



INTERIM EVALUATION OF THE BIRMINGHAM 2022 COMMONWEALTH GAMES

Annex 1.3: Methodological approach

January 2023

Important Notice

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1 Primary research

1.1 Stakeholder engagement

As part of the Games-wide evaluation, a series of stakeholder interviews were undertaken in the post-Games period in September and October 2022.

This stakeholder engagement was used to obtain insights to inform the Games-wide evaluation, including insights regarding the impacts of delivery of the Games events as well as the Legacy Programmes, in terms of:

- the impacts of the Games on Birmingham and the West Midlands;
- key activities and initiatives that have been most significant in generating the impacts in these areas and wider factors that have influenced or contributed to the impact of the Games;
- any positive or negative unintended outcomes or impacts of the Games; and
- lessons learned from delivery of the Games and Legacy Programmes.

Where relevant to this report, evidence obtained through this stakeholder engagement has been included in the analysis of the impact of the Games events. However, the full breadth of insights from the stakeholder engagement, including lessons learned, is not within the scope of this interim evaluation and therefore is not included in this report and will instead be reported on in the one year post-Games evaluation.

A further round of stakeholder engagement will also be undertaken in Summer 2023 to provide additional insights to inform the one year post-Games evaluation.

In total 29 stakeholders were engaged with as part of the immediate post-Games stakeholder engagement. Table 4 below shows the broad groups of stakeholders that have been engaged with during this period and the engagement approach.

Table 1: Stakeholder engagement plan – immediate post-Games engagement

Stakeholder group	Approach
Local Government stakeholders: Birmingham City Council (BCC) West Midlands Combined Authority (WMCA) West Midlands Growth Company (WMGC) West Midlands local authorities (LAs)	Focus groups with representatives from identified local government stakeholders. 1.5 – 2 hrs
Games partners: Chief Executives and Leaders from Birmingham 2022 Organising Committee (OC), BCC, WMCA, and the Commonwealth Games Federation (CGF)	Interviews with senior Games stakeholders
Organising Committee (OC) functional area leads	Focus group with functional area leads from the OC

1.2 Residents Survey

A second wave of a residents survey was undertaken as part of the Games-wide evaluation which was also drawn upon for the interim evaluation (“the Residents Survey”).

As detailed in Section 6.2.2 of the Pre-Games Evaluation Framework¹, the purpose of the Residents Survey is to understand:

- how residents in the Birmingham, Perry Barr and Sandwell communities feel about their local area, for example in terms of community cohesion, inclusion and civic pride;
- their participation in physical, creative and cultural activities;
- their use of different modes of transport and active travel; and
- their awareness of and engagement with the Games, and their experience of the impacts of the Games.

This survey is due to be conducted three times in total as part of the Games-wide evaluation: pre-Games; immediately post-Games; and one year post-Games. The second wave of the Residents Survey was in the field from 17th August 2022 to 11th September 2022.

Questions were included to help answer the evaluation research questions set out in the Evaluation Framework and the results from the survey will therefore primarily feed in to the one year post-Games evaluation. However, some questions are relevant to the Games events specifically and are analysed and reported on in the interim evaluation.

Approach

The survey was deployed using KPMG’s Partner panel provider, Dynata. Residents within the targeted areas of Birmingham and Sandwell were invited to participate in the c.15 minute online survey via email.

Survey sample

The sample for the Residents Survey was designed to be as representative as possible of the Birmingham area, with minimum quotas only applied to achieve robust sample sizes for the priority groups of interest for the evaluation. All sample sizes are considered to provide reliable results, though we note that sample sizes of 50 should be treated with some caution.

Target quotas were set on the following:

Table 2: Sample Quotas

Birmingham Main Sample	n=500	Incl: Min n=100 16-30 year olds Min n=100 BAME
Perry Bar Sample	n=50	
Sandwell Sample	n=50	

Source: KPMG Resident Survey Sample Data

1.3 Visitor Survey

A visitor survey was commissioned by WMGC as part of the Business and Tourism Legacy Programme and undertaken by Echo Research (“the Visitor Survey”).

¹ HM Government, 2021. Birmingham 2022 Commonwealth Games Pre-Games Evaluation Framework and Baseline Report. November 2021. See: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1033734/Birmingham_2022_Pre-Games_Evaluation_Framework_and_Baseline_Report.pdf

As detailed in Section 6.2.2 of the Pre-Games Evaluation Framework², the purpose of the Visitor Survey is to capture data on factors including:

- demographic characteristics of the visitors;
- motivations for visiting/ journey purpose (including the extent to which the visit was driven by the Games, associated events/ programmes of activity such as the Queen’s Platinum Jubilee events, or wider factors);
- length of stay;
- location and type of accommodation;
- origin of travel (elsewhere in the UK/ overseas);
- modes of transport used for the visit;
- visitor expenditure; and
- displacement - whether visits have taken place instead of ones to other parts of the UK or visits at other times of the year.

In particular for the interim evaluation, this data feeds into the analysis of the visitor spend associated with Games-related visitors.

The interim evaluation draws on data collected via the survey over the 12 days of the Games events, from 28th July 2022 to 8th August 2022.

