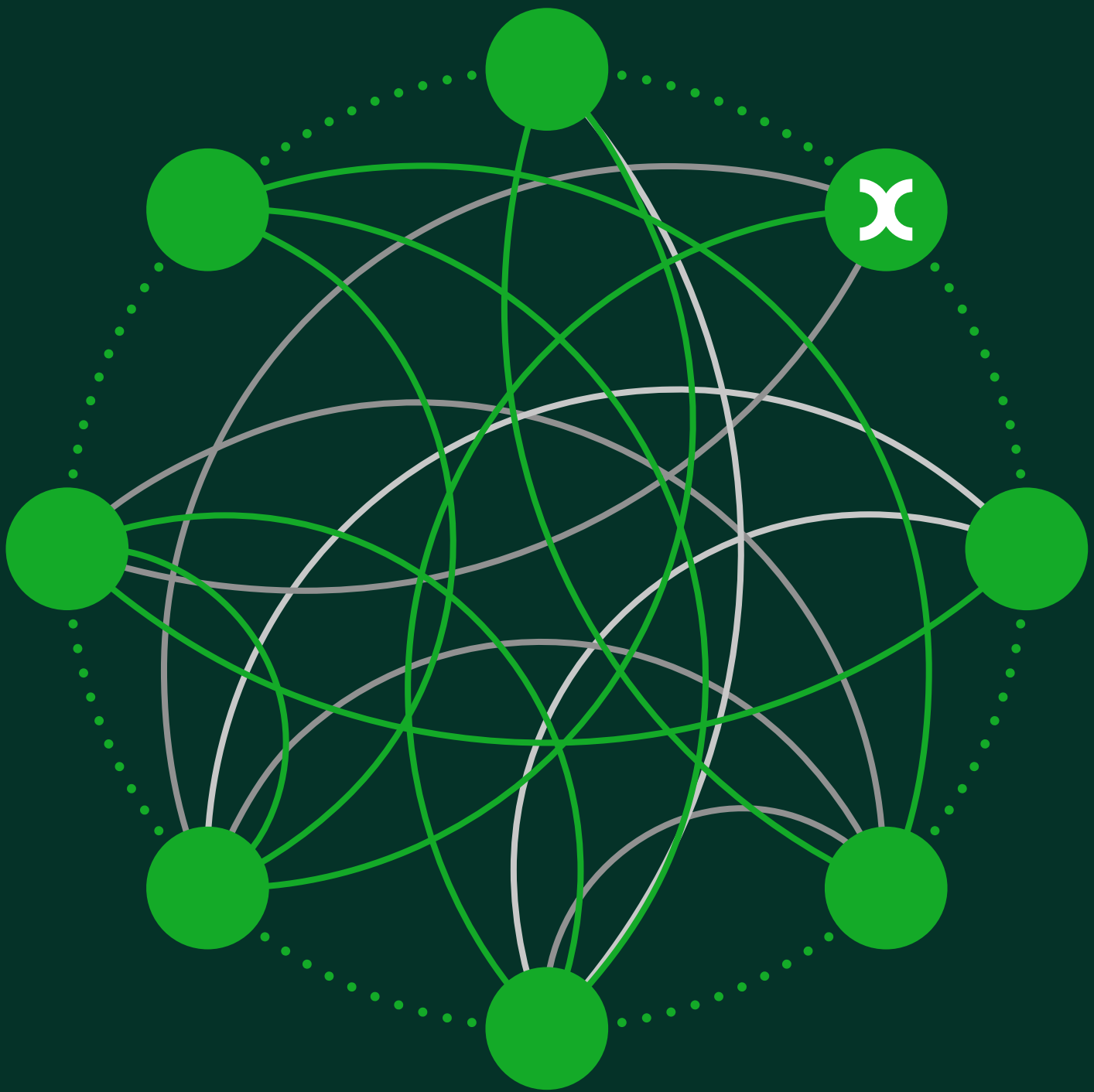
Local economic impact of Gatwick Airport: 2021

14 August 2023



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This report presents Oxera's assessment of the economic impact of Gatwick Airport in 2021.

The economic impact is made up of the direct, indirect, induced and catalytic effects (defined in the table below) and provides a measure of the scale of economic activity associated with Gatwick Airport. It is measured as the total number of jobs[1] and gross value added (GVA) supported by the airport.

Components of the economic impact

Impact	Description
Direct footprint	Employment and GVA associated with activities at the Gatwick Airport campus. This covers both Gatwick Airport Limited (GAL) and the other firms that operate on site (e.g. airline staff, airport management, immigration and customs staff, and retail staff).
Indirect footprint	Employment and GVA associated with the activity of firms in Gatwick Airport's supply chain (e.g. aircraft parts manufacturers and food and beverage suppliers).
Induced footprint	Employment and GVA associated with the spending of wages by direct and indirect employees (e.g. at restaurants and hairdressers).
Catalytic effect	Employment and GVA associated with firms choosing to locate or expand near to the airport because of the business opportunities that it offers (e.g. a professional services firm locating in the area in order to benefit from the international connectivity that the airport offers).

