

Child taking part survey: multivariate analysis of the determinants of child participation in arts, sport, heritage, museums and libraries

Summary report

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Executive Summary

Introduction

This report presents the findings from an exploratory programme of statistical analysis on data from the Child Taking Part Survey (CTPS). The research was undertaken by the Sport Industry Research Centre (SIRC) on behalf of the Department for Culture Media and Sport (DCMS), Sport England, Arts Council England and English Heritage.

The research objectives were as follows:

- To explore the factors most strongly associated with child (aged 5-15) participation in arts, sport, heritage, museums and libraries;
- To explore the factors most strongly associated with outside of school participation in arts, sport, heritage, museums and libraries;
- To explore the factors most strongly associated with inside school participation in arts, heritage, museums and libraries;
- To make policy recommendations about the targeting of key interventions and actions to remove barriers to child participation in arts, sport, heritage, museums and libraries; and
- To make recommendations about future research priorities and methodologies for better understanding child participation in arts, sport, heritage, museums and libraries.

The datasets used for the analysis were the Child Taking Part Survey and the Taking Part Survey. Data were used from 2011/12 and 2012/13 which was linked to data from adults in the same household who were interviewed for the Taking Part Survey. The final sample size of the database used in our analysis was 2,927. In total 18 measures of participation (dependent variables) across the five sectors were derived in partnership with the CASE team. For children aged 5-10 these measures related to out of school participation only, whereas for children aged 11-15 both in and out of school participation was analysed.

Initial analysis of the participation variables and a range of the other variables in the dataset was undertaken to identify the likely predictor (independent) variables to be included in more complex analysis. Based on these findings, two statistical techniques were used to analyse the datasets, namely logistic regression and CHAID analysis. The findings presented in the summary report focus on the logistic regression and the CHAID analysis is available in the Technical Report.

Our findings are limited to the extent that although the analysis has identified relationships between participation rates in sport and culture and other variables in the dataset, we can make no claims about the direction or cause of any such relationships.

Overview of key findings

There are six key findings identified from this initial statistical analysis of the Child Taking Part Survey and these are discussed in turn below. The analysis on which these findings are based is included in Part E (Appendix) of the Technical Report.

The confirmatory nature of child and adult participation patterns

Patterns of child participation in sport and cultural activity are consistent with those trends previously observed in similar studies focusing on adult participation. That is, the key determinants of adult participation in sport, arts, heritage, museums and libraries were similarly observed in children.

Child participation was found to be strongly associated with gender. The most striking finding in this regard is that gender-based preferences for sport and arts activity appear to be established at an early age. Being a girl is strongly positively associated with participation in arts activities, whereas in sport being a girl is strongly negatively associated with participation.

Whilst children with an illness or disability tend to have lower participation rates than those without, illness and disability do not impact negatively on the frequency or intensity of participation.

The influence of adults on child participation

The overarching empirical finding from the research was the positive association between the participation behaviours of parents and children. Moreover, children's current participation behaviours are linked to the behaviours of adults when they themselves were children.

Structural characteristics

There are two predictor variables which impact systematically in the same direction on participation in some sectors. Higher levels of education are positively associated with dependent variables in arts activities, heritage, and libraries. Being a single parent is negatively associated with participation variables in museums and sport. These associations are particularly pronounced amongst single parents with children aged 5-10.

Levels of personal income are positively associated with three participation variables and negatively with four. However there is no pattern to this observation and some relationships which seem significant are difficult to explain. The random nature of these variations in participation relative to specific levels of income suggests that adults' personal income does not in any systematic way explain children's participation in sport and culture.

Adults' current behaviours

In arts the number of arts activities participated in by adults in the household over the last year is positively associated with three of the four participation variables based on outside school participation. Adults' arts participation is also positively linked to out of school participation in heritage (5-10) and museums (11-15).

In sport, if adults meet the criteria for taking part in sufficient moderate intensity sport, then children in the household are more likely to participate in sport themselves. As age increases, the association with adult behaviour decreases and may be linked to children having increased responsibility for their choices as they get older.

Adults' childhood experiences

What adults took part in as children tends to have a positive association with what their children take part in now.

The nature of complements and substitutes

Children participate in a variety of sporting and cultural activities as parents seemingly make lifestyle choices to give their children opportunities. A very influential factor in this analysis is the time over which participation is measured. In the case of heritage, museums and libraries, the threshold for meeting the participation variable inclusion criteria is at least one engagement in the last twelve months. These are relatively low thresholds (at least 1 day per 365 days) compared with arts and sport where the once a week participation rate is equivalent to at least 52 days per 365 days. Taking the complement and substitution data as a whole, there is no evidence to suggest that initiatives to stimulate demand in one sector will have a negative impact on other sectors.

The Olympic effect

Across the 18 participation variables Olympic activity is significantly associated with 10 of them (nine positive and one negative). The Olympic variables have a significant positive association with the four sport related participation variables. For older children (11-15) watching the Olympic Games on television had a positive association with participation whereas for younger children (5-10) the most significant factors were attending events in person or Olympic- related activities in school.

Swimming ability as an indicator of cultural capital

An unusual and unexpected finding is the significance of swimming ability being positively associated with participation in both sport and other cultural activities. Swimming ability is positively linked with all four sport participation variables; the two arts participation variables for children aged 5-10; libraries and heritage inside school for 11-15 year olds; and museums outside schools for 5-10 year olds.

Clearly swimming does not cause participation in other cultural activities. However, higher levels of swimming ability, notably amongst 5-10 year olds, point to culturally engaged families providing their children with a relatively wide range of sporting and cultural opportunities.

Enjoyment

Whilst it is hardly surprising, enjoyment is identified as a variable which is strongly associated with participation in arts and heritage, particularly amongst 11-15 year olds. This finding is useful in confirming individual tastes and preferences as a key determinant of the demand for culture by 11-15 year olds. The theme of tastes and preferences is prevalent throughout the research and is a complex area of human behaviour. There is some evidence that children's tastes and preferences are shaped by their parents' experiences as children; their parents' current behaviours; and their own experiences. There is no pattern to the relative impact of the factors influencing children's tastes and preferences and it is likely that any such impacts will vary by sector and by the age of children.

Demand

Stimulating demand for sport and culture is often predicated on the basis of perceived 'barriers' to participation. The majority of the significant associations we found were positive rather negative. There are two possible explanations. First, the CTPS does not include questions about barriers to participation and this is an area for future development of the survey. Second, the decision to participate or not in a particular sport or cultural activity is a function of tastes and preferences. Should the latter point be the case, the role of policy is to influence tastes and preferences such that children value sport and culture more than they do competing products and services.

Sectoral overview

Arts

In the arts sector we find that being a girl is a strong predictor of participation and is consistently associated with participation across the four out of school participation variables.

Sport

In sport we find that being a girl is systematically negatively associated with all participation variables, that is, the exact opposite to the case with arts participation. These findings suggest that participation in sport and the arts is gender-specific and seemingly a taste or preference that is developed early in life.

