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The locality challenges facing the 'levelling up' of sport participation and health inequality in England

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ABSTRACT

In the context of the UK Government's levelling up agenda, current sport policy seeks to reduce inequalities in sport participation, supported by investment in facilities. Drawing on a socio-ecological theoretical framework, this paper analyses a large-scale dataset measuring individual sport and fitness participation, local authority facility availability and level of multiple deprivation to examine the individual/compositional and locality/contextual influences on participation in sport and fitness activities for men and women in England. Multi-level regressions highlight the challenges faced for policy, arguing that scaled-up local action is needed to account for the interaction between individual factors, facility availability and area deprivation.

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Sport participation; health; policy; sport facilities; index of multiple deprivation; inequalities

1. Introduction

Sport participation can have positive personal, social and economic outcomes for individuals (Coalter 2007, Taylor *et al*. 2015, Sport England 2017), with the value of these estimated to lie between £45 billion and £85 billion in England (Davies *et al*. 2019, Sport England 2020). Harnessing these benefits through policy has consequently been central to the successive national sport strategies of the Blair (Strategy Unit/Cabinet Office 2002), Cameron-Clegg coalition (Cabinet Office 2015) and Sunak (DCMS 2023) governments, albeit separated by substantial periods of time and location on the political spectrum (Downward 2011, Stenling 2014, Kumar *et al*. 2019).[1]

Four features of the most recent strategy, 'Get Active: A strategy for the future of sport and physical activity' (DCMS 2023), are worth noting. First, it emphasises making the inactive, active; making sport more inclusive. There is a focus on the need to improve participation for women, individuals aged 75 and over, those with disabilities and long-term health conditions, and some ethnic groups. Women's participation is identified to be particularly important given that it provides a basis through which other sources of inactivity can be located, as illustrated in a distinct sport strategy (Sport England n.d.a). Second, it maintains that sport participation should contribute to World Health Organisation (WHO) recommended levels of activity of 'at least 150 minutes moderate intensity activity, 75 minutes' vigorous activity, or a mixture of both' (DCMS 2023, p. 23). Third, it identifies that differences in participation rates have a 'geographical dimension' that needs to be addressed (DCMS 2023, p. 21). The geographical emphasis of the strategy has its roots in the 'levelling up' agenda of the former Johnson Government, which involves 'tackling the regional

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and local inequalities that unfairly hold back communities' (p.viii) (UK Government 2022) .[2] Fourth, it argues that investment in facilities that 'reflect the needs of local communities' (DCMS 2023, p. 4) is part of this solution but that there remains a need to encourage the private and voluntary sectors to support the public sector in delivering such opportunities (Kumar *et al*. 2019).

Despite current policy pronouncements, the challenges of delivering levelling up through sport have increased through the current cost of living crisis (Institute for Government, 2022) with the sector already having experienced cuts as a result of austerity policies following the 2008 financial crash (Croucher 2013, Ssac 2014). Leisure centres and swimming pools have faced closure as a result of these pressures (UK active 2022), with England losing almost 400 swimming pools since 2010 (Skopeliti 2023). Moreover, it was argued that 40% of local authority areas were at risk of losing or seeing reduced services at their leisure centres during 2023 (Eichler 2022).

To explore the extent of these challenges, with a view to clarifying how policy needs to change, this paper has the aim of investigating the compositional (i.e. individual) and contextual (i.e. locality) sources of inequality in participation in traditional sport (TS) (i.e. team sports, swimming, racquet sports, martial arts, etc.) and health and fitness activity (H&F) (i.e. keepfit, weight training, cross training, etc.) in England. The analysis is undertaken separately for men and women and for both the decision to participate and the contribution of participation to meeting WHO health objectives in lieu of their importance to policy. Overall, a key foundation of the paper is the insight of Coalter (2013), who states that social inequality is a central driver of sport participation. This is in contrast to recent policy emphasis that tends to focus on the reduction of social inequality through, and as an outcome of, sport participation. This perspective is captured, for example, in the estimates of the value of sport noted above.

2. Literature review

2.1. Theoretical underpinnings

The overall theoretical framework of this paper derives from the physical activity and public health literature, which emphasises a socio-ecological perspective. This approach argues that individual, social and environmental characteristics shape behaviour (Bronfenbrenner 1977). Bauman *et al*. (2012) suggest that a large set of individual (compositional) and environmental (contextual) factors could be associated with differences in physical activity behaviour. Whilst the socio-ecological approach establishes a useful framework for analysis, however, more specific theories are needed to explore how specific individual and environmental characteristics may shape behaviour.

Much research on the individual compositional aspects of sport participation has developed from the economic and sociological literatures. In the former case, the foundational model is the 'income-leisure' trade off model of labour supply in which the focus is upon the choice to experience leisure rather than working (Gratton and Taylor 1985). The behavioural content of this model is that utility maximising individuals make decisions about their sport participation focussing on their wage rate – as the opportunity cost of leisure time – and their individual preferences. This model assumes that any factors other than the wage that influence participation must reflect differences in individual preferences (Downward *et al*. 2009). This is problematic because it formally requires that preferences change, for example, over the life course with ageing and other social demographic changes, but this contradicts a basic assumption of economic theory (Stigler and Becker 1977). The approach also does not consider that individuals must produce the goods and activities that they consume, by combining both time and other resources accessed through expenditure (Downward *et al*. 2009).

Becker's (1965) seminal time allocation model addresses these issues, arguing that individuals seek to maximise their utility from participating in sport but do so in the context of individuals being 'consumer-producers'. Consequently, this approach provides a direct link between sport participation and an individual's personal and social characteristics. On the one hand, the approach argues that individuals might specialise in consuming activities through investment

in human capital (Becker 1962, 1991). On the other hand, individuals can invest in their social characteristics, seeking to accrue what they deem to be desirable (Becker 1974). This theoretical perspective has been developed to argue that individuals are more likely to be multi-sport participants and that they will also share individual, social and economic characteristics (Downward and Riordan 2007). Importantly, the time allocation approach has also been directly extended to address the health outcomes from activity, with Humphreys and Ruseski (2011, 2015) distinguishing between the decision to participate in sport and the intensity of the participation.

Bourdieu (1984) has provided a foundation for much sociological analysis of sport participation through a cultural capital framework. In Bourdieu's model, sport participation maps directly onto social stratification, such that individuals in higher social positions participate in sport as a representation of cultural capital (Chan and Goldthorpe 2007) in which more refined tastes and higher levels of skills and knowledge are expressed. In contrast, those in lower social positions are more likely to participate in lower cultural, mass forms of sport. Consequently, sporting lifestyles are formed on an 'elite to mass' continuum, reflecting social stratification and a habitus of taste. Bourdieu's elite to mass model has been refined such that those in higher classes can also be seen to engage in sports of all types as omnivores, in contrast to the working classes that tends to focus on sports that form part of popular forms of culture (Widdop and Cutts 2013, Widdop *et al*. 2016, Cutts and Widdop 2017).