Note: Employment is measured by headcount.
Source: Oxera.

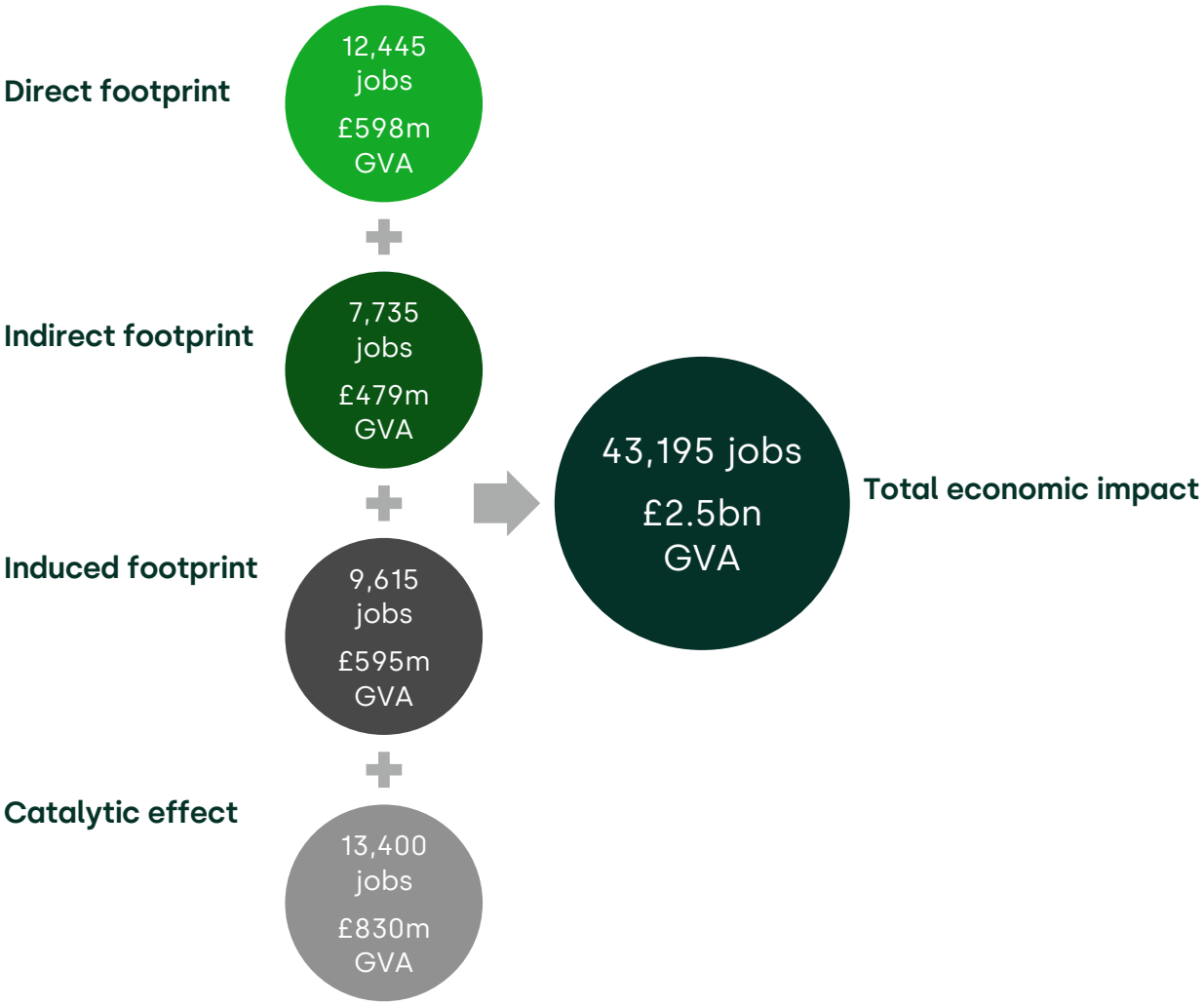
The methodology that we have used to estimate the economic impact is based on analysis conducted in the context of the Northern Runway Project (NRP) Development Consent Order (DCO) application. However, in some instances we make adjustments to reflect the assessment of the economic impact of Gatwick Airport as a whole,[2] and the impact of the COVID-19 pandemic in 2021.[3]

Indeed, 2021 was exceptional due to the impact of the COVID-19 pandemic on the aviation sector and the economy more generally. Gatwick Airport experienced a significant reduction in passenger numbers due to travel restrictions and changes in behaviour caused by the pandemic. GAL and other firms on site responded by reducing working hours for employees where possible, and preserving jobs through the use of the government's Coronavirus Job Retention Scheme (the 'Furlough Scheme').