Approach

The survey was conducted as a c.10 minute face-to-face survey in locations around Birmingham and the West Midlands, including at the Games venues detailed in the table below:

Table 3: Games survey locations

Location	Games venue
Birmingham	Perry Barr Station/ Alexander Stadium
Birmingham	Edgbaston Stadium
Birmingham	Victoria Square
Coventry	Coventry Building Society Arena
Solihull	NEC Exhibition Halls and Arena
Wolverhampton	West Park
Warwickshire	St Nicholas Park, Warwick
Warwickshire	Victoria Park - Leamington Spa
Staffordshire & Worcestershire	Cannock Chase Forest

Source: Echo Research

² HM Government, 2021. Birmingham 2022 Commonwealth Games Pre-Games Evaluation Framework and Baseline Report. November 2021. See: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1033734/Birmingham_2022_Pre-Games_Evaluation_Framework_and_Baseline_Report.pdf

Survey sample

The focus of the survey was non-residents of the unitary authority area in which the survey location was based. The total sample achieved over the survey period was 1,026 visitors, of which 440 were at Games venues and 586 were at other sites across the West Midlands.

1.4 Spectator Survey

A post-Games spectator survey (“the Spectator Survey”) was undertaken by the OC to collect information from those individuals that had purchased tickets for the Games on their Games experience, as well as to obtain data to inform the economic impact analysis in the Games-wide evaluation, specifically in relation to:

- Games events tickets were purchased for
- location of residence
- visitor expenditure; and
- displacement - whether visits have taken place instead of ones to other parts of the UK or visits at other times of the year.

The survey was in the field post-Games from 11th August 2022 to 21st August 2022.

Approach

The survey was sent by the OC via email to all the email addresses of those who had purchased tickets for the Games via Ticketmaster.

Survey sample

A total sample of 23,486 was achieved for this survey. Of these respondents, 1,263 did not attend a Games event.

This resulted in a total sample of ticket purchasers who attended the Games of 22,223, of whom

- 10,472 were West Midlands residents;
- 11,555 were from elsewhere in the UK; and
- 196 were from overseas.

1.5 Volunteer Survey

Two waves of the volunteer survey (the “Volunteer Survey”) have been undertaken.

As detailed in Section 6.2.2 of the Pre-Games Evaluation Framework³, the purpose of the Volunteer Survey is to capture the data on the short- and longer-term impacts on Games volunteers of their participation in the volunteering programme, including in terms of:

³ HM Government, 2021. Birmingham 2022 Commonwealth Games Pre-Games Evaluation Framework and Baseline Report. November 2021. See: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1033734/Birmingham_2022_Pre-Games_Evaluation_Framework_and_Baseline_Report.pdf

- personal benefits from volunteering, such as any changes in levels of confidence, skills development, preparedness for work, other social benefits;
- employment status pre-Games and over the post-Games period; and
- wider volunteering activity pre-Games and over the post-Games period.

The data drawn on for the interim evaluation report focusses on the personal benefits from volunteering reported by survey respondents. Other areas of the responses obtained via the survey will be used in the one year post-Games evaluation, along with results from a third wave of the survey which will be carried out in Summer 2023.

The first wave of the survey was in the field pre-Games from 16th May 2022 to early July 2022 once volunteers had been recruited but ahead of the Games events, and included questions about experiences prior to being onboarded to the volunteering programme.

The second wave of the survey was in the field post-Games from 27th September 2022 to 10th October 2022.

Approach

The survey took the form of a c. 10 minute online survey which all registered volunteers were invited to participate in.

Survey sample

The surveys went out to all registered volunteers (estimated distribution of around 12,000 volunteers). The pre-Games Volunteer Survey received 4,047 responses, and the post-Games survey received 1,669 responses.

1.6 Business Survey

The first wave of a business survey was undertaken as part of the Games-wide evaluation and the results from this are drawn upon for the interim evaluation (“the Business Survey”).

As detailed in Section 6.2.2 of the Pre-Games Evaluation Framework⁴, the purpose of the Business Survey is to obtain data and insights in relation to the impact of the Games across a range of issues including in relation to:

- how the Games has impacted business investment decisions, before, during and/ or after the Games;
- how the Games has impacted businesses, including in terms of required employment levels, sales and revenues, and the extent to which any Games-time impacts have been sustained post-Games;
- perceptions of the strength of the region as a good place for doing business, including in relation to skills and infrastructure; and

⁴ HM Government, 2021. Birmingham 2022 Commonwealth Games Pre-Games Evaluation Framework and Baseline Report. November 2021. See: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1033734/Birmingham_2022_Pre-Games_Evaluation_Framework_and_Baseline_Report.pdf

- behavioural change as a result of the Games including in relation to practices relating to accessibility, EDI, environmental sustainability and social value generation.

The purpose of the survey is to provide insights as to the nature of impacts rather than to be used as part of the quantitative analysis of economic impacts.

The Business Survey is being undertaken in two waves – immediately post-Games and in Summer 2023 (the latter to provide evidence for the one year post-Games evaluation).

Given the focus of the survey on the overall impact of the Games (including Legacy Programmes) rather than being limited to the Games events, many of the responses to the questions asked in the first wave of the Business Survey will be used as part of the one year post-Games evaluation rather than the interim evaluation.

However, the interim evaluation draws on responses from Games contract holders, for which there is a more direct impact of the planning and delivery of the Games events.