Sociological research has also linked sport participation to social capital. Putnam (2000), for example, reflects on how the decline in sport-club membership impacts upon civic society. Studies drawing upon Putnam tend to focus on volunteering, sport organisations and the collective formal and informal networks underpinning sport participation (See Seippel 2006, Nicholson and Hoye 2008, Downward *et al*. 2014). More recently, Rowe (2017) has combined elements of human, social and cultural capital in a theory of sporting capital, as further developed by Grix *et al*. (forthcoming). Focussing primarily on how participation might vary by social class, these approaches have little to say explicitly concerning other features of individuals such as their ethnicity, age and gender, and their association with sport participation. However, they are implicitly linked through the social contexts of engagement with sport (see Warde 2006, Widdop *et al*. 2016).

Collectively, the economic and sociological theoretical approaches provide a strong expectation that the level of sport participation varies according to the individual and socio-economic characteristics of participants. In particular, they share the expectation that greater activity will be expected from those with greater individual access to resources and, moreover, that this variation in activity will vary systematically across socio-economic characteristics and social contexts.

The economic and sociological perspectives also recognise the importance of contextual factors on participation in sport as proposed in the socio-ecological approach. On the one hand, economic analysis naturally emphasises a need to understand the supply-side opportunities available to participants, through the provision of facilities (Hallmann *et al*. 2012, Wicker *et al*. 2013). On the other hand, social context and social capital are a crucial connecting tie between individual stratification and participation in sporting activities from a sociological perspective. An important feature of individual behaviour, therefore, may flow from a sense of belonging or place (Agnew *et al*. 2003) as well as the interaction of individuals with the others that they reside with or share the same social world (Buck 2001).

2.2. Evidence on factors affecting sport participation

The available empirical evidence supports the policy priorities noted in the introduction and key insights of the socio-ecological, economic and sociological theoretical perspectives. It identifies that the level of sport participation is structured by the individual and socio-economic compositional

characteristics of participants. It is also shaped by the opportunities available to participate according to the contextual setting.

2.2.1. Compositional effects

The empirical literature broadly shows that women can be less likely to participate in sports than men (Downward *et al*. 2014, Oliveira-Brochado *et al*. 2017) though there can be international variations (Garcia *et al*. 2011, Kokolakakis *et al*. 2012, Scheerder and Vos 2016, Eime *et al*. 2020). Less participation is also identified for minority ethnic groups (Downward and Rasciute 2015). Moreover, whilst individuals who are married or in a couple are associated with less sport participation (Oliveira-Brochado *et al*. 2017), there can be differences across activities, with women participating even less (Humphreys and Ruseski 2007, 2015, Eberth and Smith 2010, Ruseski *et al*. 2011, Muñiz *et al*. 2014, Thibaut *et al*. 2014). Likewise, whilst the presence of children in a household can be negatively associated with sport participation (Downward 2007, Humphreys and Ruseski 2007, Widdop and Cutts 2013, Oliveira-Brochado *et al*. 2017), this is especially for true for women (Humphreys and Ruseski 2006, Eberth and Smith 2010, Downward *et al*. 2014) and single parents (Scheerder and Vos 2016).

Research also shows that sport participation is generally negatively associated with age (Breuer and Wicker 2008, Eberth and Smith 2010, Fridberg 2010, van Tuyckom *et al*. 2010, Widdop *et al*. 2016, Hoekman *et al*. 2017, Oliveira-Brochado *et al*. 2017). However, non-linear associations have also been identified with participation decreasing from adulthood up to approximately middle-age and increasing thereafter (Engel and Nagel 2011, Garcia *et al*. 2011) reflecting youth and retirement peaks.

Finally, in terms of socio-economic status, research tends to show that higher levels of an individual's personal or household income are associated with greater sport participation (Breuer and Wicker 2008, Downward and Rasciute, 2010, Eberth and Smith 2010, Thibaut *et al*. 2017). However, some research suggests a negative association with income if individuals work more, because of reduced leisure time (Humphreys and Ruseski 2006, 2015, Muñiz *et al*. 2011). Consistent with this result, Muñiz *et al*. (2011) indicates that weekend sport activity can be much greater than during the week. Likewise, the evidence generally shows that working per se is associated with less sport participation (García *et al*. 2016) and this is particularly so for lower socio-economic groups and non-skilled workers (Lera-López and Rapún-Gárate 2007). Further, intersectionalities are present. For example, ethnic minorities belonging to lower socio-economic status groups are even less likely to participate in sport (Higgins and Dale 2013). In addition, individuals with higher educational levels are more likely to participate in sport (Stamm *et al*. 2016, Studer *et al*. 2016).

The central empirical findings emanating from the literature, therefore, are that access to resources and social distinction tend to be associated with greater activity, with greater socio-economic disadvantage resulting in less activity. Moreover, this is particularly the case for women and especially those with partners and children, minority ethnicities and ageing. Such insights are consistent with the economic and sociological theories and reflect the concerns expressed in policy.

2.2.2. Contextual effects

With respect to contextual effects, the literature identifies some mixed results internationally in exploring the association between the locality and sport participation, at varying spatial scales. The study of a distinct region in England found very small effects of the distance to infrastructure facilities on the uptake of different sport activities (Foster *et al*. 2009). In contrast, the provision of facilities has been shown to be positively associated with sport participation rates in Australia (Eime *et al*. 2017). Non-urban areas were found to have higher participation rates compared to urban areas due to higher levels of per capita provision of built facilities. Greater levels of rural compared to non-rural participation have also been found to be the case in the Netherlands, with the number of facilities contributing to this difference in behaviour (Hoekman *et al*. 2017). Studies focussing on a series of German cities with sport participation in general, and participation in sport through a club, identify

that the availability of swimming pools is associated with the former, and sport fields the latter. However, substitution between activities can occur (Wicker *et al*. 2009, 2013, Hallmann *et al*. 2016). Finally, in Russia the proximity of sport facilities to workplaces was associated with a larger probability of participation in sport for adult workers (Zasimova 2022). Overall, local open space and built infrastructure offer clear functional reasons for acting as contextual factors influencing sport participation in that they provide physical opportunities to participate. This evidence also supports the policy argument that facilities are important for sports participation.

