 8, 9, 10].

The very strong age-related gradient of the coronavirus has resulted in the largest numbers of deaths among older (predominantly White British) people. As of 29 January, there had been over 105,000 COVID-19-related deaths in England, of which 90% were aged 65 or over and, of those with recorded ethnicity, 88% were White, slightly more than the White population share. Yet given that most of the UK's ethnic minority groups have a younger age profile, the expectation would be for them to make up an even lower percentage of Covid-related deaths. In fact, once the fatality rates are adjusted for age, the death rate for minority groups has been disproportionately higher, albeit with some variation by specific group [4, 10, 11, 12, 13]. While most of the analysis has been carried out on individuals in private households, deaths in care homes were also higher for Black and Asian minority groups [13]. The reasons for these differences in risks across ethnic groups have been much discussed and numerous candidate causes have been proposed—and to some extent tested.

The link between deprivation and facing enhanced risks from COVID-19 has been clearly articulated. Such deprivation has been evaluated in terms of area deprivation, socio-economic position, census-based measures of deprivation, and overcrowding [10, 11, 12, 13, 14]. Accounting for these levels of deprivation has mediated some, though not all, of the excess risks faced by specific minority ethnic groups. Given how particular health conditions increase the severity of the impact of COVID-19, analyses have also adjusted for relevant health conditions and hospitalisations, which again explain an additional share of the disparities but still leave unexplained gaps [8, 10, 13]. A further disparity relates to rates of survival among those admitted to hospital, which showed ethnic group differences that were particularly severe

for Bangladeshis [9]. Again, adjusting for pre-existing health conditions (and for other factors) reduces but does not close this gap.

The presence of relevant health conditions may itself be linked to prior patterns of persistent disadvantage and discrimination, complicating the relationship between prior health, deprivation, and COVID-19 mortality [15]. In addition, those health conditions that are linked to high risks of mortality from COVID-19 may also be more or less severe and more or less well managed across ethnic groups. For example, Mathur and colleagues [16] found differences in the management of diabetes by ethnic group. This can mean that the consequences of such health conditions are more severe, or disabling, for some groups and that controlling for underlying conditions does not capture these relevant differences. It is striking, in relation to this point, that Office for National Statistics (ONS) analysis [17] showed that disability was associated with an elevated risk of COVID-19 mortality, even after controlling for a whole suite of relevant health conditions and hospitalisations. It seems plausible, therefore, that the extent to which serious health conditions are or are not well-treated and therefore are or are not experienced as disabling may explain some of the differences in Covid-19 mortality. This is relevant given that we know that there are striking differences across ethnic groups in the prevalence of disability among older working age adults from research using a comparable definition to that of the ONS research of longstanding, activity-limiting ill-health [18]. The same study also showed that the experience of disability across ethnic groups differed in terms of the extent to which multiple morbidities were experienced concurrently. To provide a more current perspective on this issue, **Table 1** describes the rates both of longstanding health problems (a broader measure than the ONS disability definition) and the experience of multiple morbidities (more than one named health condition) for men and women in the age band 45–59 across ethnic groups in the period 2016–2019. As it shows, Bangladeshi men and women and Pakistani women are more likely to have a longstanding health problem and multi-morbidities than the White British, while those from the Other White and Black African ethnic groups in this age range are rather less likely to—also consistent with earlier research [18].

As well as the individual directly affected, disabilities affect the households in which they live. For example, the presence of a disabled person may mean that another member of the household has caring responsibilities and is thus more constrained in terms of their ability to participate in the workforce. If the disabled person gets sick, the carers are then themselves vulnerable. As such, the household context is relevant to how we understand transmission and COVID-19 risks [19]. Given that there is substantial variation in household composition across ethnic groups, with larger average sizes and greater risks of overcrowding among certain groups, particularly Bangladeshis [20], and that there are increased risks of transmission the more people in the household [21], individual risks and the household risks are linked. To illustrate, while fewer than one in four White British working age households contain someone with a health condition that is relevant for risks of COVID-19 severity, this rises to nearly one in three Pakistani and Bangladeshi households. So far, the ways in which analysis has attempted to take into account housing and household circumstances—and health risks—does not sufficiently acknowledge how mutually implicated these factors are.

As well as the local context of the household, community level factors and networks are also relevant. There is a growing body of research on the different ways in which communication about COVID is implemented for—and received by—different ethnic groups [19]. The mixed understanding of public health messaging combined with greater levels of inter-household patterns of care have been raised as factors shaping higher infection and mortality rates. There is substantial variation in the local concentration of ethnic groups both within and between conurbations. For example, Pakistanis are relatively concentrated within Bradford, while Bangladeshis are relatively concentrated within East London. Areas of Leicester, meanwhile, have high concentrations of Indians. Black groups are overwhelmingly concentrated in London but not to the same degree at the local level [22]. The relative density of different communities may foster within-group communication but, equally, also enable specific concerns to be more easily shared. Different types

Table 1: Longstanding health problems and multi-morbidities among men and women aged 45–59, by ethnic group.

	Men		Women	
	% with a longstanding health problems	% with multi-morbidity (>1 health condition)	% with a longstanding health problems	% with multi-morbidity (>1 health condition)
White British	40.5	16.1	42.5	18.8
Other White	26.3	8.6	31.3	13.6
Indian	36.6	12.3	39.2	15.8
Pakistani	41.8	17.3	51.9	29.6
Bangladeshi	49.7	27.6	48.5	27.2
Black African	25.3	8.7	37.0	17.1
Black Caribbean	40.8	18.8	44.9	23.6
Other groups	40.5	16.5	38.6	16.5

Source: Own analysis of Labour Force Survey, 2016 Q1 to 2019 Q4 (weighted).

of communication and different levels of trust appear, for example, to have affected attitudes to COVID-19 vaccination, with higher levels of hesitancy about taking the vaccine, as well as lower levels of actual take-up reported for older Black and South Asian adults and for Black and South Asian healthcare workers [23].