Approach

The survey took the form of a c.10 minute online survey distributed via email to:

- A panel sample of West Midlands businesses
- OC suppliers
- Business forums within the West Midlands including members of the West Midlands Economic Impact Group and Business Improvement District members.

Survey sample

The pre-Games survey received 195 responses, the breakdown of which is included below.

Table 4: Sample Breakdown by Area

		Sample
Source	Panel	103
	Direct sample	92
Location of business	West Midlands	159
	Non-West Midlands	36
Games contract holders	Direct contract	86
	Supply chain, no contract or don't know	109

Source: KPMG Business sample data

Given the sample sizes achieved for the Business Survey the findings should be considered indicative only and not representative of all businesses that could be impacted by the Games.

2 Approach to estimating the short-term economic impacts associated with the planning and delivery of the B2022 Commonwealth Games sporting events

The Birmingham 2022 Commonwealth Games Pre-Games Evaluation Framework and Baseline Report was published in November 2021⁵ (the “Evaluation Framework”).

The Evaluation Framework sets out the overall methodology, including approaches to data collection and analysis, for the evaluation of the Birmingham 2022 Commonwealth Games (“the Games”).

As detailed in the Framework, the methodologies employed were based on recognised economic impact analysis methodologies, such as those set out in HM Treasury’s Green Book⁶, approaches specified by the Office for National Statistics (ONS)^{7 8} and specific methodologies for measuring the impact of events, such as in the guidance provided by eventIMPACTS⁹.

This builds on the Evaluation Framework, and provides additional detail on the approaches that were followed as part of the Interim Evaluation of the B2022 Commonwealth Games, specifically the approaches taken to assess the outcomes and impacts generated through the delivery of the Birmingham 2022 Games events themselves, i.e. the Opening Ceremony and 11 days of sporting events (“the Games events”).

2.1 Introduction

The short-term economic impacts associated with the planning and delivery of the Games events were estimated in terms of:

- **Direct economic impacts** arising as a result of direct activity undertaken to deliver the Games events, including activity by the OC to deliver the Games, activity of contractors engaged to redevelop Alexander Stadium and construct and fit out Sandwell Aquatics Centre, and the activity of Transport for West Midlands (TfWM) and contractors to provide Games-related transport services.
- **Indirect economic impacts** as a result of spending with suppliers to the OC and those providing goods and services as inputs to the redevelopment of Alexander Stadium, the construction of Sandwell Aquatics Centre and the provision of Games-time transport services, as well as the wider supply chains supporting this activity. This supplier spending generated economic activity

⁵ HM Government, 2021. Birmingham 2022 Commonwealth Games Pre-Games Evaluation Framework and Baseline Report. November 2021. See: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1033734/Birmingham_2022_Pre-Games_Evaluation_Framework_and_Baseline_Report.pdf

⁶ HM Treasury (2020) The Green Book; See: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/938046/The_Green_Book_2020.pdf

⁷ [UK input-output analytical tables - product by product - Office for National Statistics \(ons.gov.uk\)](https://ons.gov.uk/methodology/input-output-tables)

⁸ [Regional gross value added \(income approach\) QMI - Office for National Statistics \(ons.gov.uk\)](https://ons.gov.uk/methodology/gross-value-added)

⁹ eventIMPACTS Social Measures toolkit. Sourced from: <http://www.eventimpacts.com/-/media/event-impacts/downloadableresources/social/social-measurescomplete-toolkit.pdf?la=en>

within the full UK supply chain to produce the goods and services used to deliver the Games, generating indirect employment and GVA in the UK economy as result.

- **Induced economic impacts** generated as a result of spending of wages in the UK economy by those directly and indirectly employed as a result of the planning and delivery of the Games events. This spending generates additional economic activity for those businesses from which these employees buy goods and services as well as in the UK supply chains for these businesses, generating associated induced employment and GVA.

It should be noted that as all the results of the analysis are presented in 2022 prices, the spend data received from the OC, BCC, Sandwell Metropolitan Borough Council (SMBC), and TfWM, as referred to throughout the methodology, was inflated to 2022 prices using the ONS UK GDP deflators for FY 2018/19 to FY 2022/23.¹⁰

It also should be noted that:

- The data received from the OC covers the OC payroll costs and the OC procurement spend over the period between FY 2018/19 and end September 2022 (herein referred to as FY 2022/23)¹¹.
- The data received from SMBC covers the project costs associated with the construction of the Sandwell Aquatics Centre over the period between FY 2018/19 and FY 2022/23. SMBC provided this data on an annual basis up to and including FY 2022/23. Therefore, in the absence of monthly data, data for the overall year was used. This means that the data used in the analysis might include spend that will be incurred after September 2022.
- For the construction of the Sandwell Aquatics Centre, SMBC contracted mainly with one contractor (here referred to as the 'main contractor'), spending 96% of the total project cost with them. Given the significant role of the main contractor in the construction of the Sandwell Aquatics Centre, data relating to the main contractor spend with its own supply chain was provided as part of this study.
- The data received from BCC covers the total project costs associated with the redevelopment of Alexander Stadium over the period between FY 2018/19 and end August 2022 (herein referred to as FY 2022/23). BCC indicated that there was no further spend associated with the Games-related redevelopment of Alexander Stadium after August 2022.
- The data received from TfWM covers the period between FY 2018/19 and end September 2022 (herein referred to as FY 2022/23).