Based on the above discussions connected to the policy context, theoretical and empirical insights from the literature and harnessing a socio-ecological perspective, the current study provides a unique insight into the role of compositional and contextual factors associated with inequalities in sport participation. It focusses directly on the different behaviours of men and women, reflecting the recognised importance of this for policy. It also directly explores the factors associated with delivering health-enhancing recommended levels of activity, and not just the decision to participate. As noted in the introduction the enhancement of health from sport participation is recognised as an important policy outcome, with participation increasingly seen as a vehicle for addressing public health concerns and health inequalities (Mansfield and Piggin 2016, Duffell *et al*. 2023). However, its efficacy has had limited empirical coverage in the literature (Ooms *et al*. 2018). The paper also draws a distinction between TS and H&F participation. This is an important distinction because the latter has been identified to be of growing importance in the UK in terms of popularity and as a result of the increasing role of the private sector in delivering sport participation policy (Kumar *et al*. 2018, 2019). Significantly, much of the empirical literature tends to focus on sport as a whole, neglecting the distinction between TS and H&F activity (Wicker *et al*. 2009, 2013, Hallmann *et al*. 2016, Zasimova 2022). Finally, as well as exploring the association of sport participation with the provision of facilities, the role of local neighbourhood deprivation is included in the study because it helps to expose the potential need for cross-cutting policy intervention. As noted above, most research focusses on individual compositional factors as potential indicators of inequality on activity. However, their collective influence has not been adequately addressed.

3. Data and methods

Data are drawn from the Active Lives Survey (ALS) covering the pre-Covid period of 2018–2019 (Sport England n.d.b). The ALS is commissioned by Sport England, and undertaken by Ipsos (2020), commencing in 2015 having replaced a previous survey, the Active People Survey, which ran between 2005 and 2015. The change to the survey reflected the incorporation of a wider set of physical activities than were previously investigated. The sampling method was also updated, by moving from a telephone interview to an online or, by respondent choice, paper questionnaire. The sample is drawn from the Postcode Address File (PAF) maintained by the Royal Mail in the UK to ensure representativeness across local authority levels in England. There is a target number of 500 returns for each local authority. The total sample size is $n = 183{,}250$. The data are matched at the local authority level to sport, health and fitness facility data drawn from Active Places Power (Sport England, n.d.c), which is a community facility mapping and planning tool. The data are also matched to the index of multiple deprivation at the local authority level (Minstry of Housing, Communities & Local Government 2019) to produce a hierarchical data set.

Two dependent variables are developed from the ALS to measure TS and H&F activities. In each case a binary measure of undertaking the activities or not in the last 28 days is developed (SportYN/FitYN). An ordered variable measuring the contribution of each of the types of sport to weekly health enhancing physical activity (HEPA) is also developed in each case (SportHealth/FitHealth). The covariates include a large set of individual and socio-economic characteristics, to measure the compositional nature of sport participation as identified as relevant in the literature. These include age, gender, socio-economic status, disability, ethnicity, family status, and location. The contextual factors included in the analysis are composed of the local authority index of multiple deprivation and

Table 1. Variable definitions and descriptive statistics (total sample).

Variable	Description	Mean	Std dev.
Dependent			
SportYN	Undertaken traditional sport in the last 28 days (1 = yes; 0 = no)	0.41	-
SportHealth	HEPA contribution of traditional sport (0 = inactive, 1 = insufficiently active, 2 = sufficiently active)	0.56	0.83
FitYN	Undertaken H&F activities in the last 28 days (1 = yes; 0 = no)	0.32	-
FitHealth	HEPA contribution of H&F activities (0 = inactive, 1 = insufficiently active, 2 = sufficiently active)	0.47	0.79
Compositional			
Age	Age in years	52.11	17.54
Agesq	Age squared	3023.12	1831.46
Disablimit	Has a limiting disability (1 = yes; 0 = no)	0.17	-
Educlevel4	Level 4 Education or above (1 = yes; 0 = no)	0.50	-
Educlevel3	Level 3 education and equivalents (1 = yes; 0 = no)	0.15	-
Educlevel2	Level 2 education and equivalents (1 = yes; 0 = no)	0.17	-
Educlevel1	Level 1 education and below (1 = yes; 0 = no)	0.02	-
	Base: Other education/no qualifications		
NSSEC3	Intermediate (1 = yes; 0 = no)	0.10	-
NSSEC4	Self-employed small employer (1 = yes; 0 = no)	0.06	-
NSSEC5	Lower supervisory and technical (1 = yes; 0 = no)	0.07	-
NSSEC6to7	Semi-routine and routine (1 = yes; 0 = no)	0.09	-
NSSEC8	Long-term unemployed (1 = yes; 0 = no)	0.02	-
NSSEC9	Students (1 = yes; 0 = no)	0.06	-
NSSECoth	Others (1 = yes; 0 = no)	0.10	-
	Base: NSSEC1to2 Managerial Administrative		
Ewhiteoth	Other White (1 = yes; 0 = no)	0.05	-
Esouthasian	South Asian (1 = yes; 0 = no)	0.04	-
Eblack	Black (1 = yes; 0 = no)	0.01	-
Echinese	Chinese (1 = yes; 0 = no)	0.01	-
Emixed	Mixed (1 = yes; 0 = no)	0.01	-
Eother	Other (1 = yes; 0 = no)	0.01	-
	Base: White British		
Lsingle	Live as a single person (1 = yes; 0 = no)	0.26	-
Lloneparent	Live as a lone parent (1 = yes; 0 = no)	0.05	-
Lcouple	Live as a couple (1 = yes; 0 = no)	0.58	-
Lmultigen	Live as a multigenerational household (1 = yes; 0 = no)	0.01	-
	Base live as another complex household		
Child1	One child (1 = yes; 0 = no)	0.12	-
Child2	Two children (1 = yes; 0 = no)	0.11	-
Child3+	Three or more children (1 = yes; 0 = no)	0.03	-
	Base No children		
Locurbmincon	Located in an urban minor conurbation (1 = yes; 0 = no)	0.05	-
Locurbcitytown	Located in an urban city or town (1 = yes; 0 = no)	0.45	-
Locruraltown	Located in a rural town (1 = yes; 0 = no)	0.11	-
Locruralvillage	Located in a rural village (1 = yes; 0 = no)	0.07	-
Locruralhamlet	Located in a rural hamlet (1 = yes; 0 = no)	0.04	-
	Base: Located in an urban major connurbation		
EMid	East Midlands (1 = yes; 0 = no)	0.12	-
East	East of England (1 = yes; 0 = no)	0.13	-
NEast	North East (1 = yes; 0 = no)	0.04	-
NWest	North West (1 = yes; 0 = no)	0.15	-
SEast	South East (1 = yes; 0 = no)	0.18	-
SWest	South West (1 = yes; 0 = no)	0.09	-
WMid	West Midlands (1 = yes; 0 = no)	0.09	-
YorkHum	Yorkshire and the Humber (1 = yes; 0 = no)	0.10	-
	Base: London		
Contextual			
IMD	Index of Multiple Deprivation	21.06	8.60
Golf	Number of golf courses	9.20	7.97
Skislopes	Number of	0.01	0.21
SwimmingPool	Number of Swimming pools	17.28	11.54
Pitch	Number of Number of grass and artificial pitches	264.01	178.43
IndoorBowls	Number of indoor bowling centres	0.36	0.90

(*Continued*)

Table 1. (Continued).