In addition, the fact that ethnic minorities may be disproportionately employed in roles that carry elevated risk of exposure to COVID-19 has been identified as a possible contributing factor to their elevated mortality risk. Certain occupations require workers to frequently come into close contact with others. This enhances their risk of contracting the virus, particularly given that, in many of these roles, the relative intimacy means there is an elevated risk of receiving a high viral load. Analysis bears this out, with studies showing substantial differences in risk across particular occupations, such as care workers, home carers, nurses, and nursing auxiliaries [24]. It is notable that many, if not all, of the occupations identified as having significantly higher COVID-19 mortality risks are those in which specific ethnic minority groups are over-represented. This includes care workers, among whom Black African men and women are particularly highly represented, as well as security guards, bus drivers, retail workers, and those working in hospitality and catering. Accordingly, key worker occupations have been accounted for in models as explaining why certain communities face higher risks [12, 10], though again they do not eliminate all the differences. The role of occupational exposure as a contributory factor in death rates is also suggested by the markedly lower average age at death for Black Africans (mid-60s) compared to other ethnic groups, which have an average age at death of over 70 and in the high 70s for the white majority. This difference in average age at death is across the Black African group as a whole, not just those in high-risk occupations, but it indicates that a far higher share who have died from COVID-19 were in work. This draws attention to the sorts of work that the group is performing as a potential candidate for understanding this difference. Given they are more likely to work in care worker occupations, which have faced particular risks, this age differential is consistent with more work-related exposure [10].

The fact that a worker faces greater or lesser risk of exposure at their place of work also has implications at the household level. Depending on whether they live with others, they increase the chance of intra-household transmission, and there is a growing body of evidence that larger household sizes and/or multigenerational households are associated with greater infection and mortality risks [25]. Ethnic minorities tend to live in larger households, to have higher rates of multigenerational households, and to be more at risk of living in overcrowded households and households without a garden [26]. These factors all increase the risks of intra-household transmission and higher viral load when there is infection within the household.

1.2. Economic risks

In addition to the differences in mortality risks, it has been highlighted that ethnic minorities have been disproportionately affected by the economic consequences of the pandemic due to their concentration in particular occupations. Platt and Warwick [4] highlighted how certain minority ethnic groups, particularly Pakistanis and Bangladeshis, were over-represented in the sectors affected by lockdown. Men from these ethnic groups were also more likely to be own-account workers, that is, self-employed without employees, a self-employed group particularly hard hit as the economic crisis struck [27]. The unequal economic impacts of the pandemic on ethnic minorities are now being charted in other papers, which draw on longitudinal data to track changes in circumstances deriving from the pandemic [28, 29]. While such work draws attention to the varied economic consequences faced by different ethnic groups, these occupational patterns are not accidental. The distinctive occupational distributions of the UK's ethnic groups, in part dating back to the recruitment of immigrants into particular sectors and areas—for example, Caribbeans to the motor industry in Birmingham and to nursing and transport in London, Pakistanis to textile industries in Yorkshire—have been observed for a long period [30]. The details of the consequent spatial and occupational distributions, and the extent of occupational concentration, has been explored in previous research [31, 32]. Such occupational distribution and concentration are a result of longstanding patterns of immigrant settlement, geographical clustering, and niche and secondary economies as responses to labour market exclusion [30, 33, 34]. Brynin and Guveli [35] note that ethnic inequalities in pay are driven much more by occupational concentration than by unequal remuneration within occupations. The health consequences of such occupational risks in the context of the pandemic are potentially amenable to interventions, such as effective PPE supply and use, increased safety of public transport, and so on, though employer responsibility for safe working conditions remains a live issue [36]. But the consequences of occupational segregation that feed into health inequalities through the pervasive and persistent effects of long-term disadvantage, and through a lifetime in more marginal, lower paid, more stressful, or less reliable work, are harder to quantify. They are nevertheless important to recognise if the root causes of longstanding vulnerabilities are to be addressed and for the predictability of such differential impacts to be avoided in the future.

As with COVID-19 health risks, one of the key takeaways from the growing literature on the economic consequences of the pandemic is that individual risks need to be seen in the context of the household, which can both be protective and increase economic risks. There is a growing body of work that identifies who has been economically impacted by the pandemic and the consequences for young people in particular [37]. While it is the case that young people at the start of their careers may face long-term consequences due to job-loss [38], they may have, in the short-term, the opportunity to cushion against the immediate economic effects through living with other household members less affected [39]. This echoes analysis of the economic impacts of the Great Recession that demonstrated that returning

to or remaining in the family home could provide some economic buffer for those young people particularly affected [40]. At the same time, this may introduce pressures on the economic situation of the wider household, with poorer households less well placed to 'absorb' the financial burden of additional non-workers.

While this pattern of larger economic impacts on youth dominates in the population as a whole, if we examine the experience of ethnic minorities we see a somewhat different story. Among minorities, the 'entry level' types of jobs often occupied by young people as a prelude to career progression [38] are much more likely to be held by ethnic minorities at a later stage in their work life, such as in mid-life. Rather than a stepping stone, for many these jobs in hospitality, retail, and so forth will form their permanent jobs. The reasons for this partly stem from patterns of chain migration into particular occupations, and the differences between the UK born and the foreign born are illustrated below. But even in the second generation, as I go on to describe, there remain distinctive occupational patterns. We know something about the intergenerational persistence of occupations [41], but blocked opportunities for alternative careers are also likely to play a role [33]. Platt and Warwick [4] showed that those ethnic minority—particularly Pakistani and Bangladeshi—workers at risk of economic consequences of the pandemic were more likely to be at mid-life working age and to have dependents. Adjusting for family circumstances in analysis of economic risks does not do justice to the ways in which the meaning of job loss for households and families can be strikingly different depending on who is affected.