2.1.1 Approach to estimating net impacts

GVA and employment impacts are reported both in gross terms, reflecting total expenditure related to the delivery of the Games events, and in net terms, accounting for activity/spend that would have happened anyway (*deadweight*) or that would have happened instead (*displacement*), had the Games events not taken place in the West Midlands.

In relation to the planning and delivery of the Games events, estimated net impacts take account of plans, as associated planned expenditure, by SMBC to invest in a new leisure centre, which were subsequently replaced by the plans and expenditure on the new Aquatics Centre.

¹⁰ ONS, 'GDP deflators at market prices, and money GDP September 2022 (Quarterly National Accounts). See: <https://www.gov.uk/government/statistics/gdp-deflators-at-market-prices-and-money-gdp-september-2022-quarterly-national-accounts>

¹¹ There is expected to be a small value of OC payroll costs related to Games delivery incurred after September 2022, but relative to the overall scale of costs considered in the report, the scale of these is not expected to materially impact the analysis.

To estimate the net impacts, the gross GVA and employment impacts generated through the construction of the Sandwell Aquatics Centre were scaled down using the following ratio:

Scale down ratio:

$$1 - \frac{\text{SMBC spend that would have happened anyway to construct a new leisure centre}}{\text{Total SMBC spend to construct the Sandwell Aquatics Centre}}$$

All other spending related to the planning and delivery of the Games events was considered additional, therefore, has not been scaled in the analysis.

The results of the analysis presented in the Interim Evaluation account for leakage of impacts outside the relevant area of interest but do not account for any knock-on displacement and substitution effects, nor do they adjust for any changes in the structure of the economy over time. This approach is consistent with the analysis of GVA and employment economic impacts reported in the CGF Games Values Framework.¹²

2.1.2 Approach to direct GVA impact calculations

Direct GVA was generated as a result of direct activity undertaken to plan and deliver the Games events, including activity by the OC to deliver the Games, activity of BCC and contractors engaged to redevelop Alexander Stadium, activity of SMBC and contractors to construct and fit out Sandwell Aquatics Centre, and the activity of TfWM and contractors to provide Games-time transport services.

Direct GVA at the industry or organisational level can be measured through either the income approach or the production approach.¹³

To estimate the direct GVA generated by the OC to deliver the Games, the analysis used the income approach to estimation, where:

$$\text{Direct GVA} = \text{Net pre-tax profit} + \text{Compensation of Employees} + \text{Depreciation} + \text{Amortisation}$$

Given that the OC is non-profit making, using the formula above the direct GVA was estimated based on compensation of employees. The data for this was provided by the OC from its payroll system, covering compensation of employees over the period FY 2018/19 to end September 2022.¹⁴

The direct GVA impact generated by the activities of the main contractor engaged to deliver the construction of Sandwell Aquatics Centre was estimated based on the main contractor's net pre-tax profit and compensation of employees associated with the construction of the Sandwell Aquatics Centre.

To estimate the direct GVA generated by the activity of BCC and contractors engaged to redevelop Alexander Stadium, activity of SMBC and contractors (excluding activities of the main contractor) to construct and fit out Sandwell Aquatics Centre, and the activity of TfWM and contractors to provide Games-related transport services, data on the spend with contractors was used.

¹² https://thecgf.com/sites/default/files/2020-05/CG_Value_Framework_v1.pdf

¹³ ONS, 'Measuring the economic impact of an intervention, Paper One', 2010. Available from: <http://webarchive.nationalarchives.gov.uk/20160105160709/http://ons.gov.uk/ons/rel/regional-analysis/measuring-the-economic-impact-of-an-intervention-or-investment/measuring-the-economic-impact-of-an-intervention-or-investment/economic-impact-paper-one.pdf>

¹⁴ In order to account only for the activity associated with the planning and delivery of the Games events, payroll costs associated to staff who worked on the delivery of the Culture Programme and the Youth and Learning legacy programme were excluded from the analysis.

BCC, SMBC and TfWM separately provided data on their contractors spend over the period between FY 2018/19 and FY 2022/23. The data provided covered:

- the annual spend by contractor;
- the contractors' geographic location based on postcode; and
- an indication of the industry of the contractor.¹⁵

Based on the information on the industry of contractor, Standard Industrial Classification ("SIC") codes were assigned to each contractor.

The contractor spend was then converted into GVA using the relevant industry specific GVA to Output ratio sourced from the ONS¹⁶.

$$\text{Direct GVA} = \sum_{i=1}^n \text{contractor spend for sector } i * (\text{GVA to output ratio for sector } i)$$

The total direct GVA associated with the planning and delivery of the Games events was then estimated by summing the direct GVA generated by the OC, the direct GVA generated by the main contractor engaged to construct the Sandwell Aquatics Centre and the direct GVA generated by the activity of BCC, SMBC, TfWM and their contractors engaged to redevelop Alexander Stadium, construct and fit out Sandwell Aquatics Centre, and provide Games-related transport services.