Heritage

In heritage ethnicity (Black and Asian) is negatively associated with participation amongst children aged 5-10. This is a finding that is consistent with the adult Taking Part Survey but it is perhaps surprising that it is a finding that is significant for children aged 5-10 but not those aged 11-15. It is a plausible explanation that this finding reflects the differing levels of adult influence on younger and older children.

Museums

For museums there are three structural factors which appear to have systematic effects. First, living in the East Midlands (negative); second, the second quarter of the year (April, May, June) (positive); and third, being aged 11 (positive). There seems to be no logical explanation as to why participation in different sectors is at times positively and negatively associated with specific ages. If adults in a household visit museums in their free time, it is likely that children (5-15) will too.

Libraries

For libraries there are no particularly strong associations of participation and only one consistent systematic association amongst any of the factors (arts enjoyment). In households with children aged 11-15 and relatively low personal incomes of £5,000 to £19,999 there is a positive association with library use. By contrast, those with children aged 5-10 and incomes over £20,000, income has a negative association with libraries. This finding supports the argument that at a certain level of income some families provide books, computers and digital media such that trips to the library are not necessary. For those on lower incomes, libraries are an 'accessible' product and an enabler of access to books, computers, digital media and social space.

Policy implications

Based on the findings presented in this summary report, we outline four high level implications and one micro level implication.

High level implications

1. The strongest influence on participation in arts and sport is gender. If this is an issue that policymakers wish to address steps should be taken to ensure that a) policies are gender inclusive; and if this is not the case then b) policies are made more gender-specific.
2. Given the linkage between child and adult participation, there is logic to creating society wide interventions that interlink policies to enhance both child and adult participation in sport and cultural activities. This therefore implies that policies designed to enhance engagement in children and adults are viewed more holistically.

3. There are no 'quick fix' solutions to changing child participation behaviour emerging from the analysis. This finding implies that there should be no new policies introduced without a sound evidence base and robust logic models explaining how they are intended to work. Furthermore any such policies must be given time to work, which may require all-party working.
4. Interventions to increase engagement in sport and cultural activity in children should target a wide spectrum of activities to enhance overall participation and to encourage active lifestyles.

Micro level implication

1. Swimming and cycling ability are two consistent associations of participation in the sport participation variables notably amongst younger children. These are activities that should be actively encouraged.

Future Research

On the basis of the analysis undertaken, there are ten specific areas of enquiry that would benefit from further research. These can be summarised as follows:

- Time series analysis and longitudinal tracking studies (3);
- Broader analysis of the determinants of demand (3);
- Complements and substitutes (2); and
- More detailed analysis of the existing data such as by gender or recoding (2).

This exploratory research has provided a fascinating insight into the nature of children's engagement in sport and culture. Some of the findings confirm what we already know; others provide new insight and a genuine contribution to knowledge; and others are simply inexplicable from the data available. What needs to happen next is a longer term, more systematic approach which leaves no stone unturned in the search for information to help increase children's engagement in sport and culture.

1.0 Introduction

This report presents the findings from an exploratory programme of statistical (multivariate) analysis on data from the Child Taking Part Survey (CTPS). The research was undertaken by the Sport Industry Research Centre (SIRC) on behalf of the Department for Culture Media and Sport (DCMS), Sport England, Arts Council England and English Heritage. It is part of the Culture and Sport Evidence (CASE) programme. This report is a summary of the key findings and a detailed Technical Report is available separately.

1.1 Scope and research objectives

The research was commissioned to explore the key determinants and drivers of participation in arts, sport, heritage, museums and libraries among children aged 5-15 in England. The research objectives are listed below.

- To explore which demographic, socio-economic, attitudinal and behavioural factors are most strongly associated with child (aged 5-15) participation in arts, sport, heritage, museums and libraries.
- To explore which set of factors are most strongly associated with outside of school participation in arts, sport, heritage, museums and libraries.
- To explore which set of factors are most strongly associated with inside school participation in arts, heritage, museums and libraries.
- Based on the findings of the exploratory data analysis, make policy recommendations about the targeting of key interventions and actions to remove barriers to child participation in arts, sport, heritage, museums and libraries.
- Based on the findings of the exploratory data analysis, make recommendations about future research priorities and methodologies for better understanding child participation in arts, sport, heritage, museums and libraries.

The activities included in each sector were guided by the definition of arts, sport, heritage, museums and libraries adopted in the two Child Taking Part Surveys.

1.2 The dataset

The datasets used for the analysis were the Child Taking Part Survey and the Taking Part Survey. Data were used from 2011/12 and 2012/13. For the purposes of this study, the Child Taking Part Survey was combined into a single dataset with the associated part of the Taking Part Survey via a unique identifier. A major benefit of the combined dataset was that it enabled analysis of child participation in sport and culture to be explored alongside the current behaviours of adults in the same household, and the behaviours of these adults when they were children. The final sample size of the database was 2927.

1.3 Dependent variable definition

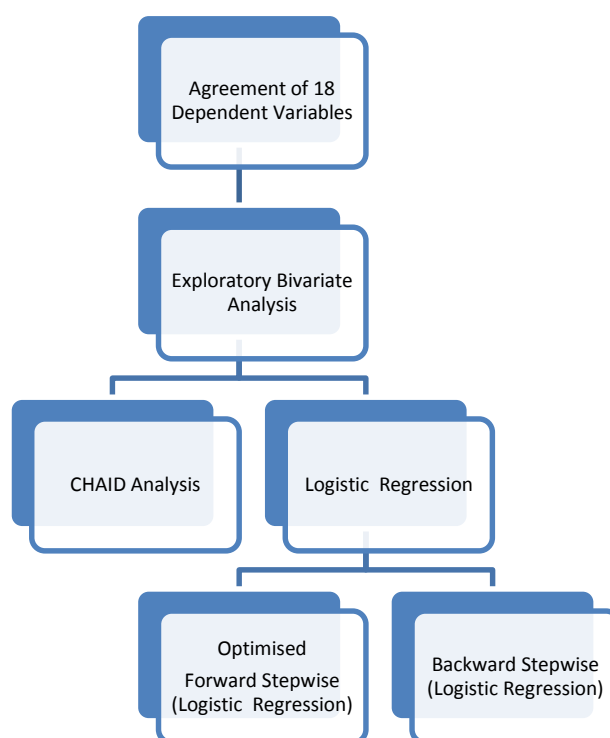
The analysis of child participation was divided into two age categories: 5-10 and 11-15; and for the older age-group, behaviour inside and outside school was also analysed. In total 18 measures of participation (the dependent variables) were derived across the five cultural sectors in partnership with the CASE team and formed the basis of the analysis. A list of the eighteen participation variables and their definitions is presented in Table 1.

Annex 1 provides definitions of the activities included in the analysis.

1.4 Methodology

The methodology for the research is illustrated in Figure 1.

Figure 1: Research Methodology



Following an inception meeting held on 7th March 2014 a list of eighteen dependent variables (DVs) was derived: five for arts; four for sport; and three each for heritage, museums and libraries as shown in Table 1.

As an initial test of the relationships between the eighteen dependent variables and the other variables in the data set that might affect them (independent variables), simple correlation (bivariate) analysis was carried out. Bivariate analysis is a measure of how much a dependent variable and an independent variable are related to each other. As an example, we find that the sport independent variables are positively associated with above average swimming ability. In other words, above average swimming ability is a predictor of participation in sport.