Despite the negative effect of the COVID-19 pandemic, Gatwick Airport continued to provide significant positive value to the UK economy, as shown in the figure below.

[1] Measured by headcount.
[2] The economic footprint analysis conducted for the NRP DCO application assesses the footprint of the NRP itself (i.e. the difference in the activity supported by the Airport with the NRP relative to the activity supported by the Airport without the NRP), rather than the footprint of the airport as a whole.
[3] The adjustments made are discussed in more detail in the main report.

Total UK economic impact of Gatwick Airport in 2021



Note: Employment is measured by headcount and does not include furloughed employees. Employment figures are rounded to the nearest five and GVA figures are presented in 2022 real prices. The numbers presented in the figure show the total economic impact of Gatwick Airport to the UK economy. The attribution of the economic footprint to the local area surrounding the airport is discussed in more detail in the main report. Figures may not sum due to rounding.
Source: Oxera.

In summary, Gatwick Airport supported 43,195 jobs in the UK in 2021 (not including furloughed employees), which is the sum of the direct footprint (12,445), indirect footprint (7,735), induced footprint (9,615) and catalytic effect (13,400).[4] This is equivalent to the creation of approximately £2.5bn in GVA by Gatwick Airport in the UK in 2021.[5] Relative to 2019 (the pre-COVID-19 benchmark), the economic footprint of Gatwick Airport declined by around 60% in 2021. However, given the easing of travel restrictions and the waning of the pandemic, we expect economic activity at Gatwick Airport and its footprint to increase again in future years.

[4] Figures are rounded to the nearest five and may not sum due to rounding. Employment is measured by headcount and does not include furloughed employees.
[5] GVA figures are presented in 2022 real prices.

1 Introduction

This report presents the economic impact of Gatwick Airport in 2021. The economic impact is a measure of the economic activity, both on site and off site,[6] that is supported by Gatwick Airport, and consists of direct, indirect and induced footprint and catalytic effects.[7] Our methodology to estimate the economic impact is based on analysis conducted in the context of the Northern Runway Project (NRP) Development Consent Order (DCO) application. However, in some instances we make adjustments to reflect the assessment of the impact of Gatwick Airport as a whole,[8] and the impact of the COVID-19 pandemic in 2021. These adjustments are discussed in subsequent sections of this report.

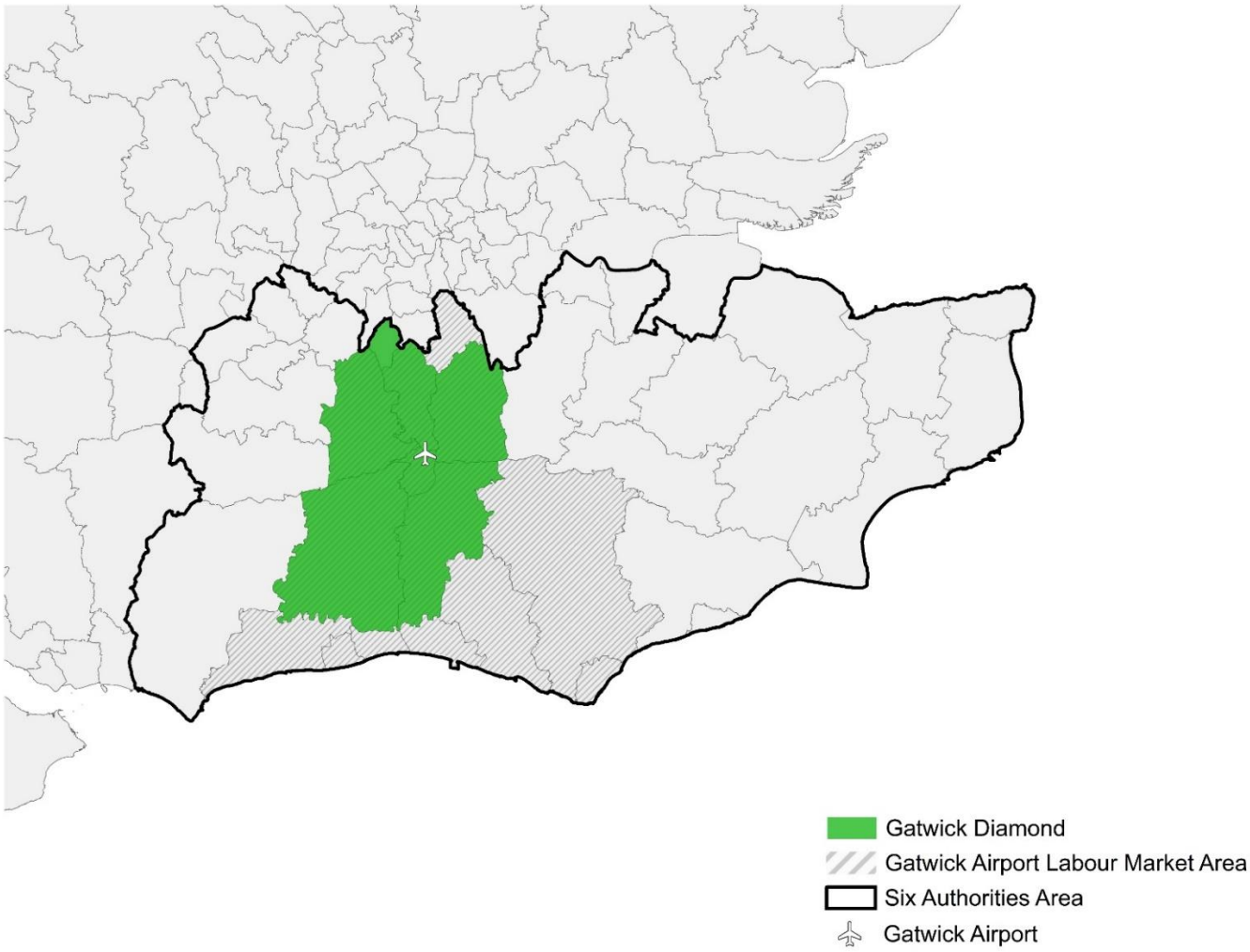
We have assessed the economic impact of Gatwick Airport with reference to four sub-national areas as follows.