2.1.3 Approach to indirect GVA impact calculations

The indirect GVA impacts referred to in the report consist of:

- The indirect GVA impact generated by the direct suppliers that the OC contracted with to plan and deliver the Games events, and the indirect GVA impact generated by the direct suppliers' own supply chain.
- The indirect GVA impact generated by the direct suppliers of the main contractor engaged to construct Sandwell Aquatics Centre, and the indirect GVA impact generated by the direct suppliers' own supply chain.
- The indirect GVA impacts generated by the supply chain of the contractors engaged to redevelop Alexander Stadium, and provide Games-related transport services as well as by the contractors engaged to construct and fit out Sandwell Aquatics Centre (excluding the main contractor engaged to construct the Sandwell Aquatics Centre).

To inform the analysis of the indirect impacts generated through the OC procurement spend, the OC provided data on its supplier spend between FY 2018/19 and end September 2022¹⁷, including the category of spend¹⁸, the level of spend with each supplier and the location of the suppliers based on postcodes. It should be noted that the geographic analysis of the OC's supply chain, and the indirect impacts associated with this, is based on OC procurement data and the invoicing postcode of the OC's direct (tier 1) suppliers. It is likely that the invoicing address is not fully representative of the geographic location in which supplier activity takes place, affecting the results of our geographic analysis, likely skewing it toward locations in which businesses tend to be headquartered.

¹⁵ It should be noted that the level of detail provided regarding the information on the industry of the contractors and their geographic location varied across the information received by the three organisations.

¹⁶ ONS (2019) [Input-output supply and use tables](#)

¹⁷ In order to account for only the spend associated with the planning and delivery of the Games events, expenditure incurred to deliver the Culture Programme and the Youth and Learning legacy programme was excluded from the dataset.

¹⁸ This refers to the type of expenditure incurred e.g. 'Printing & Stationery'.

As the OC was unable to provide the relevant SIC code for each supplier, each category of spend was assigned to a SIC code based on the nature of the spend.

The indirect GVA associated with this spend with direct suppliers to the OC (indirect tier 1 GVA) was estimated by converting the spend into GVA using the relevant industry specific GVA to Output ratio sourced from the ONS¹⁹.

Indirect tier 1 GVA generated through OC activities

$$= \sum_{i=1}^n \text{OC tier 1 supplier spend for sector } i * (\text{GVA to output ratio for sector } i)$$

To estimate the indirect GVA associated with the wider supply chain, beyond the tier 1 suppliers, the relevant industry specific GVA multipliers from the ONS²⁰ were applied to the indirect tier 1 GVA, based on the SIC code of the supplier.

Indirect wider supply chain GVA generated through OC activities

$$= \sum_{i=1}^n \text{Indirect tier 1 GVA for sector } i \\ * (\text{sector Type I GVA multiplier for sector } i - 1)$$

The indirect GVA for tier 1 suppliers was then summed with the wider supply chain indirect GVA.

The indirect impacts generated by the supply chain of the contractors engaged to redevelop Alexander Stadium, and provide Games-related transport services, was estimated by applying the relevant industry specific GVA multipliers from the ONS to the estimated direct GVA (see Section 2.1.2), based on the SIC code of the contractor.

Indirect GVA generated through BCC, TfWM and contractors' supply chain activities

$$= \sum_{i=1}^n \text{Direct GVA generated through BCC, TfWM and contractors' activities for sector } i \\ * (\text{Type I GVA multiplier for sector } i - 1)$$

This approach was also used to estimate the indirect impacts associated with the supply chain for the construction of the Sandwell Aquatics Centre where the details of the tier 1 suppliers were not known. However, where details of the tier 1 suppliers of the main contractor engaged to construct Sandwell Aquatics Centre were available, an approach aligned to the one used to estimate the indirect impacts generated through OC activities was applied.

The total indirect GVA associated with the planning and delivery of the Games events was then estimated by summing each of the areas of indirect GVA detailed above.

2.1.4 Approach to induced GVA impact calculations

Induced GVA was estimated using Type II GVA multipliers derived from the ONS Input-Output tables.

Typically, Type II multipliers are applied to direct GVA and estimate the total indirect and induced GVA impact. Therefore, to arrive to the induced GVA, the indirect GVA (based on the Type I multiplier) would be removed from the estimate.

¹⁹ ONS (2019) [Input-output supply and use tables](#)

²⁰ ONS, 2015 [Input-Output Analytical Tables, Multipliers and effects \(product\)](#)

$$\text{Induced GVA} = \sum_{i=1}^n \text{Direct GVA for sector } i * (\text{Type II GVA multiplier for sector } i - \text{Type I GVA multiplier for sector } i)$$

Reflecting the approach to calculating indirect GVA (based on input output modelling rather than bespoke supplier analysis) induced GVA impacts generated through the activities of BCC, TfWM and SMBC and their contractors (excluding activities carried out by SMBC's main contractor engaged to deliver the construction of the Sandwell Aquatics Centre, which is covered below), and the activities of their supply chains, was estimated by applying the formula above.

For the OC and the main contractor engaged in the construction of the Sandwell Aquatics Centre, where details of the tier 1 suppliers were known, the induced GVA relating to the direct activities was estimated separately from that relating to the supply chain (tier 1 and wider supply chain).