The purpose of the bivariate analysis was to identify the likely predictor (independent) variables to include in the more complex multivariate analysis. In real life, participation in sport and culture is unlikely to be the result of the influence of one factor. Sports participation for example is not driven solely by above average swimming ability and may also include influences such as gender, parental influence and so on. Multivariate analysis enables us to examine the simultaneous impact of numerous independent variables on a dependent variable. Based on the findings from the bivariate analysis, two more advanced statistical techniques were used to analyse the datasets:

- Logistic regression¹ to explore the impact of numerous independent variables on the dependent variables in a systematic manner; and
- CHAID (Chi-squared Automatic Interaction Detector) analysis to perform market segmentation based on the dependent variables under consideration.

The findings presented in this summary report focus primarily on the logistic regression analysis with the CHAID and other more detailed analysis available in the Technical Report.

1.5 Caveats and limitations

- The analysis identifies associations between variables but in the absence of longitudinal data, cannot be used to attribute causality or the direction of causation. For example, we find that watching the Olympic Games is positively associated with sports participation. The possible explanations are that either children who do sport watched the Olympic Games; or children who watched the Olympic Games take part in sport. In both instances we cannot say that one caused the other.
- The analysis is based on two years of data and we cannot be sure that relationships identified are peculiar to particular years or systematic across many years, notably seasonal effects and Olympic effects.
- The sample sizes are modest (n=c. 3,000) compared with larger surveys such as the Adult Taking Part Survey (n=c. 10,000) and the Active People Survey (n=c. 150,000). The analysis can tell us 'what' relationships are but not 'why'. For example the evidence shows gender-specific patterns of participation in sport and arts which we can identify but which we cannot explain from within the data set. All interpretation is therefore subject to a degree of speculation.
- The two Child Taking Part Surveys are not identical and for the purposes of this research we have confined our analysis to the independent variables that are common

¹ Logistic regression is particularly appropriate because it returns answers that are confined within the bounds of 0 (no participation) and 1 (participation). Other regression techniques can return negative scores or scores that are greater than 1, which are clearly not relevant to decisions about participation which are 'yes' or 'no'.

in both data sets. In future there is more in depth work to be done on the variables that are specific to each data set.

Despite these *caveats* the research has enabled new knowledge to be discovered about children's participation in five sport and cultural activities cost effectively and in a relatively short time frame.

Table 1: Dependent variable definition

Sector	Variable	Frequency	Activities	Time	Age	School	Participation Rate
Arts							
	DVA1	-	At least 1	7 days	5-10	Outside	69%
	DVA2	-	At least 2	7 days	5-10	Outside	28%
	DVA3	At least	Any	Last week	11-15	Outside	48%
	DVA4	At least twice	Any	Last week	11-15	Outside	18%
	DVA5	At least twice	Any	Last week	11-15	Inside	61%
Sport							
	DVS1	-	At least 1	7 days	5-10	Outside	68%
	DVS2	-	At least 2	7 days	5-10	Outside	36%
	DVS3	At least once	Any	Last week	11-15	Outside	70%
	DVS4	At least three	Any	Last week	11-15	Outside	39%
Heritage							
	DVH1	-	At least 1	12 months	5-10	Outside	72%
	DVH2	-	At least 1	12 months	11-15	Outside	59%
	DVH3	-	At least 1	12 months	11-15	Inside	33%
Museums							
	DVM1	-	At least 1	12 months	5-10	Outside	62%
	DVM2	-	At least 1	12 months	11-15	Outside	44%
	DVM3	-	At least 1	12 months	11-15	Inside	28%
Libraries							
	DVL1	-	At least 1	12 months	5-10	Outside	69%
	DVL2	-	At least 1	12 months	11-15	Outside	51%
	DVL3	-	At least 1	12 months	11-15	Inside	55%

2.0 Overview of key findings

In this summary overview report our level of analysis is deliberately kept high level with the primary emphasis being on looking across the sport and cultural sectors as a whole. In subsequent sections we then delve deeper into each of the five sectors in order to identify the sector-specific headline findings. The sum total of this analysis provides the basis for policy implications and proposals for further research.

There are six key findings identified from this initial multivariate analysis of the Child Taking Part Survey and these are discussed in turn below. The analysis on which these findings are based is included in Part E (Appendix) of the Technical Report.

2.1 The confirmatory nature of child and adult participation patterns

Patterns of child participation in sport and cultural activity are consistent with those trends previously observed in similar studies focusing on adult participation (e.g. Marsh *et al*, 2010²). That is, the key determinants of adult participation in sport, arts, heritage, museums and libraries were similarly observed in children. Child participation was found to be strongly associated with gender. The most striking finding in this regard is that gender-based preferences for sport and arts activity appear to be established at an early age. Being a girl is strongly positively associated with participation in arts activities, whereas in sport being a girl is strongly negatively associated with participation. Girls are also significantly more likely to use libraries outside of school, but there were no significant gender associations found in the museums and heritage sectors.

Having a long standing illness or disability is negatively associated with one arts-related dependent variable (DVA 2) and once a week participation in sport for both 5-10 year olds (DVS1) and 11-15 years olds outside school (DVS3). No relationship was identified between longstanding illness or disability and the more intense levels of engagement in sport and arts, suggesting that once the decision to participate has been made, frequency or intensity of participation is not constrained by illness or disability. There is considerable disparity between the absolute participation rates of children with an illness or disability and those without in sport and arts. However, the finding that for those who do participate there is no difference in the frequency of participation is encouraging in policy terms. These findings again confirm what is already known about adults.

There are variations in participation behaviours amongst some minority ethnic groups. These do not indicate any evidence of particular groups being systematically underrepresented in sport and cultural activities, rather the existence of different tastes and preferences by some groups.

² <http://old.culture.gov.uk/images/research/CASE-Driverssummary-July2010.pdf>

2.2 The influence of adults on child participation

This section discusses the extent to which the characteristics of adults in the same household, along with their current behaviours and childhood experiences impact upon children's participation. Each of these three factors is discussed in turn.

2.2.1 Structural characteristics

There are two independent variables which impact systematically in the same direction on participation in some sectors. Higher levels of education are positively associated with six dependent variables in arts activities (DVA1; DVA2; DVA3), heritage (DVH1; DVH2) and libraries (DVL1). Being a single parent is negatively associated with four dependent variables in museums (DVM1; DVM3) and sport (DVS1; DVS2). These associations are particularly pronounced amongst single parents with children aged 5-10.

In the case of occupation (often closely linked with education and income) we find that there are negative associations between semi-routine and routine occupations³ as well as those who have never worked, with dependent variables for arts (DVA1; DVA2), museums (DVM1) and sport (DVS4). We also find that people in higher professional and managerial occupations are less likely to visit libraries with 5-10 year olds; and that those households in which there is currently no work, children aged 5-10 are more likely to be involved in sport outside school. In the case of libraries, we can perhaps speculate that people in higher professional occupations are able to offer their children access to books, digital media and computers in their own homes and therefore consider that there is no need to use libraries.