- The smallest area, known as the **Gatwick Diamond**, comprises the seven local authority districts (LADs) around the airport (Epsom and Ewell, Mole Valley, Reigate and Banstead, Tandridge, Crawley, Mid Sussex, and Horsham).
- The **Gatwick Airport Labour Market Area** comprises the 14 LADs that provide a large proportion of the airport's direct labour demand:[9] (Mole Valley, Reigate and Banstead, Tandridge, Crawley, Mid Sussex, Horsham, Croydon, Brighton and Hove, Lewes, Worthing, Arun, Adur, Wealden, and Eastbourne).
- The largest study area, known as the **Six Authorities Area**, is assumed to be defined by the border of the 'local area' on which the airport has an impact. It covers the county council areas of West Sussex, East Sussex, Surrey, and Kent,[10] the Unitary Authority of Brighton and Hove, and the London Borough of Croydon.
- The **rest of the UK** comprises the UK excluding the Six Authorities Area as defined above.

The geographic scope of the three local study areas—the Gatwick Diamond, the Gatwick Airport Labour Market Area, and the Six Authorities Area—is shown in Figure 1.1 below.

[6] 'On site' refers to activity that occurs on the Gatwick Airport campus. 'Off site' refers to activity associated with Gatwick Airport that occurs off the Gatwick Airport campus, such as activity within the supply chain of the airport.
[7] See section 2 and section 3 for more information.
[8] The economic impact analysis conducted for the NRP DCO application assesses the impact of the NRP itself (i.e. the difference between the activity supported by the airport with the NRP and the activity supported by the airport without the NRP), rather than the impact of the airport as a whole.
[9] This is estimated based on the residency of direct employees from passholder data for the Gatwick site for 2016. In 2016, c. 70% of employees lived in the 14 LADs that make up the Gatwick Airport Labour Market Area.
[10] It does not include the Unitary Authority of Medway, which is run by Medway Council and is independent of Kent County Council.

Figure 1.1 Local study areas



Source: Oxera.

It is important to note that, over the course of 2021, the COVID-19 pandemic caused significant disruption to the aviation industry and the UK economy as a whole. Gatwick Airport was required to adapt its operations in response to public health measures and travel restrictions that prevented passengers from travelling and reduced traffic substantially. Indeed, total passenger numbers at Gatwick Airport were just 6.2m in 2021—an 86% decrease from the 46.6m passengers in 2019.[11]

In these exceptional circumstances, Gatwick Airport Limited (GAL) and other companies on site responded by reducing working hours for employees where possible, and preserving jobs through the use of the government's Coronavirus Job Retention Scheme (the 'Furlough Scheme').

The remainder of this report is structured as follows:

- section 2 discusses the economic footprint of Gatwick Airport;
- section 3 discusses the catalytic effect of Gatwick Airport;
- section 4 concludes;

[11] Civil Aviation Authority website, 'UK airport data'.

- appendix A1 presents the total economic footprint disaggregated by LAD. Appendix A2 provides more detail on the methodology.

2 The economic footprint of Gatwick Airport

2.1 Introduction

This section presents the economic footprint of Gatwick Airport in 2021. The economic footprint is a measure of the scale of the economic activity supported by the airport, measured by employment and gross value added (GVA).[12]

The economic footprint consists of three components, defined in Table 2.1.

Table 2.1 Components of the economic footprint

Impact	Description
Direct footprint	Employment and GVA associated with activities at the Gatwick Airport campus. This includes both GAL and the other firms that operate on site (e.g. airline staff, airport management, immigration and customs staff, and retail staff).
Indirect footprint	Employment and GVA associated with the activity of firms in Gatwick Airport's supply chain (e.g. aircraft parts manufacturers and food and beverage suppliers).
Induced footprint	Employment and GVA associated with the spending of wages by direct and indirect employees (e.g. at restaurants and hairdressers).