Variable	Description	Mean	Std dev.
IndoorTennis	Number of indoor tennis centres	0.81	1.62
OutdoorTennis	Number of outdoor tennis centres	70.10	51.84
SportsHall	Number of sports halls	41.80	31.14
H&FGym	Number of health and fitness gyms	27.87	21.59
Studio	Number of fitness studios	26.89	20.77
n		173,070	

the number of sport, health and fitness facilities in the area compatible with TS and H&F. After accounting for missing values across the dataset, the sample comprises $n = 173{,}070$ individuals, of which $n = 96{,}306$ are women and $n = 76{,}764$ are men, matched to $n = 309$ local authorities. Table 1 provides a list of the variables, their definition and descriptive statistics for the whole sample. Table 2 disaggregates the descriptive statistics by men and women.

Because of the hierarchical nature of the data, spanning both individual and local authority level observations and to reflect the socio-ecological theoretical framework adopted, two-level random intercept multilevel logit and multilevel ordered logit models are estimated for each of the SportYN/FitYN and SportHealth/FitHealth dependent variables, respectively. All estimations were undertaken using STATA MP 17.

Equations 1 to Equation (3) describe the general form of the empirical models. Equation 1 focuses on the association between an individual's ('i') TS or H&F participation – either in binary or ordered form - ('DV') and a set of the individual's compositional characteristics ('Compositional') allowing for random influences ('e'). Equation 2 indicates that the average level of the individuals TS or H&F participation ('a') will vary according to the local authority ('j') and this variation will be influenced by the contextual factors of the local authority ('Contextual') and local authority level random variation ('f').

$$DV_{ij} = a_{0j} + \sum a_k Compositional_{ij} + e_{ij} \tag{1}$$

$$a_{0j} = b_{\circ\circ} + \sum b_l Contextual_j + f_{0j} \tag{2}$$

$$DV_{ij} = c_{00} + \sum c_k Compositional_{ij} + \sum c_l Contextual_j + f_{0j} + e_{ij} \tag{3}$$

Combining Equations 1 and Equation (2) leads to the estimated form of the multi-level models presented in Equation 3. This modelling accounts for the hierarchical sample design together with the desire to estimate the locality source of variation in sport participation.

4. Results and discussion

The descriptive results suggest gender differences in the dependent variables. Men are more likely to participate in TS (SportYN), whereas women are more likely to take part in H&F activities (FitYN), along with respective commensurate greater chances of activity of an intensity that meets health policy recommendations (SportHealth, FitHealth). The literature noted above often identifies that men have a greater propensity to participate more in sport than women (for example, Downward *et al*. 2014), here it is evident that the current results show that this is only specific to TS. Policy recommendations should account for the differences in participation. There is some evidence that women are younger by approximately 3 years in the sample (Age), but that more women are likely to have a limiting disability (Disablimit). The distribution of education levels (Educlevel) is broadly similar across women and men with approximately 50% of each having a level 4 education (implying

Table 2. Descriptive statistics: men and women.

Variable	Men		Women	
	mean	sd	mean	sd
Dependent				
SportYN	0.46	-	0.38	-
SportHealth	0.65	0.87	0.49	0.79
FitYN	0.27	-	0.36	-
FitHealth	0.42	0.77	0.51	0.81
Compositional				
Age	53.73	17.51	50.81	17.46
Agesq	3193.96	1851.88	2886.94	1803.48
Disablimit	0.16	-	0.19	-
Educlevel4	0.51	-	0.50	-
Educlevel3	0.14	-	0.16	-
Educlevel2	0.16	-	0.18	-
Educlevel1	0.02	-	0.02	-
NSSEC3	0.03	-	0.15	-
NSSEC4	0.09	-	0.04	-
NSSEC5	0.11	-	0.03	-
NSSEC6to7	0.09	-	0.09	-
NSSEC8	0.02	-	0.02	-
NSSEC9	0.06	-	0.07	-
NSSECoth	0.11	-	0.08	-
Ewhiteoth	0.05	-	0.06	-
Esouthasian	0.04	-	0.04	-
Eblack	0.01	-	0.02	-
Echinese	0.00	-	0.01	-
Emixed	0.01	-	0.01	-
Eother	0.01	-	0.01	-
Lsingle	0.25	-	0.28	-
Lloneparent	0.02	-	0.08	-
Lcouple	0.63	-	0.55	-
Livmultigen	0.01	-	0.01	-
Child1	0.11	-	0.13	-
Child2	0.10	-	0.11	-
Child3+	0.03	-	0.03	-
Locurbmincon	0.05	-	0.05	-
Locurbcitytown	0.45	-	0.45	-
Locruraltown	0.10	-	0.11	-
Locruralvillage	0.07	-	0.07	-
Locruralhamlet	0.04	-	0.04	-
EMid	0.12	-	0.12	-
East	0.13	-	0.13	-
NEast	0.04	-	0.04	-
NWest	0.16	-	0.15	-
SEast	0.18	-	0.18	-
SWest	0.09	-	0.09	-
WMid	0.09	-	0.09	-
YorkHum	0.10	-	0.10	-
Contextual				
IMD	21.02	8.62	21.09	8.59
Golf	9.21	7.96	9.19	7.99
Skislopes	0.01	0.22	0.01	0.21
SwimmingPool	17.28	11.51	17.28	11.57
Pitch	263.93	178.25	264.08	178.56
IndoorBowls	0.35	0.89	0.36	0.90
IndoorTennis	0.80	1.61	0.82	1.63
OutdoorTennis	69.99	51.68	70.19	51.97
SportsHall	41.70	31.03	41.87	31.23
H&FGym	27.85	21.52	27.90	21.64
Studio	26.87	20.75	26.90	20.80
n	76,764		96,306	

at least some level of higher education). The distribution of socio-economic status in which the majority of individuals have a managerial or administrative role (NSSEC) is likewise approximately balanced across women and men.[3] The majority ethnicity of the sample for both women and men is the base category of White British, and in both cases living as a couple (Lcouple) or single (Lsingle) are the most predominant household characteristics. The majority of individuals do not have children but, if they do, it is more likely to be one or two. Finally, most individuals are likely to live in an urban city or town (Locurbcitytown).