Levels of personal income are positively associated with three dependent variables and negatively with four. However there is no pattern to this observation and some relationships which seem significant are difficult to explain. For example, households with no work and therefore low incomes are highly associated with high participation rates in museums inside school by children aged 11-15. What occurs in schools during curriculum time is made available to all children and it is difficult to see why children from homes with no work would attend museums more in school time than any other children. Similarly it hard to explain why modest income (£10k-£20k) is positively associated with an arts dependent variable whilst higher incomes are negatively associated with libraries (£20k-£35k) and sport (£35k+) but positively associated with heritage (£35k+). The random nature of these variations in participation relative to specific levels of income suggests that adults' personal income does not in any systematic way explain children's participation in sport and culture. This is reassuring from an equity perspective but difficult to address from a policy perspective.

The region in which people live is found to have a significant association with participation. Of the 18 dependent variables under review, 13 have a region whose score is significantly above (4) or below (9) what might otherwise be expected. Notable amongst these is the East

³ As defined by National Statistics Socio-Economic Classifications 6 and 7 (NS-SEC 6; NS-SEC 7)

Midlands with arts and museums both having two significantly negative dependent variables but there is a significantly positive dependent variable in sport. This finding can only be explained in broad terms and is likely to be related to: local conditions of supply; local education policy towards in-school activity; and the tastes and preferences of children and families in the East Midlands. Whilst such findings do not provide answers for policy recommendations they do point to directions for future research.

2.2.2 Adults' current behaviours

There are two clear examples of how the behaviour of adults is associated positively with the participation of children in arts and sport. In arts the number of arts activities participated in by adults within the household over the last year is positively associated with three of the four dependent variables based on outside school participation. Adults' arts participation is also linked positively to outside school participation in heritage (5-10) and museums (11-15).

In sport, if adults meet the criteria for taking part in sufficient moderate intensity sport, then children in the household are more likely to participate in sport themselves, notably in the more intense indicators (two sports in the last week for 5-10s and three activity occasions for 11-15s). As age increases, the association with adult behaviour decreases. These are intuitively logical findings driven by children having increased responsibility for their choices as they get older. However, the impact of adults' engagement in sport on participation in heritage and museums in school does not seem to have an obvious logical explanation.

The phenomenon of adults' participation in arts and sport being positively associated with children can be likened to a form of cultural capital transfer whereby in these two sectors what parents do now is associated with what their children do now. If children's participation in arts and sports being linked to parental participation in these activities is a form of direct cultural capital transfer; there is also evidence of indirect cultural capital transfer whereby adults' engagement in certain activities is related to children's participation in other activities. In this regard we find adults' participation in sport is positively linked to children's participation in arts; and adults' participation in theatre and crafts is positively linked to children's participation in sport. Similarly adults' participation in heritage is associated with children's participation in museums and libraries. The only negative relationship is between parental participation in museums and a reduced likelihood of children aged 5-10 taking part in sport. The evidence of direct and indirect cultural capital transfer from adults to children on the basis of current participation suggests that cultural and sporting choices are not narrow and fixed but broad and subject to a degree of fluidity. This is an issue that will be explored later in the discussion of complementarity and substitution.

Evidence of apparent direct and indirect cultural capital transfer points to the need for further research to identify whether there are children, adults or families who are more likely to be culturally engaged than others. This is important research as it will provide insight into the notion that it is a minority of people who benefit disproportionately from public investment

in sport and culture. The research is easily done by merging some of the dependent variables in Table 1 and re-running the regression analysis.

2.2.3 Adults' childhood experiences

What adults took part in as children tends to have a positive association with what their children take part in now. What is perhaps surprising in this analysis is that direct cultural capital transfer occurs positively for two dependent variables (DVA2 and DVH1) whereas there is an indirect relationship with seven dependent variables (six positive and one negative). Adults who went to the theatre or heritage sites whilst growing up are likely to have children who do the same. By contrast adults who visited museums, heritage sites and libraries are highly likely to have children who take part in arts activities; and adults who took part in sport are likely to have children who engage in heritage. These findings reinforce the notion that people's tastes and preferences are fluid and can evolve over time. This is a positive finding for policy purposes as it suggests that policy interventions have the potential to create positive impacts.

The overarching empirical finding from the research was the positive association between the participation behaviours of parents and children. Moreover, children's current participation behaviours are linked to the behaviours of adults when they themselves were children.

2.3 The nature of complements and substitutes

Children participate in a variety of sporting and cultural activities as parents seemingly make lifestyle choices to give their children opportunities. A very influential factor in this analysis is the time over which participation is measured. In the case of heritage, museums and libraries, the threshold for meeting the dependent variable inclusion criteria is at least one engagement in the last twelve months. These are relatively low thresholds (at least 1 day per 365 days) compared with arts and sport where the once a week participation rate is equivalent to at least 52 days per 365 days. One visit to a heritage site, museum or library per year is unlikely to impact negatively on a weekly commitment to sport or arts activities. With what might be regarded as being an undemanding threshold for three sectors and relatively demanding thresholds for the other two sectors we might expect to see the following:

- heritage, museums and libraries are likely to be complements to each other and to sport and arts activities; and
- the relative intensity of sport and arts activities might result in these being substitutes for each other.

What the evidence from the regression analysis shows is a picture that is predominantly complementary, particularly for dependent variables based on out of school participation in sport and cultural activities.

- Arts are positively associated with heritage and museums
- Sport is positively associated with libraries and heritage
- Heritage is positively associated with libraries, museums, sport and arts
- Museums are positively associated with libraries, heritage, arts and sport
- Libraries are positively associated with museums and sports

These findings do not imply that participation in one activity causes participation in other activities. The relationships are associations and suggest that participation in one sector does not preclude participation in other sectors. The only negative relationship, or possible substitution effect, we found was in heritage whereby participation by 11-15 year olds inside and outside school appear to be substitutes. This suggests that 11-15 year olds who experience heritage inside school are not inclined to experience it outside school.

In the case of the more intense participation thresholds in arts (DVA2 and DVA4) and sport (DVS2 and DVS4) we detected no substitution effects. That is to say, those children who participated more intensively in sport and arts did not show signs of reduced participation in other sectors. This finding may in part be explained by our earlier finding that participation in sport and arts is associated with gender whereby girls favour arts and boys favour sports.

Taking the complement and substitution data as a whole, there is no evidence to suggest that initiatives to stimulate demand in one sector will have a negative impact on other sectors. However, attempts to stimulate boys' participation in arts activities and girls' participation in sport will be difficult because of their gender-specific tastes and preferences which seem to be determined at an early age.

2.4 The Olympic effect

The questionnaires for the Child Taking Part Surveys featured in this research (2011/12 and 2012/13) were administered in the run up to and aftermath of the London 2012 Olympic and Paralympic Games (London 2012). The Olympic Games is not solely a sporting event and there is a directive from the International Olympic Committee that the sporting programme must be accompanied by a programme of cultural activity as well. This is more commonly known as the Cultural Olympiad, which takes place over a period of 4 years in the host country, starting with the closing ceremony of the previous Games, and in the case of London 2012 running until the closing ceremony of the Paralympic Games. The Olympic Games and Cultural Olympiad thus provided the DCMS and its Non Departmental Public Bodies with the opportunity to link efforts to drive up participation in sport and culture with London 2012. To this end a series of questions relating to various types of engagement in Olympic activity were included on the CTPS.