A further key distinction, and an aspect that has received relatively less attention, is the way in which ethnicity-related risks intersect with migration status. There is some evidence on migrants' experience [42], but little analysis of ethnicity has explored the ways in which being an immigrant rather than UK born is or is not specifically linked to different outcomes across ethnic groups. For immigrants, immigration is often linked to specific job opportunities, and immigrants face specific barriers in the labour market, some of which dissipate over time [43]. At the same time, though inequalities are reduced in the second generation, discrimination persists, and some pay gaps remain [44]. However, the extent to which the health and economic risks associated with the pandemic differ or are similar across UK born and foreign born ethnic minorities has not been discretely assessed. Instead, discussion of ethnic inequalities merges issues that are related to immigration status per se with those that are not [e.g., 14]. This is despite the fact that the greatest vulnerabilities may be faced by those with limited migration status and that it is therefore important to disentangle the circumstances of those with different migration statuses. For example, the fact that many immigrants are prohibited from receiving public funds (No Recourse to Public Funds provision) means that the potentially most vulnerable are being deprived of resources at a time when economic and domestic stressors are elevated [14, 45]. To attend to such specific issues, we need to know more about the individuals and families directly affected.

In sum, the ethnic inequalities brought into sharp relief by the pandemic invite a systematic overview of the factors that shape these inequalities. Occupation is clearly not the only factor that is implicated in these COVID-19-related risks, and factors such as geographical concentration and deprivation, community norms, and patterns of interaction and communication also deserve attention. Nevertheless, the ways in which occupational concentrations and occupational risks are distributed across different ethnic groups, the consequences for reductions in employment, the ways in which such occupational and employment patterns differ by migration status, and the implications for the households in which affected workers live all merit further attention.

In the rest of this paper, I outline patterns of occupational concentration across ethnic groups and, importantly, by migration status. I draw on data that preceded the pandemic (i.e., up to 2019) to illustrate the circumstances that prevailed before the pandemic dramatically revealed their implications. This enables me to not only reveal the specific ways in which immigrants are clustered into occupational niches, but also to draw out the extent of persistence or of change in occupational patterns across generations. I also consider occupational patterns in relation to different types of households, assessing how far workers' occupational concentrations have implications for their dependents and for other household members.

2. Occupational Patterns across Ethnic Groups: Men and Women

I start by simply illustrating for each ethnic group those five jobs that had the highest shares of all workers from that group. I look at these 'top five jobs' for men (**Table 2**) and women (**Table 3**) separately and within each sex for the first generation and the UK born. I show how these jobs were distributed prior to the pandemic—specifically across the period 2016–2019. The White British comparison group was constructed to only include the UK born, so there is only a UK born row for this group. Conversely, 90% of the working age in the 'Other White' category were foreign born. I therefore do not include a UK born row for this group. As well as showing what percentage of each ethnic group is covered by each of these five occupations, I also provide the Herfindahl index, which represents a summary measure of the overall degree of ethnic diversity across all the occupations worked in for each ethnic group and migrant status combination. The Herfindahl index takes account of the shares of all the different ethnic groups in each occupation and provides a score between 0 and 1, where a higher score represents less diversity—or dominance of the majority group—and a smaller score represents more diversity, where numbers of minority groups have relatively high shares.

Several points should be noted from these tables. First, we see that women's jobs are concentrated more intensely among the top five jobs than are men's jobs. For example, 19% of White British women are in the five jobs that have the highest shares of White British women, compared to under 10% of White British men being concentrated in their

Table 2: Top five occupations and concentration in these occupations by ethnic group and whether UK born: Men.

Ethnic group	UK born?	Occ 1 (%)	Occ 2 (%)	Occ 3 (%)	Occ 4 (%)	Occ 5 (%)	Share in top 5	Herfindahl index
White British	UK	Elementary storage (2.1)	LGV drivers (2.0)	Sales accounts (2.0)	Production mngrs (1.9)	Electricians (1.8)	9.7	.70
Other white	*Non-UK*	*Elementary storage (5.1)*	*Construction (3.5)*	*LGV drivers (3.2)*	*Chefs (2.9)*	*Programmers (2.5)*	*17.2*	*.35*
Indian	*Non-UK*	*Programmers (8.8)*	*IT/telecoms (5.4)*	*Medics (4.6)*	*IT analysts (2.2)*	*Elementary storage (2.1)*	*23.0*	*.27*
	UK	Book-keepers (4.0)	Programmers (3.6)	Medics (3.2)	Sales accounts (3.1)	Finance analysts (2.9)	16.7	.66
Pakistani	*Non-UK*	*Taxi drivers (20.7)*	*Medics (3.8)*	*Security guards (3.6)*	*Sales assistants (3.0)*	*Shopkeepers (2.7)*	*33.8*	*.25*
	UK	Taxi drivers (7.9)	Sales assistants (4.3)	Medics (3.2)	Book-keepers (2.8)	Van drivers (2.4)	20.6	.63
Bangladeshi	*Non-UK*	*Taxi drivers (16.6)*	*Chefs (10.8)*	*Waiters (6.3)*	*Sales assistants (4.2)*	*Catering assistants (4.2)*	*42.1*	*.23*
	UK	Waiters (4.5)	Sales assistants (3.5)	Taxi drivers (3.3)	IT/telecoms (3.3)	Customer service (3.3)	17.9	.63
Black African	*Non-UK*	*Security guards (6.2)*	*Taxi drivers (5.3)*	*Care workers (5.1)*	*Elementary storage (4.1)*	*Nurses (3.5)*	*24.1*	*.27*
	UK	Security guards (2.9)	Book-keepers (2.8)	Business & finance (2.7)	LGV drivers (2.6)	Care workers (2.6)	13.6	.66
Black Caribbean	*Non-UK*	*Sales assistants (4.4)*	*Bus/coach drivers (3.6)*	*Elementary storage (3.4)*	*Construction (3.2)*	*Van drivers (3.1)*	*17.6*	*.30*
	UK	Sales assistants (3.7)	Van drivers (3.4)	Security guards (3.2)	Elementary storage (2.8)	Care workers (2.3)	15.2	.68

Source: Own analysis of Labour Force Survey, 2016 Q1 to 2019 Q4 (weighted).