In order to estimate the induced GVA impacts generated through the OC's direct activities and the direct activities of the main contractor engaged in the construction of the Sandwell Aquatics Centre, the total induced GVA estimated based on the Type II GVA multiplier through the equation above, was scaled down to remove the element that relates to induced GVA from supply chain activity:

$$\text{Scale down factor} = \frac{1}{\text{Sector specific Type I GVA multiplier}}$$

The induced GVA impacts generated through the supply chain to the OC and to the main contractor engaged in the construction of the Sandwell Aquatics Centre, were estimated by applying the sector specific Type II GVA multipliers to the estimated sector specific indirect tier 1 GVA impacts (see Section 2.1.3).

The total induced GVA associated with the planning and delivery of the Games events was then estimated by summing each of the areas of induced GVA detailed above.

2.2 Approach to employment impact calculations

The methodology for estimating employment impacts mirrors those for GVA, but uses employment multipliers from the ONS Input-Output tables rather than GVA multipliers. Throughout the report, employment is measured in:

- Full Time Equivalent (FTE) terms: this adjusts part time or temporary staff into annual full-time equivalents based on the proportion of full-time hours worked over a year; and
- FTE years of employment: this refers to the number of FTE jobs lasting an equivalent of one year created over the period assessed.

2.2.1 Approach to direct employment impact calculations

The OC direct employment was sourced directly from the OC.

The OC provided data on the number of staff (both in headcount and FTE terms) employed over the period between FY 2018/19 and end September 2022. It should be noted that the FTE figures were also adjusted for the length of employment of individuals to capture annual FTEs.

Data on the number of direct employees working on the redevelopment of Alexander stadium, construction of Sandwell Aquatics Centre, and the provision of Games-time transport services was not available for this study. Therefore, direct employment associated with these projects was estimated

using the estimated direct GVA associated with these activities. The sector specific GVA per FTE²¹ ratios were applied to the direct GVA generated through BCC, SMBC, TfWM and contractors' activities (see Section 2.1.2).

$$\begin{aligned} & \text{Direct employment generated through BCC, SMBC, TfWM and contractors' activities} \\ &= \sum_{i=1}^n \text{Direct GVA generated through BCC, SMBC, TfWM and contractors' activities for sector } i \\ & \quad * (\text{GVA per FTE ratio for sector } i) \end{aligned}$$

The total direct employment associated with the planning and delivery of the Games events was estimated by summing OC direct employment, and the direct employment generated through BCC, SMBC, TfWM and contractors' activities.

2.2.2 Approach to indirect employment impact calculations

As with the approach to estimating indirect GVA impacts, the approach to estimating indirect employment varies dependent on the level of data available on the Tier 1 suppliers supporting the direct activity.

The employment impacts in the Tier 1 supply chain of the OC and of the main contractor engaged to construct Sandwell Aquatics Centre were estimated based on the estimated indirect Tier 1 GVA impacts estimated in Section 2.1.3. These indirect GVA impacts were converted into FTEs using industry specific GVA per FTE ratios.

Employment in the wider supply chains of the OC and of the main contractor engaged to construct the Sandwell Aquatics Centre was estimated by taking the estimated employment for Tier 1 suppliers and applying the applicable industry's Type 1 employment multiplier. The indirect employment generated through the activities of the OC and of the main contractor engaged to construct the Sandwell Aquatics Centre was estimated as follows:

$$\text{Indirect Tier 1 employment} = \sum_{i=1}^n \text{Indirect tier 1 GVA for sector } i * (\text{GVA per FTE ratio for sector } i)$$

$$\begin{aligned} & \text{Indirect wider supply chain employment} \\ &= \sum_{i=1}^n \text{Indirect tier 1 employment for sector } i \\ & \quad * (\text{Type 1 employment multiplier for sector } i - 1) \end{aligned}$$

$$\text{Indirect employment} = \text{Indirect Tier 1 employment} + \text{Indirect wider supply chain employment}$$

Indirect employment associated with the redevelopment of Alexander stadium, the provision of Games-time transport services, and the construction of Sandwell Aquatics Centre (excluding activities carried out by SMBC's main contractor engaged to deliver the construction of the Sandwell Aquatics Centre, which is covered above) was estimated by taking the estimated direct employment associated to these projects and applying the applicable industry's Type 1 employment multiplier.

²¹ To estimate the sector average GVA per employee, in FTE terms, we had to first estimate the number of FTEs for each SIC code as the ONS does not publish FTE breakdown by industry. We estimated this using total employment figures from the ONS Business Register and Employment Survey 2019, which states both full-time and part-time employment figures which was converted to FTE using an FTE conversion factor based on the average number of hours work per week by part-time workers sourced from the ONS. This figure was then used to estimate the GVA per FTE.

The total indirect employment associated with the planning and delivery of the Games events was estimated by summing each of the areas of indirect employment detailed above.

2.2.3 Approach to induced employment impact calculations

Finally, the planning and delivery of the Birmingham 2022 Games events also generated induced employment in the UK economy. This was generated through the OC employees and those employed for the delivery of the Sandwell Aquatics Centre, Alexander Stadium and the Games-time transport developments, as well as the employees supported in the supply chains associated with these, spending a proportion of their wages on UK goods and services.