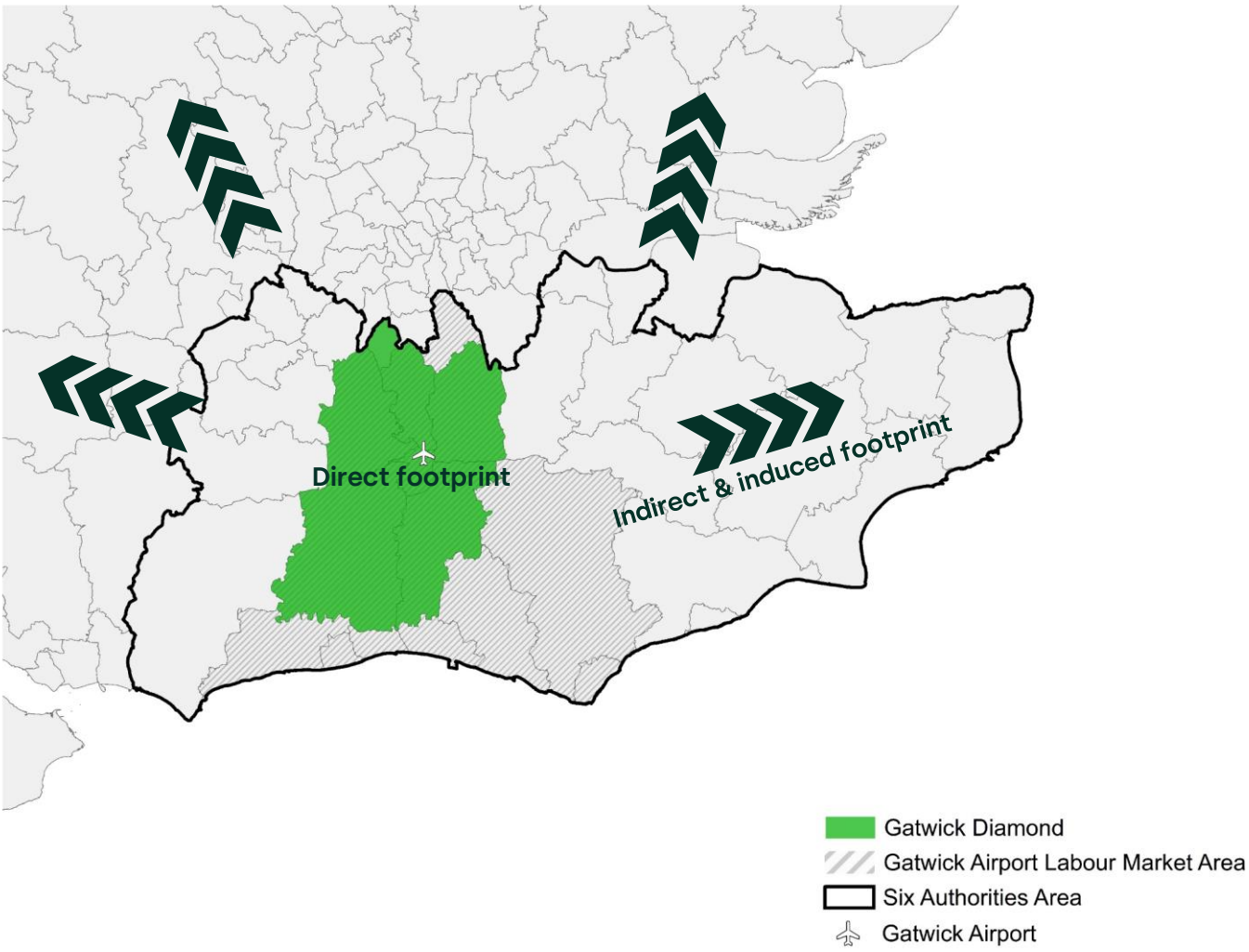
Note: Employment is measured by headcount.
Source: Oxera.

Figure 2.1 below illustrates the geographic reach of each impact relative to the study areas defined in section 1, as follows.

- **The direct footprint** occurs on site at the airport, since it relates to the GVA and employment that are directly associated with GAL and other firms operating at the airport.
- **The indirect and induced footprint** occurs within the local area (i.e. the Six Authorities Area) as well as across the rest of the UK.[13] This is because suppliers to Gatwick Airport may be located anywhere in the country (indirect activity) and direct and indirect employees may spend wages locally or elsewhere in the country (induced activity).

[12] The economic footprint is a measure of the 'gross' activity supported by the airport, not accounting for how labour and resources might be used in the absence of the airport.
[13] While we recognise that suppliers to the airport could be located outside of the UK, our analysis focuses on the impact of the airport within the UK.