Table 3 provides the multilevel regression results. Examination of the significant Chibar^2 statistics indicates that for the SportYN/FitYN and SportHealth/FitHealth dependent variables, the choice of a standard logit or ordered logit regression can be rejected in favour of their multilevel counterparts because of significant variation of the constant across the local authorities (LA). The strength of this variation is, however, small, lying between 0.2% and 0.5%. Although this is a small value, the consistency of the significance is important, as it is identified across a relatively large (level 2) set of $n = 309$ local authorities, where there is likely to be relatively small geographic variation – particularly in urban locations. The average number of women in each local authority was $n = 311$ in the analysis and for men $n = 248$. That the data are picking up group effects in this relatively small-sample context suggests that localised influences on behaviour are important and only likely to be larger if higher levels of aggregation were analysed. Implicit here is a major concern for policy, in that failing to account for these place-based variations might have a significant impact upon policy effectiveness.

4.1. Compositional factors

The results show that participation in TS and H&F both vary with age. Except for SportYN for women and men, and SportHealth for men, there is evidence of an inverted U-shape behaviour suggesting that participation, and access to the health benefits from participation, initially rises, but then declines with age. In contrast, men's SportYN follows a U-shaped pattern, and both women's and men's SportHealth declines linearly or nonlinearly with age. This contrasts somewhat with the typically U-shaped relationships identified in the literature (Engel and Nagel 2011, Garcia *et al*. 2011). This could be because much of the literature focuses on general measures of sport across the population, which may then emphasise traits more common with men (e.g. see the sports investigated by Downward 2007). There is also evidence of a general large negative association between any participation and having a limiting disability, as might be expected.

The results indicate that higher levels of education and declining socio-economic status are associated with increasing and decreasing likelihoods of participation in either TS or H&F respectively. The same is the case for undertaking health enhancing levels of the activities. This supports the theoretical and empirical findings from the literature (Higgins and Dale 2013, Stamm *et al*. 2016, Studer *et al*. 2016). In the case of socio-economic status, being a student is also associated positively with the participation or not of women in both TS and H&F. Moreover, there are greater associations of higher levels of education and participation in these activities for women than for men. This highlights the importance of educational institutions addressing gender inequalities in sport participation. Non-white British ethnicities are also broadly associated with less participation in TS or H&F. Both of these results are consistent with earlier research into participation in England (Widdop and Cutts 2013, Downward and Rasciute 2015). There are variations, however. Black British men are more likely to participate in H&F activities and to a greater health enhancing level. Moreover, Black British and South Asian women are much less likely to participate in TS and at health-enhancing levels.

In terms of household composition, the results suggest that being single is positively associated with participation in TS to health enhancing levels, regardless of gender. Being a lone parent, however, is negatively associated with women's participation in TS or H&F, but not men's participation in TS. Living as a couple is associated with more participation generally. The presence of children is generally associated with less participation and health-enhancing levels of H&F. Although the

Table 3. Multilevel regression results: men and women.

Variables	SportYN Men	SportYN Women	SportHealth Men	SportHealth Women	FitYN Men	FitYN Women	FitHealth Men	FitHealth Women
Compositional								
Age	−0.0256***	−0.000748	−0.0170***	0.00951***	0.00618*	0.0147***	0.00919**	0.0152***
	(−7.62)	(−0.24)	(−5.04)	(2.86)	(1.67)	(4.71)	(2.42)	(4.77)
Agesq	0.0000724**	−0.000163***	−0.0000372	−0.000293***	−0.000242***	−0.000244***	−0.000288***	−0.000300***
	(2.11)	(−4.90)	(−1.06)	(−8.25)	(−6.32)	(−7.43)	(−7.30)	(−8.91)
Disablimit	−0.745***	−0.666***	−0.752***	−0.700***	−0.359***	−0.599***	−0.397***	−0.629***
	(−31.74)	(−32.64)	(−29.66)	(−31.37)	(−13.57)	(−29.71)	(−14.37)	(−29.81)
Educlevel4	0.599***	0.822***	0.684***	0.882***	0.500***	0.768***	0.476***	0.682***
	(23.76)	(30.82)	(25.27)	(29.62)	(17.06)	(29.21)	(15.59)	(24.78)
Educlevel3	0.334***	0.423***	0.432***	0.477***	0.309***	0.464***	0.326***	0.441***
	(11.14)	(14.19)	(13.75)	(14.48)	(8.98)	(15.71)	(9.18)	(14.36)
Educlevel2	0.224***	0.270***	0.304***	0.337***	0.209***	0.317***	0.230***	0.323***
	(7.83)	(9.37)	(9.97)	(10.43)	(6.27)	(11.17)	(6.67)	(10.86)
Educlevel1	0.0626	0.117*	0.0571	0.0819	−0.00759	0.167***	−0.0312	0.125**
	(1.08)	(1.94)	(0.90)	(1.19)	(−0.11)	(2.85)	(−0.43)	(2.01)
NSSEC3	−0.451***	−0.296***	−0.465***	−0.309***	−0.404***	−0.168***	−0.380***	−0.179***
	(−10.31)	(−13.74)	(−10.61)	(−13.80)	(−8.17)	(−7.88)	(−7.59)	(−8.33)
NSSEC4	−0.269***	−0.0232	−0.251***	−0.0371	−0.249***	−0.0332	−0.243***	−0.0117
	(−9.50)	(−0.67)	(−8.82)	(−1.05)	(−7.77)	(−0.96)	(−7.38)	(−0.34)
NSSEC5	−0.409***	−0.410***	−0.418***	−0.378***	−0.365***	−0.458***	−0.330***	−0.433***
	(−15.17)	(−9.45)	(−15.18)	(−8.19)	(−11.83)	(−10.31)	(−10.49)	(−9.53)
NSSEC6to7	−0.711***	−0.571***	−0.722***	−0.556***	−0.568***	−0.540***	−0.557***	−0.551***
	(−23.17)	(−19.60)	(−22.44)	(−17.68)	(−15.94)	(−18.42)	(−15.17)	(−18.12)
NSSEC8	−0.785***	−0.875***	−0.797***	−0.911***	−0.698***	−0.773***	−0.754***	−0.810***
	(−11.68)	(−14.17)	(−11.08)	(−12.97)	(−9.03)	(−12.54)	(−9.29)	(−12.50)
NSSEC9	0.0114	0.0604*	0.0501	0.110***	0.0308	0.0359	0.0205	0.0136
	(0.30)	(1.93)	(1.38)	(3.45)	(0.78)	(1.15)	(0.51)	(0.43)
NSSECoth	−0.518***	−0.371***	−0.528***	−0.458***	−0.0609	−0.234***	−0.123**	−0.255***
	(−12.43)	(−8.16)	(−11.77)	(−8.90)	(−1.27)	(−5.35)	(−2.45)	(−5.52)
Ewhiteoth	−0.215***	−0.160***	−0.147***	−0.131***	−0.0417	−0.0702**	−0.0475	−0.0481
	(−5.95)	(−5.29)	(−4.23)	(−4.28)	(−1.09)	(−2.32)	(−1.23)	(−1.60)
Esouthasian	−0.573***	−0.914***	−0.437***	−0.820***	−0.109***	−0.425***	−0.0881**	−0.381***
	(−14.37)	(−22.03)	(−11.06)	(−18.59)	(−2.59)	(−10.75)	(−2.06)	(−9.51)
Eblack	−0.453***	−0.902***	−0.344***	−0.876***	0.169**	−0.227***	0.193***	−0.178***
	(−6.47)	(−13.82)	(−4.94)	(−12.38)	(2.38)	(−3.83)	(2.68)	(−2.97)
Echinese	−0.379***	−0.433***	−0.393***	−0.462***	−0.463***	−0.391***	−0.371***	−0.349***
	(−3.54)	(−4.84)	(−3.84)	(−5.02)	(−3.89)	(−4.33)	(−3.13)	(−3.89)
Emixed	−0.209***	−0.228***	−0.224***	−0.200***	0.244***	0.0750	0.209***	0.101*
	(−2.71)	(−3.83)	(−3.01)	(−3.32)	(3.14)	(1.28)	(2.70)	(1.75)