Across the 18 dependent variables Olympic activity is significantly associated with 10 of them (nine positive and one negative). Perhaps not surprisingly the Olympic variables have a significant positive association with the four sport related dependent variables. For older

children (11-15) watching the Olympic Games on television had a positive association with participation whereas for younger children (5-10) the most significant factors were attending events in person or Olympic- related activities in school.

Those children who took part in Olympic-related activities in school were more likely to engage in heritage outside school and inside school. By contrast children aged 11-15 who watched the Olympics on television were also likely to visit museums both inside and outside school. Children aged 11-15 who followed the Olympics in the news were significantly more likely to visit a library outside of school.

These findings have two implications. First, the Olympic Games seemed to have a positive association with cultural engagement. Further research is required as to whether this is a phenomenon peculiar to the Olympic Games or something which can occur via other major events. Should other events be able to demonstrate similar associations, then there is some logic to using such events as levers to stimulate wider cultural engagement. Forthcoming events in the UK include: the Commonwealth Games, Ryder Cup, Cricket World Cup, Rugby World Cup and World Athletics Championships.

Second, if events are used to drive cultural engagement in the UK, there needs to be greater clarity as to questions such as:

- who will be impacted upon?;
- when will they be impacted upon?;
- how will the impact occur?; and
- how long will the impact last?

These questions should be underpinned by logic models to illustrate the inputs and processes that will be used to achieve desired outcomes. As it is, more children going to libraries being linked to watching the Olympic Games on television is no more than an unintended consequence and not directly attributable to a specific policy intervention. Similarly a reduction in intensive arts participation linked to following the Olympic Games on television is most likely to be either a short term substitution effect, or an unintended consequence.

2.5 Swimming ability as an indicator of cultural capital

An unusual and unexpected finding emerging from the analysis is the significance of swimming ability being positively associated with participation in both sport and other cultural activities. Swimming ability is positively linked with all four sport dependent variables; the two arts dependent variables for children aged 5-10; libraries and heritage inside school for 11-15 year olds; and museums outside schools for 5-10 year olds. Swimming is an activity that children can take part in from the age of six weeks (with parents) and most public swimming pools will welcome children aged five and over for formal swimming lessons.

Clearly swimming does not cause participation in other cultural activities. However, higher levels of swimming ability, notably amongst 5-10 year olds, point to culturally engaged families providing their children with a relatively wide range of sporting and cultural opportunities compared with families in which children's swimming ability is not as well developed. This finding does not fall out of a policy intervention as the national policy for swimming is that children should be able to swim 25 metres by the time they leave primary school (age 11). That some families choose to achieve a higher standard of swimming ability for their children at an earlier age may point to three explanations: first, a particular mind set towards sport and culture; second, a concern for children's safety around water; third, the provision of a gateway to other water based sports. These are households in which the adults have engaged in a relatively high number of arts activities, take part in sufficient moderate intensity sport, visit heritage sites; and take part in the same activities as their children. Swimming is also a good example of an activity that families can do together from an early age.

2.6 Enjoyment

Whilst it is hardly surprising, enjoyment is identified as a variable which is strongly associated with participation in arts and heritage. For the three arts-related dependent variables for children aged 11-15, enjoyment of participation in arts activities is strongly associated with participation rates in arts. A similar finding occurs in heritage whereby those 11-15 year olds who enjoy their participation are more likely to visit heritage sites both in and out of school. This finding is useful in confirming tastes and preferences as a key determinant of the demand for culture by 11-15 year olds. Tastes and preferences is a complex area of human behaviour. There is some evidence from this research that children's tastes and preferences are shaped by their parents' experiences as children; their parents' current behaviours; and their own experiences. It is interesting to note that the strength of parental influence decreases as children get older and become more independent. There is no pattern to the relative impact of the factors influencing children's tastes and preferences and it is likely that any such impacts will vary by sector and by the age of children.

3.0 Sectoral overview

For the sectoral overview, we identified three themes: structural factors such as demographic characteristics; personal factors specific to children such as ability and enjoyment; and, adult factors; to describe any significant variables related to the linked adult data set. Against each theme we identified the three most significant variables and computed an overall theme score to derive a sense as to what the dominant influence seemed to be on the dependent variables. The tables in this section are based on the beta coefficient (β) values, which quantify the impact of the independent variables on the dependent variables. In simple terms the higher the beta value in absolute terms, that is ignoring + or - signs, the more an independent variable impacts on the dependent variable. Further details can be found in the accompanying Technical Report.

3.1 Arts

Table 2 outlines the logistic regression coefficient values for arts participation.

In terms of a test of reasonableness we are looking for relationships that are systematic across the dependent variables or consistent within one of the age groups. In the arts sector we find that being a girl is strongly and consistently associated with participation across the four out of school dependent variables, which confirms gender as an important variable in this sector. We also find that being Asian amongst children aged 11-15 is a significantly negatively associated with arts participation.

Amongst 11-15 year olds, enjoyment of the arts is significantly associated with participation inside and outside school and at all levels of intensity specified within the dependent variables.

For each of the four outside school dependent variables, the three most significant adult-related associations of participation are all different, indicating that there is no systematic pattern of factors in this theme which influences participation. However in the more intensive frequency dependent variable for 11-15 years olds (DVA4) we find that the three most significant associations with participation are all linked to broad cultural engagement by an adult household member in the last year or when the adults concerned were growing up.

There is a negative association with children aged 15 on DVA5 (in school participation by 11-15 year olds). There is no obvious explanation for this other than to speculate that children may be concentrating on GCSEs and have less opportunity to participate in arts activities during school. Conversely, there is a positive association with children aged 12. At this age, children are in their first year of secondary school and we can again speculate that they have more time or opportunity than other age groups to participate in arts activities during school.

Taken as a whole, structural factors have the highest scores, and therefore the greatest significance. This is important because in policy terms there is nothing that can be done about structural variables such as gender, age or ethnicity, although programmes and initiatives can

either be targeted or take into account needs and preferences of particular groups. With the exception of the in school dependent variables, adult factors are the second most important group with personal factors last for all dependent variables except in school participation by 11-15 year olds.