Figure 2.1 Geography of economic footprint



Source: Oxera.

We discuss each of the footprint impacts in turn in the following subsections.

2.2 Direct footprint

2.2.1 Estimation of the direct footprint

The direct footprint is the economic activity directly associated with GAL and other firms operating at the Gatwick Airport campus. It is measured by direct employment and direct GVA as follows.

- **Direct employment** is equal to the sum of GAL employment and the employment associated with other firms operating at the airport.
- **Direct GVA** is calculated using the income approach and is equal to the sum of operating surplus, worker compensation and taxes (minus subsidies) for activities located on site at Gatwick Airport.[14]

[14] See Office for National Statistics (2019), 'Regional accounts methodology guide: June 2019', section 3.

The direct footprint of GAL and the other firms operating at the airport in 2021 and 2019 (the pre-COVID-19 benchmark) is presented in Table 2.2.

Table 2.2 Direct footprint of Gatwick Airport

	2021		2019	
	Employment	**GVA (m)**	**Employment**	**GVA (m)**
GAL	1,140	£59	3,205	£676
Other on-site firms	11,305	£539	20,890	£949
Total direct footprint	**12,445**	**£598**	**24,095**	**£1,625**

Note: Employment is measured by headcount and does not include furloughed employees in 2021. Employment figures are rounded to the nearest five and GVA figures are rounded to the nearest million and are presented in 2022 real prices. Figures may not sum due to rounding. Figures for 2019 are estimated as part of analysis for the NRP DCO application.
Source: Oxera.

An overview of the method used to calculate the footprint of GAL and the other firms operating at the airport is given in Table 2.3.

Table 2.3 Calculation of direct employment and GVA (2021)

	Direct employment	**Direct GVA**
GAL	Total monthly employment figures were obtained from GAL, and were adjusted to account for the percentage of employees not working as a result of the Furlough Scheme.[1] Total 2021 employment is calculated as the average of furlough-adjusted monthly employment.	This was estimated as the sum of earnings before interest, taxes, depreciation and amortisation (EBITDA) and total staff costs,[3] obtained from the 2021 GAL annual report.[4]
Other on-site firms	This was estimated based on the number of non-GAL passholders for the airport site in 2021,[2] adjusted for furlough. In the absence of alternative information, we have assumed that the same percentage of non-GAL employees were furloughed as GAL employees.	Non-GAL staff costs were estimated based on total non-GAL staff costs,[5] excluding government grants received due to the Furlough Scheme. Non-GAL GVA was estimated using the ratio of staff costs to GVA in the sectors present at the airport[6] obtained from Office for National Statistics (ONS) data.[7]

Notes and sources: [1] Section 2.2.2 sets out the impact of the COVID-19 pandemic on the direct footprint and the estimation of the total number of furloughed employees. [2] The total number of non-GAL passholders in 2021 was adjusted to remove the total number of Embassy staff in 2021, as these individuals are assumed to be unlikely to work at the airport site on a regular basis. Furthermore, the total number of non-GAL passholders in 2021 was reduced by 6% to reflect the proportion of passes that are assumed to not be in use regularly. This is based on passholder data from 2022 that shows that 6% of passes had not been used in the past six months since the data was extracted. Data for 2022 was used, as equivalent data for 2021 was not available. [3] Total GAL staff costs for 2021 obtained from the 2021 annual report are stated to be exclusive of government grants received as part of the Furlough Scheme. Ivy Holdco Limited (2021), 'Annual Report and the Consolidated and Parent Company Financial Statements for the year ended 31 December 2021', p. 87. [4] Ivy Holdco Limited (2021), 'Annual Report and the Consolidated and Parent Company Financial Statements for the year ended 31 December 2021'. [5] Estimated based on the average salary at Gatwick from the 2015/16 Travel to Work Survey, uplifted to 2021 prices by the increase in real UK Gross Domestic Product (GDP) per household. [6] Gatwick Airport Limited (2016), 'Gatwick Employer and Travel to Work Survey'. [7] Office for National Statistics (2020), 'UK Input-Output Analytical Tables (2018 data)'.

As shown in Table 2.2, despite the significant effects of the COVID-19 pandemic on the aviation sector, Gatwick Airport directly supported

12,445 jobs in 2021 after excluding furloughed employees, and generated £598m in GVA. When furloughed employees are included, Gatwick Airport directly supported 19,410 jobs.

The following subsections discuss the impact of the COVID-19 pandemic on the direct footprint (section 2.2.2), and present direct employment disaggregated to the study areas (section 2.2.3).[15]

2.2.2 Impact of the COVID-19 pandemic on the direct footprint

Similarly to many businesses around the UK, GAL and other companies operating at the airport used the UK government's Furlough Scheme in 2021 in order to preserve employment during the COVID-19 pandemic. The Furlough Scheme is described in more detail in Box 2.1.