Induced employment generated through the activities of BCC, TfWM and SMBC and their contractors (excluding activities carried out by SMBC's main contractor engaged to deliver the construction of the Sandwell Aquatics Centre, which is covered below), and the activities of their supply chains, was estimated by applying sector specific Type II employment multipliers to the estimated direct employment relating to these activities.

Induced employment generated through the spend of the OC direct employees and the spend of the direct employees of the main contractor engaged in the construction of the Sandwell Aquatics Centre was estimated by applying the sector specific Type II employment multiplier to the estimated direct employment relating to these elements, and then scaled down by the following factor (similar to that used in the estimation of induced GVA relating to these elements - see Section 2.1.4):

$$\text{Scale down factor} = \frac{1}{\text{Sector specific Type I employment multiplier}}$$

The induced employment impacts generated by the wages of those employed in the supply chains to the OC and to the main contractor engaged in the construction of the Sandwell Aquatics Centre, were estimated by applying the sector specific Type II GVA multipliers to the estimated indirect tier 1 employment (see Section 2.1.3).

The total induced employment associated with the planning and delivery of the Games events was estimated by summing each of the areas of induced employment detailed above.

2.3 Approach to regional impact calculations

The geographic distribution of the estimated GVA and employment effects associated with the planning and delivery of the Games events were estimated as part of this analysis to report the impacts at the Birmingham, West Midlands and UK levels.

The OC provided details of the geographic location associated with its own activities and for its tier 1 suppliers. BCC, SMBC and TfWM also provided details of the geographic location of the contractors delivering the development of Alexander Stadium, the construction and fit out of the Sandwell Aquatics Centre, and the provision of Games-time transport services. The main contractor engaged to construct the Sandwell Aquatics Centre also provided details of the geographic location of its tier 1 suppliers. These data were used to determine the geographic locations in which the associated GVA and employment impacts were generated.

Having determined the geographic locations in which the direct impacts were generated and the indirect impacts associated with the OC's tier 1 suppliers, and the tier 1 suppliers of the main contractor engaged to construct the Sandwell Aquatics Centre, the geographic distributions of the wider supply chain impacts across Birmingham, the West Midlands and the UK were estimated based on input-output modelling of the industrial sector breakdown of the wider supply activity and the geographic dispersion of these input sectors across the UK.

Specifically, the regional analysis was produced using a bespoke localised input-output modelling approach that adapts the national level tables to reflect the ratios of local level economic activity to national level economic activity, at the sector level. This is based on the widely used approach developed by the academics Flegg and Webber.²²

²² See: Flegg and Webber. 2000. 'Regional Size, Regional Specialization and the FLQ Formula'. *Regional Studies*. 34(6): 563-569.

ONS 2017 Input-Output Analytical Tables, Multipliers and effects. Available at:
<https://www.ons.gov.uk/economy/nationalaccounts/supplyandusetables/datasets/ukinputoutputanalyticaltables-detailed>

3 Approach to estimating the short-term economic impacts generated through attracting visitors to the West Midlands

3.1 Introduction

To analyse the economic impacts generated by the spend incurred by the visitors to the West Midlands associated with the Birmingham 2022 Games events, evidence from two key surveys was used. These provided data and information to enable the analysis of the additional expenditure, and associated economic impact, of Games-related visitors²³.

These two surveys were:

- the Visitor Survey commissioned by WMGC carried out on the ground in and around key Games venues and other visitor locations across the West Midlands with a sample of 1,026 visitors to the area, in the field from 28th July 2022 to 8th August 2022; and
- the Spectator Survey - a post-Games online survey of those who purchased tickets through Ticketmaster commissioned by the OC, with a sample of over 22,000 ticket holders, in the field from 11th August 2022 to 21st August 2022.

Details of the WMGC Visitor Survey and the OC Spectator Survey are provided in Section 1 of this Annex.

Data from the OC on ticket sales and attendee data was also used in the analysis.

In line with the economic impacts associated with the planning and delivery of the Games events (see Section 1), the short-term economic impacts generated through the attendee spending resulting from attracting visitors to Birmingham and the West Midlands were estimated in terms of:

- **Direct impacts:** the first-round effects where visitor spending in the West Midlands during Games-time generated business activity and output through its UK operations.
- **Indirect impacts:** the effects generated through the activities in the supply chain as a result of visitor spend during Games events.
- **Induced impacts:** the multiplier effects that arise in the UK economy as a result of those employed in the supply chain, for example, hospitality, spending a portion of their wages in the UK. This spending generates additional economic activity for those businesses from which these employees buy goods and services and these businesses' own wider supply chains.

3.2 Approach to estimating total gross spend of Games-related visitors

As part of the WMGC Visitor Survey and the OC Spectator Survey, respondents were asked to provide an indication of how much they (i.e. the person being surveyed and the people they were travelling/ visiting with) had collectively spent in the following spend categories:

²³ Games-related visitors are visitors to Birmingham and the West Midlands (both from within and outside the area) whose main purpose of being in the area was to attend or participate in a Games-related event or activity (e.g. attending a ticketed event, free-to-view event or live site).

- Accommodation;
- Food and drink;
- Entertainment (including admissions to attractions, theatre, cinema tickets, guided tours, etc.);
- Travel and transport in the area (including fuel, fares, car parking charges, etc.);
- Commonwealth Games tickets;
- Shopping;
- Anything else.