Table 3: Top five occupations and concentration in these occupations by ethnic group and whether UK born: Women.

Ethnic group	UK born?	Occ 1 (%)	Occ 2 (%)	Occ 3 (%)	Occ 4 (%)	Occ 5 (%)	Share in top 5	Herfindahl index
White British	UK	Other admin (4.3)	Sales assistants (4.1)	Care workers (4.0)	Nurses (3.7)	Primary teachers (2.9)	19.0	.69
Other white	*Non-UK*	*Cleaners (7.1)*	*Sales assistants (3.2)*	*Care workers (3.0)*	*Elementary storage (3.0)*	*Catering assistants (2.8)*	*19.0*	*.35*
Indian	*Non-UK*	*Nurses (8.2)*	*Sales assistants (4.3)*	*Care workers (3.5)*	*Medics (3.3)*	*Programmers (3.2)*	*22.5*	*.28*
	UK	Sales assistants (3.3)	Other admin (3.1)	Medics (3.1)	Primary teachers (2.6)	Book-keepers (2.5)	14.7	.66
Pakistani	*Non-UK*	*Care workers (6.1)*	*Sales assistants (5.6)*	*Other admin (4.6)*	*Medics (4.0)*	*Teaching assistants (3.6)*	*23.8*	*.27*
	UK	Care workers (6.3)	Sales assistants (5.0)	Teaching assistants (4.9)	Primary teachers (4.3)	Nursery nurses (3.2)	23.8	.66
Bangladeshi	*Non-UK*	*Sales assistants (10.9)*	*Care workers (5.8)*	*Other admin (5.1)*	*Teaching assistants (4.7)*	*Catering assistants (4.5)*	*30.9*	*.26*
	UK	Other admin (7.8)	Sales assistants (5.6)	Primary teachers (5.5)	Teaching assistants (4.7)	Nurses (3.6)	27.2	.67
Black African	*Non-UK*	*Care workers (18.2)*	*Nurses (13.0)*	*Cleaners (9.1)*	*Nursing assistants (6.8)*	*Sales assistants (3.2)*	*50.3*	*.26*
	UK	Care workers (5.8)	Nurses (4.4)	Sales assistants (4.3)	Other admin (4.1)	Welfare profs (3.2)	22.5	.66
Black Caribbean	*Non-UK*	*Care workers (13.7)*	*Nurses (9.1)*	*Nursing assistants (5.5)*	*Cleaners (5.0)*	*Other admin (3.2)*	*36.6*	*.26*
	UK	Care workers (5.6)	Nurses (4.3)	Sales assistants (4.2)	Teaching assistants (3.2)	Other admin (3.2)	20.7	.67

Source: Own analysis of Labour Force Survey, 2016 Q1 to 2019 Q4 (weighted).

five 'top jobs'. Second, we see that the first immigrant generation tends to be more intensely concentrated among their top five jobs, with the second generation working across a broader range of industries. This is the case across the ethnic groups and sexes. For example, 33% of first-generation Pakistani men are concentrated in their top five jobs, compared to 20% of second generation men. Similarly, the five jobs with the highest shares of Black African women occupy a full 50% of these women, but among UK-born Black African women, only 23% work in their five most concentrated occupations. However, we can see, thirdly, that (with the exception of Indian women where only 15% are concentrated in just the top five jobs), UK-born ethnic minorities are still more heavily concentrated in their top five occupations than their White UK majority peers of the same sex. For example, 17% of UK-born Indian men, compared to around 10% of White British men, are concentrated in just five jobs, and 27% of UK-born Bangladeshi women are concentrated in five occupations compared to 19% of White British women. Fourth, minorities are not necessarily concentrated in low status occupations, with Indians and Pakistanis in particular also having relatively high concentrations in high status jobs like doctors and programmers. Therefore, while much of the discussion of ethnic inequalities due to COVID-19 have (rightly) focused on the role of longstanding deprivation, discrimination, and marginalisation driving the negative consequences for minority ethnic groups [46], there is also substantial heterogeneity that should be acknowledged. That is not to say that higher status jobs are necessarily without risks. But they are likely to be different risks. For example, Nagpaul [47] argues that occupational risks within the health profession are systematically different for ethnic minority doctors.

Fifth, we see that there is substantial decline in the extent to which minorities are concentrated in a relatively small number of selected occupations across generations. This is particularly visible from the Herfindahl index, which demonstrates much lower diversity (and therefore a higher concentration of the numerically dominant White majority) in the second generation. By contrast, in the first generation the level of diversity in the occupations in which immigrants work is high, indicating that these are occupations that include much higher shares of (various) minority groups. Nevertheless, inspection of the most common jobs shows that there is also generational persistence in occupational patterns. For example, 21% of first-generation Pakistani men are taxi drivers, but even among the UK born, 8% are taxi drivers.