Box 2.1 Coronavirus Job Retention (Furlough) Scheme

The Furlough Scheme was introduced in April 2020 with the aim of preserving employment during the COVID-19 pandemic. Under the scheme, the government paid 80% of employees' salaries (subject to a cap) for any hours not worked as a result of being furloughed. Employers were required to pay National Insurance contributions on the government's salary payments, and were required to pay employees' salaries for any hours that furloughed employees did work.

From July 2021, the government's salary contribution was gradually reduced to 70% in August 2021, then to 60% in September 2021. Employers were required to pay the remaining salary to ensure that furloughed employees received 80% of their salary for any hours not worked. The Furlough Scheme was closed on 30 September 2021.

Source: gov.uk (2021), 'Calculate how much you can claim using the Coronavirus Job Retention Scheme', 29 October; gov.uk (2020), 'Flexible furlough scheme starts today', news story, 1 July.

Impact on employment

In line with ONS guidelines,[16] we have excluded furloughed staff from Gatwick Airport's economic footprint since furloughed staff did not contribute to the airport's economic activity during the hours not worked. We calculated total direct employment as follows.

- GAL—using monthly employee headcount figures and the percentage of GAL employees not working at any given time during the month under the Furlough Scheme, we calculated annual GAL employment as the average of the total number of employees working (i.e. not furloughed) in each month.
- Other on-site firms—we obtained the total employee headcount from the number of non-GAL passholders for the airport site in 2021. In the absence of alternative information, we assumed that the

[15] We do not disaggregate direct GVA at a study area level, as the direct GVA is associated with the activity on the site of Gatwick Airport.
[16] Office for National Statistics (2020), 'Coronavirus and the effects on UK GDP', 6 May.

same percentage of non-GAL employees were furloughed in each month as GAL employees, and adjusted total non-GAL employment accordingly.[17]

The results of our analysis are set out in Table 2.4.

Table 2.4 Calculation of direct employment in 2021

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct–Dec[2]
GAL employees	1,827	1,819	1,813	1,802	1,790	1,781	1,773	1,766	1,768	1,752
Non-GAL employees[1]					17,626					
Percentage of employees not working at any given time due to furlough	52%	55%	58%	53%	48%	47%	45%	39%	33%	0%
Total GAL and non-GAL employees working	9,338	8,750	8,165	9,130	10,097	10,364	10,650	11,810	12,917	19,378
Annual average direct employment[3]	**12,445**									

Note: [1] The passholder data used to estimate the number of non-GAL employees was extracted on 5 May 2021. As such, the data provides a snapshot of non-GAL employment in 2021 rather than a view of how employment changed over the course of 2021. [2] The Furlough Scheme ended on 30 September 2021. As a result, the figures for October to December are reported together as the Furlough Scheme was not active. [3] Annual average direct employment is measured by headcount and is rounded to the nearest five.
Source: Oxera analysis, based on data obtained from GAL and Ivy Holdco Limited (2021), 'Annual Report and the Consolidated and Parent Company Financial Statements for the year ended 31 December 2021'.

As shown in Table 2.4, the percentage of employees not working due to furlough decreased over the course of 2021, as did the total number of GAL employees. By taking an average of monthly employment for the year, our approach accounts for changes in the total number of employees and the number of employees who were furloughed over the year.

Impact on GVA

Direct GVA is calculated using the income approach[18] as the sum of operating surplus, worker compensation and taxes (minus subsidies) for activities located on the site of Gatwick Airport. In line with ONS guidelines, we have excluded any government compensation received through the Furlough Scheme from total staff costs since these payments correspond to government subsidies.[19] We estimated staff costs for GAL and other on-site firms in the following way.

[17] The total number of non-GAL passholders in 2021 was adjusted to remove the total number of Embassy staff in 2021, as these individuals are assumed to be unlikely to work at the airport site on a regular basis. Furthermore, the total number of non-GAL passholders in 2021 was reduced by 6% to reflect the proportion of passes that are assumed to not be in use regularly. This is based on passholder data from 2022 that shows that 6% of passes had not been used in the past six months since the data was extracted. Data for 2022 was used, as equivalent data for 2021 was not available.
[18] Office for National Statistics (2019), 'Regional accounts methodology guide: June 2019', section 3.
[19] Office for National Statistics (2020), 'Coronavirus and the effects on UK GDP', 6 May.

- GAL—total GAL staff costs were obtained from GAL's annual accounts and are exclusive of furlough payments.[20]
- Other on-site firms—non-GAL staff costs were estimated using the average salary at Gatwick obtained from the 2015/16 Travel to Work Survey,[21] then increased to reflect the growth in wages over time using the increase in real GDP per household for the UK.[22] We then adjusted total non-GAL staff costs to exclude government grants received as part of the Furlough Scheme and to account for National Insurance contributions paid by employers on furloughed staffs' wages.