Table 2: Arts participation logistic regression co-efficient values and overall theme score

Top 3 STRUCTURAL factors per dependent variable	DVA1	DVA2	DVA3	DVA4	DVA5
Female	0.9	0.9	1.0	1.1	
Age5	0.6				
Moderate_means	0.5				
Age15					-1.1
Quarter1		-0.7			
Quarter3		-0.6			
Black			1.1		
Asian			-1.0	-1.3	
Urban prosperity				1.1	
Age12					1.2
East Midlands					-0.6
Structural Factors Absolute Score	2.0	2.2	3.1	3.5	2.9
Top 3 PERSONAL factors per dependent variable					
Swimming ability		0.1			
Arts enjoyment			0.4	0.6	0.6
11-15 Olympics: follow the Games online or via print newspaper					-0.4
Personal Factors Absolute Score	0.0	0.1	0.4	0.6	1.0
Top 3 ADULT factors per dependent variable					
5 or more GCSE/O Level grades A* -C and L2 equivalents	0.6				
Adults doing sport in free time	0.3				
Number of arts activities participated in / attended in last 12 months	0.1				
Occupation: Lower, semi-routine		-0.6			
Other Higher Education below degree level		0.5			
Going to theatres when growing up, adults		0.4			
Personal income £10,000-£19,999			0.5		
Arts participation last month, adults			-0.4		
Adults going in free time to theatres or music concerts			-0.4		
Adult art participation in last 12 months, excluding reading				0.6	
Going to museums when growing up, adults				0.6	
Going to libraries when growing up, adults				0.6	
Private rent					0.5
Adult Factors Absolute Score	1.0	1.5	1.3	1.8	0.5
Structural	1.0	3.0	2.6	3.0	2.9
Personal	0.0	0.1	0.4	0.6	1.0
Adult	1.0	1.5	1.3	1.8	0.5

DVA1: Whether done at least one arts activity in the last 7 days; age 5-10; outside school.
DVA2: Whether done at least two arts activities in the last 7 days; age 5-10; outside school.
DVA3: Participating at least once, in any arts activity, last week; age 11-15; outside school.
DVA4: Participating at least twice, in any arts activity, last week; age 11-15; outside school.
DVA5: Participating at least twice, in any arts activity, last week; age 11-15; inside school.

3.2 Sport

Table 3 outlines the logistic regression coefficient values for sports participation.

In sport we find that being a girl is systematically negatively associated with all dependent variables, that is, the exact opposite to the case with arts participation. These findings suggest that participation in sport and the arts is gender-specific and seemingly a taste or preference that is developed early in life. All other structural associations vary by dependent variable suggesting random rather than systematic effects.

By contrast when we look at personal factors we find that swimming ability is positively associated with all sport dependent variables and for children aged 5-10 cycling ability is as well. These are potentially important findings for policy as they suggest that the encouragement of swimming and cycling ability could help to drive participation in sport more generally. Swimming can be a gateway activity to other water sports such as canoeing and rowing whereas cycling is a means of getting about generally and getting to other sports and cultural activities specifically.

Various types of engagement in the Olympic Games are positively associated with the more intense dependent variable for 5-10 years olds and both dependent variables for older children. Hosting the Olympic Games is a one off occurrence and whilst it can be used as a welcome short term agent of policy, it is not an independent variable that can be relied on in the long term.

Amongst the adult-related variables we find a strange anomaly in the sense that participation is positively linked to families classed as having higher managerial and professional occupations and negatively associated with those on relatively high personal income of £35k per annum. People from higher managerial and professional occupations are arguably the most likely to earn £35k+ per annum and this finding seems strangely at odds with what common sense would otherwise suggest. Having identified in the Technical Report that this find is not an issue of personal income and occupation having a co-linear relationship, our view is that this anomaly is an issue of definition. For example, in the case of a respondent describing themselves as a 'director' there can be no presumption that the term director equates to a high salary. Within the sample will be directors on relatively modest salaries and retired directors on pensions.

As with arts participation, it is the case that structural associations are the most significant. Interestingly, for the lower levels of participation intensity, adult-related associations are higher than personal associations; however, in the higher intensity categories, personal associations are greater than or equal to adult-related associations. This finding reinforces the notion of children taking more active control of their choices as they get older and become more independent. However, it also clear that tastes and preferences appear to be shaped by a complex array of factors such as current and childhood behaviours of adults in the household as well as children's own sporting and cultural experiences.

Table 3: Sports participation logistic regression co-efficient values and overall theme score

Top 3 STRUCTURAL factors per dependent variable	DVS1	DVS2	DVS3	DVS4
Female	-1.1	-0.7	-1.0	-0.8
East_Midlands	0.7			
Rural	0.6			
London		-0.6		
Yorkshire & the Humber		0.5		
North West			-0.7	
Illness / disability			-0.6	
Quarter2				0.7
Quarter3				0.5
Structural Factors Absolute Score	2.4	1.8	2.3	2.0
Top 3 PERSONAL factors per dependent variable				
Swimming ability	0.4	0.3	0.3	0.3
Cycling ability	0.2	0.5		
Olympics related school activity		0.8		
Watching Olympics on TV			0.4	0.6
Arts enjoyment			0.1	
Follow the Games through online or print newspaper				0.6
Personal Factors Absolute Score	0.6	1.6	0.8	1.5
Top 3 ADULT factors per dependent variable				
Ethnic background: mixed	-1.0			
Occupation: never worked	0.6			
Adult art participation in last 12 months, excluding reading	0.5			
One adult in household		-0.4		
Occupation: Intermediate		0.3		
Whether doing sufficient moderate intensity sport		0.3		
Occupation: Higher managerial or professional			0.9	0.4
Arts participation last month adults			0.5	
Personal income £35,000+			-0.5	-0.6
Three children in household				0.5
Adult Factors Absolute Score	2.1	1.0	1.9	1.5
Structural	2.4	1.8	2.3	2.0
Personal	0.6	1.6	0.8	1.5
Adult	2.1	1.0	1.9	1.5

DVS1: Whether done at least one sports activity in the last 7 days; age 5-10; outside school.

DVS2: Whether done at least two sports activities in the last 7 days; age 5-10; outside school.

DVS3: Participating at least once in any sport last week; age 11-15; outside school.

DVS4: Participating at least three times in any sport last week; age 11-15; outside school.

3.3 Heritage

Table 4 outlines the logistic regression coefficient values for heritage participation.

In heritage being aged 14 is positively associated with participation for children aged 11-15 both in and out of school. By contrast for DVH1, ethnicity (Black and Asian) is negatively associated with participation. This is a finding that is consistent with the adult Taking Part Survey (adults overall 73%, minority ethnic groups 57%) but it is perhaps surprising that it is a finding that is significant for children aged 5-10 but not those aged 11-15. It is a plausible explanation that this finding reflects the differing levels of adult influence on younger and older children.

For older children, enjoyment is an important positive association both outside and inside school. A similar finding was found for arts participation and it is hopefully not too trite to say that as children get older and can make choices for themselves their likelihood of participating in heritage (and arts) activities outside of school depends on the extent to which they enjoy such activities. This is yet further evidence of the importance of tastes and preferences in determining demand.

There are two adult-related associations of participation, one positive and one negative. If adults have spent some of their free time visiting historical sites, it is more likely that children will have engaged in heritage as well. By contrast in households in which there is no work, children's participation is affected negatively.

For children aged 5-10 adult-related factors have the strongest association with participation in heritage followed by structural factors. Amongst the 11-15 cohort, structural factors are dominant followed by adult-related factors. With the exception of 'enjoyment', personal factors score relatively weakly for outside school participation relative to other factors.