Such intergenerational change and persistence is important for understanding ethnic differentials in COVID-19—both the causes of COVID-related inequalities and the longer term implications for the welfare of the different groups as circumstances change and different 'shocks' arise. On the one hand, the typically more 'niche' labour market opportunities, accessible to and occupied by immigrants, are less dominantly filled by the second generation. This indicates that intergenerational processes reduce occupational segregation and suggests that these occupational distributions among first-generation immigrants are not solely driven by ethnically driven labour market exclusion. Instead, the patterns of immigrant labour market entry and clustering in certain sectors have been documented more widely as part of the immigration process [see e.g., 48, 49].

On the other hand, some degree of persistence across the generations in self-employment, including taxi-driving, and in occupations, such as hospitality and catering work, which command low rates of pay and challenging working conditions, suggests that ethnic minorities do continue to face restricted labour market opportunities, and this leads to concentrations in those industries that may be somewhat more accessible through parental or community links. For the second generation taking up employment in these sectors, the consequences are lower pay and larger 'ethnic penalties' [e.g., 49]. That is, the wage penalties at similar levels of educational achievement that have been noted for both first and second generation ethnic minorities [e.g., 44] are more pronounced in the second generation when accompanied by participation in more segregated, ethnically-specific occupations. This is despite the fact that among UK-born ethnic minorities as a whole there are substantial levels of upward mobility, driven primarily by high levels of qualifications [50].

In terms of the occupations themselves, just looking at the top five sources listed here makes it clear that many ethnic minority groups are concentrated in roles that face greater risks of COVID-19 exposure (e.g., care workers) and those that are recorded as having heightened COVID-19 mortality (e.g., security guards). They also include those that have been particularly hard hit economically by the pandemic (e.g., hospitality workers) [cf. also 4]. Indeed, if we look at certain occupations, it is possible to identify how far they are dominated by foreign born and/or minority ethnic group workers. Nearly 2 in 5 male care workers are foreign born, despite foreign born men making up only 20% of the working age male population in paid work, while one in four female care workers are foreign born, despite foreign born women making up 20% of the female working age population. In line with this, White male care workers are underrepresented in contrast to their percentage of the working population, as they make up two thirds of care workers but three quarters of men in paid work. As such, when we combine information on ethnicity and whether or not foreign born, men and women who are both non-White and foreign-born are twice as likely to be care workers as their shares of the working age population in paid work would suggest. The ways in which care work is dependent on foreign born workers has been noted before; however, this reliance on minority care workers extends to UK-born ethnic minorities, with second generation Black African and Black Caribbean men in particular remaining highly over-represented among male care workers and second-generation Black Caribbean, Black African, and Pakistani women among female care workers. Although care work is much more common among women, the differences between minority and majority women are less substantial than they are for majority and minority men, reflecting the gendered nature of inequalities

in work more generally. Migrant and minority status then partially aligns with and partly compounds those patterns. This occupation therefore provides a window on the ways in which immigrant labour inserts into longstanding occupational niches but is also reproduced in subsequent generations' employment patterns.

Table 4 illustrates this issue further, showing the overrepresentation of both foreign born and ethnic minorities in occupations that have been demonstrated to be 'vulnerable' in terms of mortality and/or economic risks. As the table shows, all of these command a wage that is between 49% and 70% of average hourly pay. The enduringly high ratios of ethnic minorities in these roles again speaks to some perpetuation of occupational clustering—at least for those who are in work. Moreover, these roles are often taken by the main or principal earner in the household, with implications for the welfare of others should they get sick or lose their work. The household dimension of occupational distributions is taken up in the next section.

3. Occupational Patterns and Household Context

I now move on to consider the household context and again distinguish those families where the workers are UK born from those where they are not. This is in order to shed further light on how far household-level inequalities across ethnic groups are, more specifically, immigrant inequalities. It raises the question of how far immigrants are integrated into or excluded from society and how far we see replication across generations and what the potential longer-term implications may be.

Table 4: Overrepresentation of foreign born and ethnic minority men and women in vulnerable occupations.

	Ratio foreign born men in occupation to all foreign born men in paid work	Ratio ethnic minority men in occupation to all ethnic minority men in paid work	Ratio foreign born women in occupation to all foreign born men in paid work	Ratio ethnic minority women in occupation to all ethnic minority men in paid work	Hourly pay as ratio of average hourly pay
Care workers	1.5	1.4	1.3	1.2	0.61
Security guards	1.9	1.8	–	–	0.70
Taxi drivers	3.4	2.7	–	–	0.61
Waiters/waitresses	3.1	2.8	1.9	1.5	0.49

Source: Own analysis of Labour Force Survey, 2016 Q1 to 2019 Q4 (weighted).