(*Continued*)

Table 3. (Continued).

Variables	SportYN Men	SportYN Women	SportHealth Men	SportHealth Women	FitYN Men	FitYN Women	FitHealth Men	FitHealth Women
Eother	−0.316***	−0.547***	−0.263***	−0.478***	0.00458	−0.289***	−0.00276	−0.287***
	(−3.44)	(−6.49)	(−2.91)	(−5.47)	(0.05)	(−3.49)	(−0.03)	(−3.42)
Lsingle	−0.0163	−0.00502	0.0937***	0.0788***	−0.107***	−0.0150	−0.0607*	0.0302
	(−0.53)	(−0.17)	(3.01)	(2.61)	(−3.22)	(−0.52)	(−1.79)	(1.03)
Lloneparent	0.172***	−0.0855**	0.250***	0.0129	0.0440	−0.106***	0.113*	−0.0507
	(3.10)	(−2.40)	(4.56)	(0.35)	(0.73)	(−2.96)	(1.87)	(−1.39)
Lcouple	0.142***	0.0480*	0.191***	0.108***	−0.0931***	0.0429	−0.0731**	0.0870***
	(5.18)	(1.83)	(6.94)	(3.97)	(−3.15)	(1.64)	(−2.42)	(3.28)
Lmultigen	0.142	−0.312***	0.227**	−0.193**	0.114	−0.150*	0.104	−0.0614
	(1.35)	(−3.56)	(2.21)	(−2.07)	(1.01)	(−1.74)	(0.90)	(−0.70)
Child1	0.0486*	−0.0810***	0.0158	−0.170***	−0.281***	−0.298***	−0.295***	−0.340***
	(1.79)	(−3.47)	(0.61)	(−7.18)	(−9.59)	(−12.66)	(−9.97)	(−14.44)
Child2	0.190***	0.131***	0.0926***	−0.0252	−0.207***	−0.266***	−0.247***	−0.312***
	(6.71)	(5.42)	(3.50)	(−1.06)	(−6.95)	(−10.97)	(−8.21)	(−12.90)
Child3+	0.126***	0.000209	0.0591	−0.0898**	−0.258***	−0.473***	−0.304***	−0.499***
	(2.69)	(0.01)	(1.33)	(−2.17)	(−5.13)	(−11.09)	(−5.96)	(−11.61)
Locurbmincon	0.00831	0.0862	0.0176	0.100*	0.00184	−0.0350	−0.0139	−0.0356
	(0.15)	(1.57)	(0.29)	(1.67)	(0.03)	(−0.66)	(−0.23)	(−0.69)
Locurbcitytown	0.0384	0.0584**	0.0546*	0.100***	−0.0354	−0.0497*	−0.0431	−0.0427
	(1.29)	(2.04)	(1.76)	(3.23)	(−1.14)	(−1.81)	(−1.39)	(−1.60)
Locruraltown	0.0771**	0.146***	0.0740*	0.184***	−0.0463	−0.0106	−0.0584	−0.0489
	(2.07)	(4.17)	(1.94)	(4.98)	(−1.16)	(−0.31)	(−1.45)	(−1.45)
Locruralvillage	0.116***	0.259***	0.165***	0.326***	−0.0548	0.0175	−0.0781*	−0.0407
	(2.85)	(6.76)	(3.98)	(8.14)	(−1.24)	(0.46)	(−1.76)	(−1.09)
Locruralhamlet	0.189***	0.417***	0.215***	0.509***	−0.0253	0.0986**	−0.0868*	−0.000835
	(3.99)	(9.55)	(4.52)	(11.38)	(−0.49)	(2.29)	(−1.66)	(−0.02)
EMid	−0.0739	−0.0746	−0.0778	−0.115**	−0.163***	−0.166***	−0.121**	−0.127***
	(−1.39)	(−1.44)	(−1.36)	(−2.00)	(−3.03)	(−3.48)	(−2.27)	(−2.75)
East	−0.0829	−0.137***	−0.130**	−0.232***	−0.0833*	−0.0689	−0.0475	−0.0159
	(−1.61)	(−2.74)	(−2.36)	(−4.15)	(−1.66)	(−1.54)	(−0.96)	(−0.37)
NEast	0.0511	−0.0842	0.115	−0.0389	0.0350	−0.140**	0.0900	−0.0468
	(0.78)	(−1.29)	(1.60)	(−0.53)	(0.54)	(−2.39)	(1.41)	(−0.83)
NWest	0.146***	0.123**	0.213***	0.170***	−0.0603	−0.114***	−0.0139	−0.0648
	(2.88)	(2.48)	(3.90)	(3.08)	(−1.26)	(−2.65)	(−0.29)	(−1.58)
SEast	−0.0425	−0.0171	−0.0601	−0.0802	−0.0641	−0.0349	−0.0493	−0.0126
	(−0.88)	(−0.36)	(−1.17)	(−1.54)	(−1.33)	(−0.82)	(−1.04)	(−0.31)
SWest	0.0520	0.0526	0.0478	0.0325	−0.141**	−0.120**	−0.113**	−0.0790*
	(0.93)	(0.97)	(0.81)	(0.54)	(−2.53)	(−2.42)	(−2.04)	(−1.67)
WMid	−0.0764	−0.0851	−0.0173	−0.0777	−0.124**	−0.194***	−0.0947*	−0.146***

(*Continued*)

Table 3. (Continued).