Spend on Commonwealth Games tickets was excluded from the analysis of the short-term economic impacts associated with visitors spend to avoid double counting, as the revenues from this spending are captured in the OC data and therefore forms part of the short-term economic impacts associated with the planning and delivery of the Games events.

To take into account differences in the amount spent by different type of visitors, the average spend per attendee, for each of the categories of spend detailed above, was estimated for the following groups:

- West Midlands residents who attended ticketed Games events;
- West Midlands residents who attended non-ticketed Games events;
- Non-West Midlands residents who attended ticketed Games events; and
- Non-West Midlands residents who attended non-ticketed Games events.

The total spend incurred by Games-related visitors was then estimated by scaling up the average spend of these type of visitors by:

- the estimated total number of ticketed attendees from the West Midlands;
- the estimated total number of ticketed attendees from outside the West Midlands;
- the estimated number of non-ticketed attendees from the West Midlands; and
- the estimated number of non-ticketed attendees from outside the West Midlands.

The total number of ticketed attendees from the West Midlands and from outside of the West Midlands was estimated by scaling the OC data on the total number of ticketed attendees to the proportion of tickets sold to West Midlands and non-West Midlands residents.

The number of non-ticketed attendees from the West Midlands and from outside of the West Midlands was estimated based on:

- the proportion of respondents to the WMGC survey who attended non-ticketed Games events and were from the West Midlands and from outside the West Midlands;
- the proportion of respondents to the WMGC survey who attended ticketed Games events and were from the West Midlands and from outside the West Midlands;
- the estimated number of ticketed attendees from the West Midlands and from outside of the West Midlands.

The total spend incurred by Games-related visitors was then estimated as follows:

Total Games – related visitors' spend

= total spend by West Midlands residents attending ticketed Games events

+ total spend by non West Midlands residents attending ticketed Games events

+ total spend by West Midlands residents attending non ticketed Games events

+ total spend by non West Midlands residents attending non ticketed Games events

3.3 Approach to estimating gross GVA and employment impacts

To estimate the GVA impacts associated with the spending of Games-related attendees, the estimated total Games-related visitors' spend was used.

In order to convert the visitors' spend into direct GVA, SIC codes were assigned to each category of spend (see Table 5 below).

Table 5: SIC spend categories

Spend Category	SIC Code	Description of SIC Code
Accommodation	55	Accommodation services
Food and drink	56	Food and beverage serving services
Entertainment (including admissions to attractions, theatre, cinema tickets, guided tours, etc.)	93	Sports services and amusement and recreation services
Travel and transport in the area (including fuel, fares, car parking charges, etc.)	49.2	Rail transport services
Shopping	47	Retail trade services, except of motor vehicles and motorcycles
Anything else	96	Other personal service activities

Source: ONS

Visitor spend in each spend category was then converted into direct GVA using the relevant industry specific GVA to Output ratio for the associated SIC Code sourced from the ONS²⁴.

Indirect and induced GVA were estimated by applying the relevant sector specific Type I and Type II GVA multipliers to the estimated direct GVA associated with each spend category.

To estimate the direct employment associated with the visitors' spending, the sector specific GVA per FTE²⁵ ratios were applied to the estimated direct GVA impacts associated with the spending of Games-related visitors.

Indirect and induced employment were then estimated by applying sector specific Type I and Type II employment multipliers to the estimated direct employment associated with each spend category.

3.4 Approach to estimating the total net spend of Games-related visitors and the associated net GVA and employment impacts

Section 3.2 above details the approach taken to estimate the actual (gross) spending of Games-related visitors whilst attending the Games-related events. However, some of this spending may have

²⁴ ONS (2019) [Input-output supply and use tables](#)

²⁵ To estimate the sector average GVA per employee, in FTE terms, we had to first estimate the number of FTEs for each SIC code as the ONS does not publish FTE breakdown by industry. We estimated this using total employment figures from the ONS Business Register and Employment Survey 2019, which states both full-time and part-time employment figures which was converted to FTE using an FTE conversion factor based on the average number of hours work per week by part-time workers sourced from the ONS. This figure was then used to estimate the GVA per FTE.

occurred at the expense of spending on an alternative activity which would have been undertaken instead.

In order to understand the additional economic impact for the West Midlands and the UK²⁶, the level of expenditure incurred by Games-related visitors that was over and above what would otherwise have been spent on any alternative activities has been assessed.

This assessment is based on evidence obtained via the OC survey. Respondents were asked about what, if anything, they would have spent in each category of spend had they not attended Games-related events, and where geographically (within the West Midlands, elsewhere in the UK, or outside of the UK) this spend would have been.

Based on this, by taking the difference between the actual spend of Games-related visitors whilst attending Games-related events, and what they would have otherwise spent had they not attended Games-related events, the additional non-displacing spend (i.e. the net spend) of Games-related visitors was estimated.

The additional spend was estimated at the West Midlands and UK level by taking into consideration where the Games-related visitors would have otherwise spent money had they not attended Games-related events.

The additional spend at the West Midlands and UK level was then converted into GVA and employment following the methodology detailed in Section 3.3.

²⁶ The level of information gathered through the survey does not allow to report results at the Birmingham level.

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