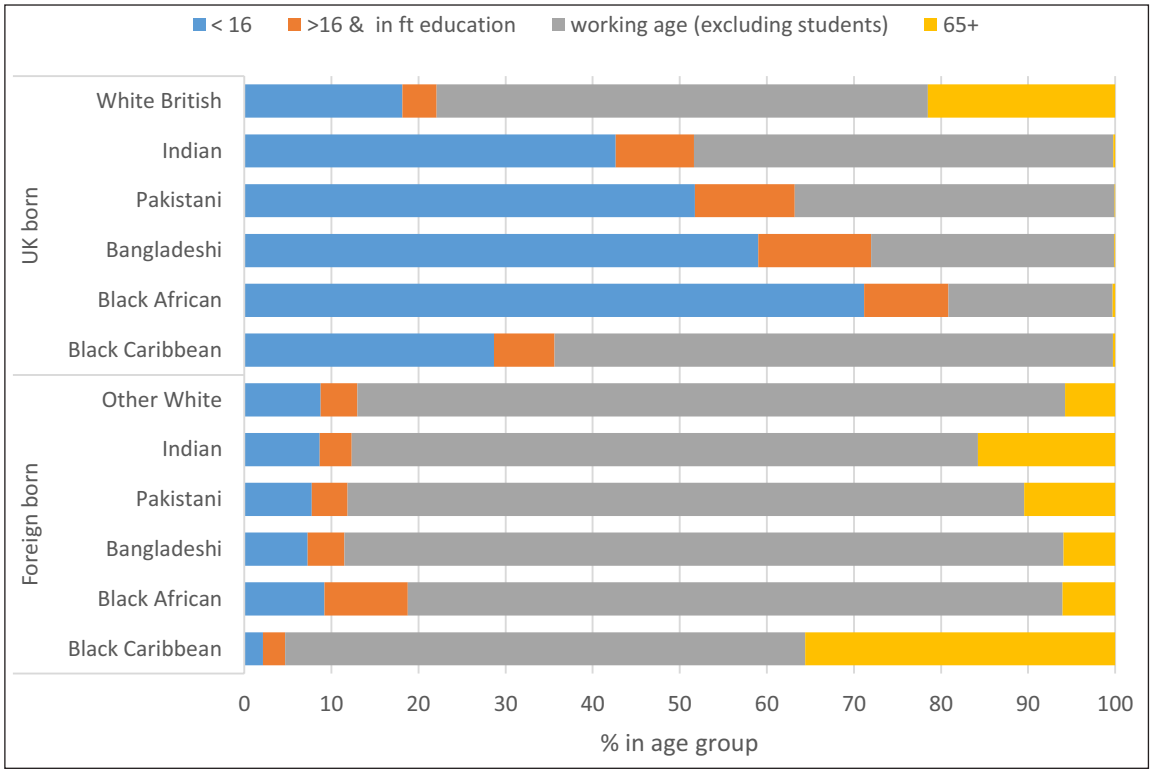

Figure 1: Population age structure by ethnic group and whether or not UK born.
Source: Own analysis of Household Labour Force Survey, 2016 Q1 to 2019 Q4 (weighted).

First, to illustrate the ways the UK's ethnic groups differ by age, **Figure 1** shows the age structure of the ethnic groups but distinguished by whether they are foreign born. This shows the very youthful nature of the UK-born Indian, Pakistani, Bangladeshi, and, especially, Black African populations. It also shows how first-generation immigrants are predominantly working age. Only the Black Caribbean group has a substantial share of over-65s, reflecting the relatively early arrival period of the primary immigrant cohort of this group [30].

Moving on to think about the family and the household implications of occupational patterns, **Figure 2** shows the family composition of working age households for the different ethnic groups. Working age is defined on the basis of the age of the household reference person—that is, the identified member of the household in whose name the accommodation is owned or rented or, if joint householders, the person with the higher income. **Figure 2** again separates out the foreign born and the UK born. It shows both the UK- and foreign-born South Asian groups have a greater likelihood of having children, while Black African and Black Caribbean working age households are more likely to be lone parent families. This suggests that there is some continuity in household formation across specific ethnic groups, regardless of whether they are born in the UK or abroad, when we restrict the comparison to working families for both generations. Clearly, the differences in age structure, driven by different patterns of immigration and settlement as well as family formation, mean that there are large differences in the shares of people who fall into the working age population and therefore are excluded from this comparison. **Figure 2** presents indicative evidence, however, that the extent to which workers have dependants varies by ethnic group, across both the UK and foreign born. This is relevant when considering differences in economic risk, health risk, and housing context.

I now turn to consider how occupational position, which as I have discussed is linked to economic vulnerability to COVID-19, varies within these family settings. Moving from individual occupations to sectors of employment, I first identify what share of households have a worker in one of the sectors predicted to be hardest hit economically: accommodation and food services; wholesale and retail; arts and entertainment; recreation; and construction. While these are broad sectors covering a wide range of occupations, they include some of those, such as those working in the hospitality sector, which are heavily over-represented among certain ethnic groups. Given the severe consequences of the pandemic for those in self-employment [27], I also include them in my overarching measure of economic risk.

Table 5 illustrates the share of members of each ethnic group—of whatever age—who are living with someone who is either in one of these at-risk sectors or is self-employed. The third column, commensurate with this, shows the average household size of those where someone is in the 'economic risk' category. Because larger household sizes may contain both dependants and other workers who may also compensate for household risks born by others, the fourth column gives the average number of workers in those households where there is someone in the economic risk category. The final column gives the average number of children in the family.