Table 4: Heritage participation logistic regression co-efficient values and overall theme score

Top 3 STRUCTURAL factors per dependent variable	DVH1	DVH2	DVH3
Black	-0.7		
Asian	-0.6		
London	-0.5	-1.1	
Age14		1.2	0.6
North West		-0.9	
Yorkshire Humberside			-0.6
Structural Factors Absolute Score	1.8	3.2	1.2
Top 3 PERSONAL factors per dependent variable			
Olympics: related school activity	0.5		0.4
Heritage enjoyment, 11-15		0.8	0.5
Swimming ability		0.2	
Olympics: attending an Olympic event in person, 11-15			-0.6
Personal Factors Absolute Score	0.5	1.0	1.5
Top 3 ADULT factors per dependent variable			
Free time activity - visiting historical sites	1.0	1.0	
Personal income £35,000 +	0.6		
No Work (base:ft)	-0.5	-0.9	
Higher Education & professional/vocational equivalents		0.8	
Owning or using any motor vehicles			0.8
Adults going in free time to theatres or music concerts			0.4
Private rent			0.4
Adult Factors Absolute Score	2.1	2.7	1.6
Structural	1.8	3.2	1.2
Personal	0.5	1.0	1.5
Adult	2.1	2.7	1.6

DVH1: Whether visited a heritage site in the last 12 months; age 5-10; outside school.

DVH2: Whether visited a heritage site in the last 12 months; age 11-15; outside school.

DVH3: Whether visited a heritage site in the last 12 months; age 11-15; with school.

3.4 Museums

Table 5 outlines the logistic regression coefficient values for museums participation.

For museums there are three structural factors which appear to have systematic associations with the dependent variables. First, living in the East Midlands is negatively associated with DVM1 and DVM3. Second, the second quarter of the year (April, May, and June) is positively associated with participation. We speculate that this might be attributable to longer days, better weather, Easter holidays and Bank Holidays in May. Third, participation is also positively associated with being aged 11. There seems to be no logical explanation as to why participation in different sectors is at times positively and negatively associated with specific ages.

Amongst the personal factors, watching the Olympic Games on television is positively associated with participation by 11-15 year olds both in and out of school.

In the adult-related variables the strongest and only consistent variable is adults visiting museums and galleries in their free time. Likely explanations include children being taken along by adults pursuing their own interests; family outings, or shared family tastes and preferences for particular activities. It is interesting to note that adult-related variables are dominant for museums followed by structural variables.

Table 5: Museums participation logistic regression co-efficient values and overall theme score

<i>Top 3 STRUCTURAL factors per dependent variable</i>	DVM1	DVM2	DVM3
East Midlands	-0.5		-0.7
Quarter2	0.4	0.6	
Quarter1	-0.3		
Age11		0.4	0.8
Age14		-0.5	
Asian			0.6
Structural Factors Absolute Score	1.2	1.5	2.1
<i>Top 3 PERSONAL factors per dependent variable</i>			
Swimming ability	0.5		
Olympics: watching Olympics on TV		0.5	0.6
Arts_enjoyment, age 11-15		0.1	
Age 11-15, Olympics: attending an Olympic event in person			0.6
Personal Factors Absolute Score	0.5	0.6	1.2
<i>Top 3 ADULT factors per dependent variable</i>			
Adults visiting in free time museums or galleries	1.6	1.0	
Occupation: never worked	-1.0		
Free time activity - visiting historical sites	0.3		
Occupation: full time students		-0.7	
Whether doing sufficient moderate intensity sport			0.4
Doing activity when growing up at least once per month, adults			0.4
Owns or have continuous use of any motor vehicles?			-0.4
Adult Factors Absolute Score	2.9	1.7	1.2
Structural	1.2	1.5	2.1
Personal	0.5	0.6	1.2
Adult	2.9	1.7	1.2

DVM1: Whether visited a museum in the last 12 months; age 5-10; outside school.

DVM2: Whether visited a museum in the last 12 months; age 11-15; outside school.

DVM3: Whether visited a museum in the last 12 months; age 11-15; with school.

3.5 Libraries

Table 6 outlines the logistic regression coefficient values for libraries participation.

For libraries there are no particularly strong associations of participation and only one consistent systematic association amongst any of the factors (arts enjoyment). For DVL3, which is an in school measure for 11-15 year olds, the only quarter which does not feature is quarter three (July, August and September) which coincides with school holidays and therefore it is no surprise that in school visits to libraries would not be associated with summer holidays.

Amongst the personal factors, enjoyment of arts activities is a relatively weak positive association with participation amongst children aged 11-15 inside and outside school.

In households with children aged 11-15 and relatively low personal incomes of £5,000 to £19,999 there is a positive association with library use. By contrast, those with children aged 5-10 and incomes over £20,000, income is a negatively associated. This supports the argument that at a certain level of income some families provide books, computers and digital media such that trips to the library are not necessary. For those on lower incomes our interpretation of the data is that libraries are an 'accessible' product and an enabler of access to books, computers, digital media and social space.

The overall strength of factors shows that structural variables are strongest for out of school participation followed by adult-related factors and personal factors the weakest.

Table 6: Libraries participation logistic regression co-efficient values and overall theme score

Top 3 STRUCTURAL factors per dependent variable	DVL1	DVL2	DVL3
North West	0.6		
Female	0.4		
Age10	-0.4		
London		0.8	
South West		0.7	
Asian		1.1	
Quarter4			0.7
Quarter1			0.6
Quarter2			0.6
Structural Factors Absolute Score	1.4	2.6	1.8
Top 3 PERSONAL factors per dependent variable			
Age 11-15, Olympics: follow the Games through online or print newspaper		0.5	
Arts enjoyment		0.2	0.1
Heritage enjoyment		0.1	
Swimming ability			0.2
Personal Factors Absolute Score	0.0	0.7	0.3
Top 3 ADULT factors per dependent variable			
Personal income £20,000-£34,999	-0.4		
Free time activity - visiting historical sites	0.4		
Practising religion	0.3		
Four or more children in the household		0.7	
Personal income £5,000-£9,999		0.6	
Personal income £10,000-£19,999		0.5	
No income / no work or scheme			0.5
Doing art activity when growing up, excluding reading, adults			-0.3
No work in general (base f-t)			0.3
Adult Factors Absolute Score	1.2	1.8	1.2
Structural	1.4	2.6	1.8
Personal	0.0	0.7	0.3
Adult	1.2	1.8	1.2

DVL1: Whether visited a library in the last 12 months; age 5-10; outside school.

DVL2: Whether visited a library in the last 12 months; age 11-15; outside school.

DVL3: Whether visited a library in the last 12 months; age 11-15; with school.

4.0 Policy implications

Based on the findings presented in this summary report, our view is that it is better to discuss implications for policy rather than to make policy recommendations. This is because in a limited and exploratory piece of work we have identified relationships but not the direction or the cause of those relationships. We discuss four high level implications and one micro level implication as outlined below.