Variables	SportYN Men	SportYN Women	SportHealth Men	SportHealth Women	FitYN Men	FitYN Women	FitHealth Men	FitHealth Women
	(−1.44)	(−1.64)	(−0.30)	(−1.35)	(−2.35)	(−4.12)	(−1.81)	(−3.22)
YorkHum	0.0384	−0.00525	0.0900	0.0149	−0.107*	−0.204***	−0.0660	−0.161***
	(0.62)	(−0.09)	(1.35)	(0.22)	(−1.79)	(−3.86)	(−1.12)	(−3.16)
IMD	−0.0154***	−0.0135***	−0.0151***	−0.0141***	−0.0103***	−0.0135***	−0.00948***	−0.0115***
	(−8.92)	(−8.05)	(−8.10)	(−7.51)	(−6.49)	(−9.69)	(−6.04)	(−8.55)
Golf	−0.00146	−0.000714	−0.00293	−0.00123				
	(−0.69)	(−0.35)	(−1.29)	(−0.54)				
Skislopes	0.0918**	−0.00286	0.0678	0.00414				
	(2.11)	(−0.07)	(1.46)	(0.09)				
SwimmingPool	0.00599***	0.00607***	0.00576***	0.00643***				
	(3.07)	(3.18)	(2.75)	(3.02)				
Pitch	−0.000215	−0.000454***	−0.000179	−0.000335*				
	(−1.37)	(−2.94)	(−1.05)	(−1.95)				
IndoorBowls	−0.00675	0.00215	−0.0138	0.000596				
	(−0.57)	(0.19)	(−1.09)	(0.05)				
IndoorTennis	0.00912	0.0110	0.00886	0.0166**				
	(1.23)	(1.51)	(1.10)	(2.03)				
OutdoorTennis	−0.000101	0.000297	−0.000104	0.000246				
	(−0.25)	(0.76)	(−0.24)	(0.56)				
SportsHall	0.000462	0.000904	0.000810	−0.0000208	−0.00305***	−0.00181*	−0.00306***	−0.00128
	(0.48)	(0.95)	(0.77)	(−0.02)	(−2.95)	(−1.93)	(−3.02)	(−1.43)
H&FGym					0.00478**	0.00162	0.00430*	0.000329
					(2.05)	(0.78)	(1.87)	(0.16)
Studio					0.00197	0.00367**	0.00213	0.00426***
					(1.13)	(2.38)	(1.24)	(2.87)
Constant	1.044***	−0.0959			−0.348***	−0.529***		
	(10.44)	(−1.03)			(−3.27)	(−5.83)		
var(cons[LA])	0.00997***	0.0116***	0.0150***	0.0175***	0.00903***	0.00904***	0.00751***	0.00699***
	(4.09)	(5.25)	(5.25)	(6.26)	(3.47)	(4.70)	(3.03)	(3.84)
Chibar^2(01)	30.56***	66.02***	58.87***	109.69***	20.52***	49.28***	14.87***	27.42***
ICC	.003	.004	.005	.005	.003	.003	.002	.002
n	76,764	96,306	76,764	96,306	76,764	9,6306	76,764	96,306

t statistics in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

results are mixed, the results also tend to show that for TS, there is a negative association between participation and having children generally and for participating at health-enhancing levels for women only. Overall, the results for living as a couple are different to the literature reviewed above, which identify that those married or living as a couple are associated with less sport participation (Humphreys and Ruseski 2007, 2015, Eberth and Smith 2010, Muñiz *et al*. 2014, Oliveira-Brochado *et al*. 2017). Nonetheless, the results support the finding that the presence of children in a household is generally negatively associated with sport participation, and particularly for women (Humphreys and Ruseski 2006, 2007, Downward 2007, Eberth and Smith 2010, Downward *et al*. 2014) and single parents (Scheerder and Vos 2016).

Finally, the results tend to show that both participation in sport and at health-enhancing levels in both TS and H&F are more likely to occur in rural areas. This resonates with some studies in the literature such as Eime *et al*. (2017), who find in Australia that non-urban areas had higher participation rates compared to urban area, and likewise Hoekman *et al*. (2017) who find this to be the case in the Netherlands. In these cases, this was argued to be in part because of greater provision of facilities. This is not the case in England but could be linked with access to green space which is not measured in the current analysis.[4]

4.2. Contextual factors

Examining the results for the contextual factors reveals that the index of multiple deprivation is consistently negatively associated with all TS and H&F participation. Although the size of the effect is small, it does indicate that collective inequalities have a compounding impact on participation and its potential health benefits independently of an individual's specific characteristics. This is a new finding for the literature. There is also evidence that the number of facilities in localities is positively associated with participation. For TS, swimming pools are shown to be significant for both women's and men's participation, with indoor tennis facilities also being significant for women's health enhancing activity. These results share insights from those of the literature (Wicker et al. 2009, 2013, Hallmann *et al*. 2016) and emphasise the importance of pools to community activity and health. This is an important issue because, as noted in the introduction, the onset of austerity and the cost of living crisis have led to the systematic closure of pools. In contrast, the number of grass and artificial pitches is negatively associated with women's participation in TS and its health enhancing levels. This is consistent with Downward and Rasciute (2015) who argue that there is an oversupply of facilities for traditionally male-oriented sports – which are typically team sports – that do not meet women's needs and which form the majority of facilities in local authorities in England. For H&F activities, the results show that men's participation and health enhancing levels of activity is associated with the availability of gyms and this is the case with studios for women. In contrast, sports halls are associated with a reduction in activity. This could reflect a substitution of activity away from those that can be played in a hall towards more bespoke H&F activity as indicated by the growth of this sector (Kumar *et al*. 2019).

In summary, the analysis identifies that the areas of inequality targeted in policy connected with age, disability and ethnicity are individually associated with participation and the potential of health benefits from it, though the levels of participation between gender varies according to the form of activity investigated. In addition, facilities and local area deprivation are significantly associated with participation.