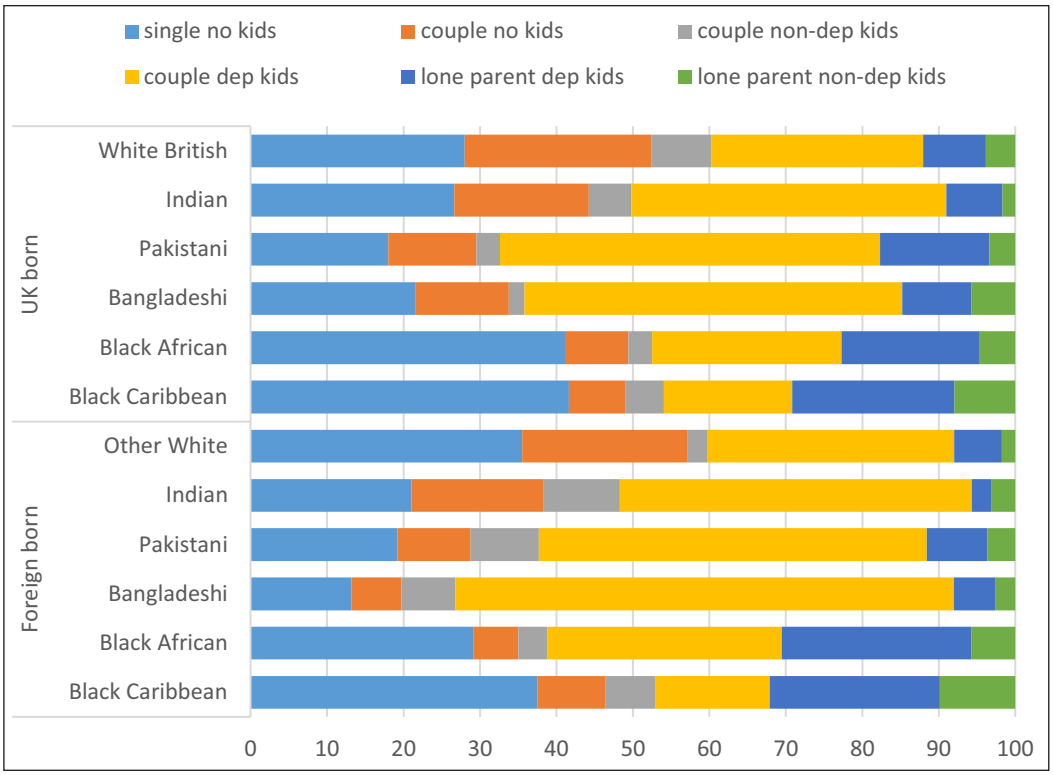

Figure 2: Family structure by ethnic group and whether or not UK born among those of working age.
Source: Own analysis of Household Labour Force Survey, 2016 Q1 to 2019 Q4 (weighted).

Table 5: Those at risk of economic impacts of the pandemic by ethnic group and whether or not UK born, by family and household circumstances.

Whether or not UK born	Ethnic group	Share of individuals of working age in at-risk sector	Share of individuals living in a family with someone in at-risk employment	Mean household size of families where someone is in an at-risk occupation	Mean number of people in paid work in working age household with at-risk worker	Mean number of dependent children in family in working age family with at-risk worker
UK born	White British	0.36	0.54	2.66	2.03	0.57
	Indian	0.30	0.50	2.94	2.09	0.85
	Pakistani	0.35	0.63	3.68	1.84	1.37
	Bangladeshi	0.32	0.68	3.67	1.87	1.49
	Black African	0.29	0.39	2.51	2.00	0.63
	Black Caribbean	0.31	0.45	2.44	1.87	0.57
Foreign born	Other White	0.42	0.57	2.30	2.38	0.57
	Indian	0.31	0.46	2.90	2.37	0.67
	Pakistani	0.53	0.65	3.68	2.07	1.21
	Bangladeshi	0.64	0.75	4.07	1.81	1.42
	Black African	0.27	0.40	3.03	1.90	1.04
	Black Caribbean	0.31	0.46	2.57	2.16	0.52

Source: Own analysis of Household Labour Force Survey, 2016 Q1 to 2019 Q4 (weighted).

There is substantial variation across groups, with some having rather lower chances of being in one of the sectors that has absorbed the major economic impacts of the pandemic. What is also noticeable is, somewhat surprisingly, how consistent the patterns are between the foreign born and the UK born. Circumstances that lead to greater or lesser economic risks do not seem to be markedly different between the generations of the same ethnicity. Additionally, what is clear is how considering the household context shifts the perspective onto who is likely to be at risk of the economic consequences. This is not to say that the individual experience is not important, and much has been written about the potentially deep scarring issues faced by young people experience this economic context. However, it can also be informative to think further about capacity (or not) for risk pooling [4, 51] or, conversely, the extent to which risks impact others in the household.

We see that Bangladeshis and Pakistanis are not only more likely to be in these at-risk sectors of employment, but also that they are more likely to have more people living with them but with fewer of them in employment. The numbers of dependent children are also higher. These characteristics are remarkably similar across the generations, suggesting that there is no mitigation of risk from the first generation to the UK born using this broad measure. The implication is, therefore, that the economic impacts will be borne by multiple family members in these groups and that the risks are not tied to the specifics of migration status.

4. Conclusions: Looking Ahead

So what do we take away from this? This study suggests that occupational sorting has implications for both health and economic welfare and that the negative consequences of such occupational segregation are revealed to be particularly acute in the extreme circumstances of the pandemic. While such insights into the occupational patterning of ethnic groups' labour market experience and its interconnection with historical, regional patterns of settlement is, as noted, not new [30, 31], what this analysis has revealed is the extent to which such occupational patterns persist into the subsequent generation. The household focus of the analysis has also shown how such occupational concentration has implications not only for individual's life chances, but also impacts multiple household members, not simply the worker who is often the primary focus of economic analysis.

Looking ahead, it is important to reflect on these vulnerabilities for subsequent generations. There is substantial and increasing evidence that UK-born ethnic minorities are performing well in school, are entering higher education at increasing rates, and are achieving strong levels of upward mobility [50]. At the same time, labour market exclusion persists [52], and ethnic minority graduates do not get equal returns to their degrees. Such exclusion could be translating into the relative persistence in specific occupational niches, as well as in self-employment, that this analysis has shown.