4.1 High level implications

1. Given the confirmatory nature of child and adult participation it is unlikely that the policy implications emanating from this research will be revolutionary in approach. For example, the strongest influence on participation in arts and sport is gender, with girls more likely to engage in arts and boys more likely to engage in sport. If this is an issue that policymakers wish to address as with adult participation, steps should be taken to ensure that a) policies are gender inclusive; and if this is not the case then b) policies are made more gender-specific.
2. Given the linkage between child and adult participation, there is a need to create society wide interventions that interlink policies to enhance both child and adult participation in sport and cultural activities. This point implies that policies designed to enhance engagement in sport and culture by children and adults should be viewed more holistically. For example, interventions designed to influence the tastes and preferences of children (e.g. enjoyment) also need to address or be linked to policies relating to changing adults' tastes and preferences. Focusing on facilitating family activities in all five sectors may well have the effect of boosting the engagement of adults and children simultaneously, both now and in the future.
3. There are no 'quick fix' solutions to changing child participation behaviour emerging from the analysis. Population based interventions often take many years to have an effect. It has taken 40 years (from 1974) to halve the prevalence of smoking in the UK population. In the case of sport and culture we find that children are influenced significantly by what their parents did when they were growing up and what their parents are doing now. It is quite likely that the impacts of the provision we make now will not be realised fully until the children in the CTPS cohort grow up and have children of their own. This finding implies that there should be no new policies introduced without a sound evidence base and robust logic models explaining how they are intended to work. Furthermore, those policies which are implemented must be given time to work. This may in turn require all-party collaboration as the timespans involved are greater than the duration of a Parliament.

4. The complementarity and interdependence of child participation in sport and cultural activities suggests that policy interventions that target sector specific activities may have unintended but positive consequences in other sectors. Interventions to increase engagement in sport and cultural activity in children should therefore target a wide spectrum of activities to enhance overall participation and to encourage active lifestyles.

The analysis presented in this report is about the demand for sport and cultural activities. To increase demand we need to understand the factors that affect demand and these are:

- price;
- income;
- the availability and price of competing products;
- people's tastes and preferences; and
- supply.

This research has examined some of the factors that influence demand such as income, tastes and preferences and competing products. However, we have not looked at price or supply side variables. It is inadvisable to devise policy on the basis of partial research into the determinants of demand. Reliable policy recommendations should be made on the basis of a more comprehensive understanding of demand and we have suggested ways to address this in 5.0.

Stimulating demand for sport and culture is often predicated on the basis of perceived 'barriers' to participation. The majority of the significant associations we found were positive rather negative. There are two possible explanations. First, the CTPS does not include questions about barriers to participation and this is an area for future development of the survey. Second, the decision to participate or not in a particular sport or cultural activity is a function of tastes and preferences. Should the latter point be the case, the role of policy is to influence tastes and preferences such that children value sport and culture more than they do competing products and services.

4.2 Micro level implication

1. Swimming and cycling ability are two consistent associations of participation in the sport dependent variables notably amongst younger children. These are activities that should be actively encouraged as important ingredients to the notion of 'physical literacy'⁴. Although it is a National Curriculum requirement that children can swim 25m unaided by the time they leave primary school, a significant minority (around a

⁴ The ability to use body management, locomotor and object control skills in a competent manner, with the capacity to apply them with confidence in settings which may lead to sustained involvement in sport and physical recreation.

third) do not achieve this modest target. In the same way that swimming is a National Curriculum target; a similar status could be applied to cycling. Action to tackle swimming participation by young children would have a positive impact on sport and could also have a positive impact in other sectors.

5.0 Future Research

On the basis of the analysis undertaken, there are ten specific areas of enquiry that would benefit from further research as outlined below.

- 1 Time series analysis to establish whether our findings are specific to a snapshot in time (2011-2013) or are consistent over longer period of time (CTPS 1-8). We realise that CTPS has changed considerably over time but there are a core of important variables such as gender which will be constant.
- 2 The longitudinal element of the CTPS provides an opportunity to conduct analysis on the same cohort of respondents over time. Longitudinal data provides a better basis from which to be able to make claims about causal relationships. As the dataset builds up, it will prove to be a unique resource for the sport and cultural sector in England and its potential should be maximised.
- 3 Analysis to investigate the impact of increasing intensity of participation in one sector on the nature of complementarity and substitution in other sectors (the specialisation effect). The hypothesis of this research being (H_1) = the more intensely a child participates in one activity, the less likely they are to participate in a range of activities in the same sector and the less likely they will be to participate at all in other sectors.
- 4 Analysis of demand surveys with supply side data such as matching the postcode data of respondents in CTPS with the postcodes of facilities in Active Places. Similar analyses could also be conducted with supply side resources in the other sectors.
- 5 The CTPS data could be recoded simply to analyse children's participation by different Key Stages in the National Curriculum (e.g. KS1; KS2; KS3). This might help to provide better insight into the in school participation dependent variables.
- 6 The one-off nature of the Olympic Games creates an opportunity to investigate potential legacy impacts of the event on children's participation in both the short term and the longer term. In this regard the longitudinal dataset is a valuable resource for cohort tracking.
- 7 Further research into the full range of the determinants of demand, notably price is required to ensure that policy decisions are made on the basis of a fully rounded appreciation of the evidence rather than partial appreciation.
- 8 In the case of more intensive arts and sports participation we found no substitution effects. Further investigation of whether substitution occurs within genders was not investigated but is recommended for further analysis.

- 9 The 18 dependent variables could be condensed into summary variables for engagement in the five sectors. For example for children aged 5-10 it would be possible to combine DVA1, DVS1, DVH1, DVM1 and DVL1. This would provide clear evidence as to whether engagement in sport and culture is dominated by particular types of people.
- 10 As per the Active People Survey questions on future versions of CTPS might include questions on latent demand as well as expressed demand. These in turn might lead to further questions about any barriers that prevent latent demand from being realised.

This exploratory research has provided a fascinating insight into the nature of children's engagement in sport and culture. Some of the findings confirm what we already know; others provide new insight and a genuine contribution to knowledge; and others are simply inexplicable from the data available. What we have done thus far is a first step in ticking the most obvious boxes and in so doing we have demonstrated that there is value in research of this type and we have set an agenda for what this research might entail. What needs to happen next is a longer term, more systematic approach which leaves no stone unturned in the search for information to help increase children's engagement in sport and culture.

Simon Shibli
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7th July 2014

6.0 Annex

The dependent variables derived for this research are almost entirely consistent with the definitions of 'participation' for each sector outlined in the Taking Part Statistical Releases Analysis. The only exception is participation in arts as outlined below.

Participation in arts includes:

- Dance activities
- Music activities
- Theatre and drama activities
- Reading and writing activities
- Arts and design
- Film and video activities
- Other media activities
- Computer based activities
- Radio activities
- Street arts, circus, carnival or festival activities

A brief outline of all the participation variables in general terms, but without distinguishing between inside and outside school, is provided in the Child Taking Part Statistical Release. The participation rates for arts and sport appear extremely high. Art in particular, has an annual participation rate close to 99%, partly because of the inclusion of reading and writing activities during school time. In order to make arts participation more relevant for statistical analysis we excluded reading and writing activities from the basic definition.

Participation in sport includes:

- Mini-sport and mini-games
- Swimming
- Athletics and gymnastic activities
- Skating
- Outdoor and adventurous activities
- Specific sports such as: football, netball, hockey, cricket, rugby, basketball, volleyball, tennis, badminton, golf, running, jogging, weight-training, cycling, martial arts, boxing, horse riding, rowing, angling etc.

Following CTPS definitions, heritage activities, museums and libraries are self-explanatory.