5. Implications

This research has several theoretical and practical implications, as well as limitations. In the former case, the significance of the compositional *and* contextual factors in the analysis, as well as the rejection of one-level logit and ordered logit regressions, illustrates the relevance of using a socio-ecological framework to understand sports participation types as well as the health

outcomes that emanate from it. Theoretically, although the influence of facilities is relatively uncontroversial, it remains that interpretation of the compositional factors is less so. Both economic and sociological theory can be used to explain the relevance of these factors for participation and their contribution to socio-ecological insights. This is because it can be argued that these factors reflect investment in human capital and social characteristics from an economic perspective and the devleopment of sporting capital from a sociological perspective. However, from a policy perspective, it is worth noting that in the case of economic theory, participation is assumed to emerge from optimal choices both in terms of sport participation, but also in connection with the development of shared characteristics of participants. As indicated by Downward *et al*. (2009), this does not provide a theoretical rationale for policy activism. The economic approach essentially reduces the variations in participation to *differences* in choice rather than *inequalities* in opportunity. Sociological theory also suggests that individuals cluster and reside in different places and that they interact in these places according to shared individual and socio-economic characteristics, a process of homophily. In this case, however, policy action directed at both the individual and contextual level, such as in levelling up, has a rationale as behaviour is not presumed to be optimal. Regardless of the differences in the methodological presuppositions of the economic and sociological approaches, however, the need for a socio-ecological theoretical framework in examining sport participation receives support from this analysis.

From a practical perspective, several issues emerge. The first is that the influences of the compositional and contextual factors on TS and H&F activities are broadly similar and this is also the case for engaging or not in the activities and doing so to deliver recommended levels for health. Targeting policy actions at addressing inequalities in participation will thus also target desirable health outcomes. The same policy lever will be able to target these distinct priorities of current policy.

Linked to this, the second issue is that despite the emphasis on levelling up in current policy, the empirical results might suggest that the focus for policy should be on individual behavioural change instead. This is because the provision of facilities in the locality is accounted for in the analysis and yet the effect sizes are larger for the individual compositional factors. Sport is now identified and advocated as an important feature of public health through social prescribing (OHID, 2022). However, there are two important factors to consider in assessing the adequacy of such an approach. Achieving behavioural change faces long-standing challenges, particularly connected with the delivery of interventions through reliance on individual motivation (Biddle *et al*. 2012). Moreover, the essence of levelling up in sport strategy is to refocus emphasis on place-based inequality and the use of sport to address health inequalities. In this respect, the results showing that the provision of facilities is associated with participation is significant. For example, swimming pools cater for one of the most popular sports activities included in the TS category and their role in supporting activity is thus correspondingly important. It follows that there is a need to support the provision of pools, including reinvestment in them, following austerity and the experience of recent rising energy costs if the broader health costs of their closure are greater than subsidising them. In this respect, levelling up aspirations have to genuinely counter other policy challenges that have arisen. Likewise, as Kumar *et al*. (2019) argue, regardless of their ownership, health and fitness facilities clearly support the growth in engagement in H&F activities and their health enhancing levels. In as much that the private sector delivers such H&F opportunities, then it follows that their further development should be encouraged in a mixed economy of provision. Finally, in addition to the provision of facilities, area multiple deprivation is also associated with less participation in all activities. It follows that scaled up intervention across deprived localities will be needed to address these interactions, as part of any levelling up agenda for policy generally but also to address health inequalities. Attention cannot just be focussed on the individual level but also needs to target structural inequalities. Overall, therefore, the results of this research reflect Coalter's (2013) arguments which stress that structural inequalities in social class, ethnicity and education etc., can underpin inequalities in sports participation and, by

implication, outcomes like health that are derived from participation. Moreover, both the opportunities to participate and collective area deprivation can reinforce, and are part of, structural inequality.

In closing it is worth noting that the paper does have some limitations drawn from its cross-sectional nature. The data are drawn from the pre-covid period. It is not yet clear if the experience of COVID-19 will have changed behaviour in a more profound way. The nature of the data also means that only associations and not causal insights can be derived. Specifically, it may mean that facility provision has evolved to meet activity – particularly in the commercial H&F sector. Given the current data availability, however, it is also not possible to address these issues.

6. Conclusion

Sport participation is now a widely accepted lever for delivering policy outcomes for society. In the UK, current policy recognises a need to reduce inequalities in sport participation, thus helping to address health inequalities, in the context of the UK government's levelling up agenda. This paper, for the first time and in the context of a socio-ecological theoretical framework, explores the individual/compositional and locality/contextual influences on participation in England using large-scale data, distinguishing between men and women and TS and H&F activities. The provision of relevant facilities and a measure of multiple deprivation are included in the analysis. The results highlight the importance of distinguishing between men and women and the type of sport in policy, with men more likely to engage in TS and women H&F activity. It is shown that facility infrastructure can play an important part in improving participation and its health outcomes in both cases and, consequently, that facility provision recognising these differences needs to be a central feature of policy implementing levelling up initiatives. The results thus raise a challenge for policy implementation by indicating that scaled up local action is needed to account for the interaction between individual factors, area provision of opportunities and area deprivation. This is because there are structural bases for the inequalities in participation. Focussing on one factor at the expense of the other will weaken the delivery of policy outcomes. It remains, moreover, that whilst the label of 'levelling up' can be seen to be wedded to the current government (in all of its various leadership manifestations), it remains that addressing place-based inequality requires the support and development of facility infrastructure alongside other local area initiatives aimed at alleviating general deprivation.

Notes

1. The (Tony) Blair government was formed by the Labour Party in 1997. The (David) Cameron-(Nick) Clegg coalition government comprised the Conservative and Liberal Democrat parties respectively, which emerged after a hung parliament replaced the Labour Party as the governing party, which had been led by Gordon Brown between 2007–2010. The Sunak government arrived through a series of internal elections and upheavel in the Conservative party. Rishi Sunak was elected as Prime Minister by the conservative party members (as they were the governing party) to replace Liz Truss, who had a very brief spell as Prime Minister having been previously elected by party members because Boris Johnson was forced to step down as Prime Minister after a series of scandals. Prior to that, Johnson had won an election, having replaced Teresa May as the leader of the conservative party. Teresa May had succeded David Cameron as Prime Minister following his resignation after the Brexit referendum. Cameron had previously formed a distinct conservative government following an electoral majority which removed the need for a coalition. Following an election, however, Teresa May had to form a minorty government which ultimately was replaced by a Boris Johnson majority conservative government in 2019. This shift in political leadership captures a progressive move from centre-left, through centre-right to right leaning government.
2. 'The Levelling Up & Regeneration Bill' became law on the 26th October 2023, though it was noted that the phrase 'levelling up' was being distanced from because of its links to former Prime Minister Johnson (Weakley 2023)
3. Measured as The National Statistics Socio-economic Classification.
4. In our data it could also reflect secondary differences associated with socio-economic status as the incidence, for example, of NSSES1to2 is much greater than, say, NSSEC8 in rural locations.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Data availability statement

Data drawn from the Active Lives Survey is available from the UK Data Archive. Data from Active Places Power and Local Authority indices of multiple deprivation are freely available from the web addresses indicated in their reference.

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