As a result, differential valuation of forms of work, and the vulnerability of the self-employed 'alternative' labour market to economic shocks suggest that there will be ongoing economic pressures on minority groups, particularly Pakistani and Bangladeshis, meaning that future generations of the UK's minority ethnic groups will continue to grow up in poverty. **Figure 3** shows the differential rates of child poverty across ethnic groups over the period since 2002/3. Those who were

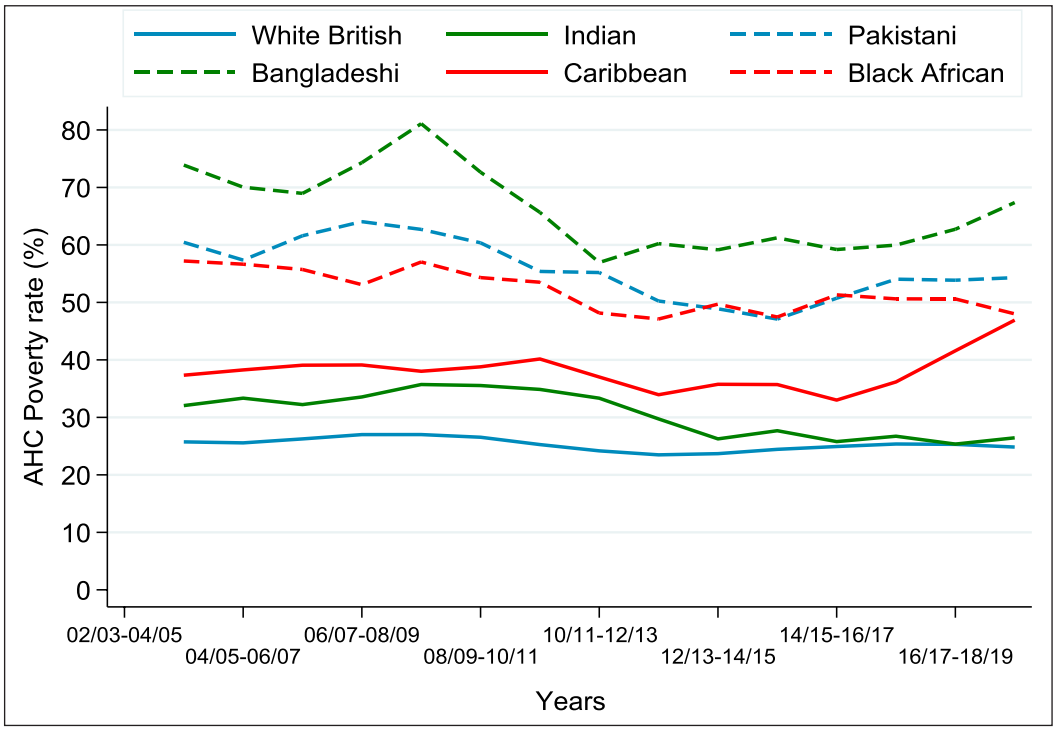

Figure 3: Child poverty, 2002/3–2018/19 by ethnic group: 3-year rolling averages.
Measure: <60% of median equivalised household income after housing costs. Source: Own analysis of HBAI 2002/3 to 2018/19.

poorest experienced substantial declines over the first decade of the 21st century but at no point reached parity with the White UK majority. More recently, rates have begun to increase again. The consequences of the pandemic for children growing up now is dramatic on many fronts, with the educational consequences for those of different ethnic groups still to be fully grasped. For many minority ethnic group children, the longstanding occupational segregation experienced by their forebears may consign them to substantial childhood deprivation and further delay the chances of economic parity.

Is there anything that can stem or change such vulnerability to economic and health shocks? Are such cycles of vulnerability inevitable? The evidence suggests that there are positive indications for the future and that policy can make a difference, but there also has to be the political will to do so. The success in reducing the child poverty of the poorest groups in the first decade of the 21st century showed that concerted poverty reduction strategies can be effective and illustrates where they have most effect. It was a set of political choices, changing entitlements as part of the move to universal credit among others, that has stemmed or even reversed that progress up until now, and such choices could do so again. Second, the extent of educational success and upward social mobility of minority ethnic groups indicates that disadvantaged backgrounds are not necessarily constraining and that access to good quality education does have potential for levelling the playing field. At the same time, there are also indications that the loss of schooling and its impact on education, as well as widening the attainment gap between more and less advantaged pupils [53], may also have driven a wedge between the attainment of minority ethnic groups and their majority peers [54]. An effective strategy for addressing learning losses will be crucial if we are not to see long-term impacts of the school closure in creating ethnic attainment gaps and in reversing the successes achieved in recent years [50, 34].

In terms of the labour market, it is clear that discrimination remains a persistent issue for access to employment [52], even if occupational attainment among those employed is increasing for ethnic minorities. This is despite the fact that the UK has some of the longest-standing and most robust anti-discrimination legislation in Europe. As this paper indicates, 'blocked' opportunities may be leading to some of the perpetuation of occupational segregation, which in turn makes minority ethnic groups more vulnerable to labour market shocks. Mandating better use of what we know about what improves outcomes—including reporting—is likely to be essential to address the persistent differences in access to work. For example, limiting scope for discretion in evaluation applications is recognised as reducing biased decision-making [55]. Incorporating self-employed workers more explicitly within the social security system has been indicated as being welcome to self-employed workers [27] and could offer some protection. For employees, minimum wages provide a floor for those in lower-paid work, while tax credits allowed for the fact that families of different composition had different living standards from wage-earners. Reversing some of the changes accompanying Universal Credit, such as the two-child limit, which penalised larger families, could help to ensure family living standards [56].

This paper has shown that occupational concentration is much greater among foreign-born ethnic minorities, and many immigrants are working in roles for which they are over-qualified. While match of employment to level of qualification improves with duration of stay [43], this over-qualification still represents a waste of potential, as well as a fiscal loss. Discussion around the valuation of particular forms of work, particularly caring work, has become more intense

since the pandemic. These go beyond the question of the substantial concentration of certain groups of immigrant workers in caring occupations, but the two are clearly interlinked. Cogent arguments have been made that the UK cannot resolve the 'crisis of care' by looking to immigrant labour [57]. But until a more comprehensive reconsideration of the valuation of care—and other 'essential' roles—is engaged in [58], it seems likely that we will continue to see these occupational patterns and the consequent vulnerabilities persist.

Competing Interests

The author has no competing interests to declare.

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