2.2.3 Direct employment by study area

While all direct activity occurs on site at the airport, we can disaggregate direct employment at the study area level based on the residency of airport employees obtained from Gatwick Airport passholder data.[23]

Table 2.5 summarises the direct employment supported in each study area, and Figure 2.2 presents the distribution of direct employment across the LADs in the local area. This provides an overview of the areas that benefit more significantly from the presence of Gatwick Airport in terms of the level of direct employment.

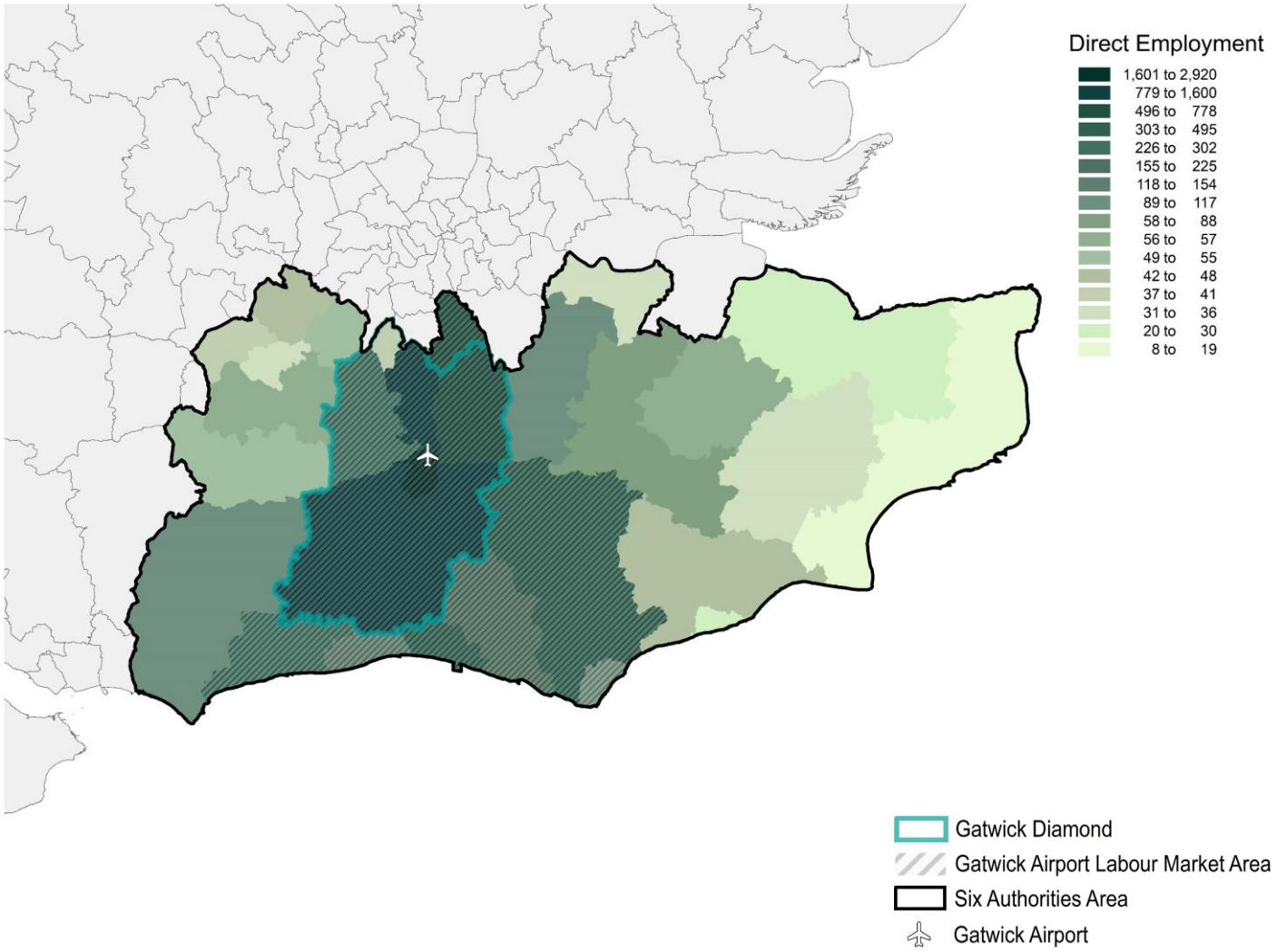
Table 2.5 Direct employment by study area

Area	2021	2019
Gatwick Diamond	7,370	12,680
Gatwick Airport Labour Market Area	9,455	16,855
Six Authorities Area	10,425	18,690
Rest of UK	2,020	5,405
Total	**12,445**	**24,095**

Note: The figures in the table show an estimate of where direct employees working at the airport reside. Employment is measured by headcount and does not include furloughed employees. Estimates for each local study area include overlaps between the regions as shown in Figure 1.1 and should not be considered as additive. All figures are rounded to the nearest five and may not sum due to rounding. Figures for 2019 are estimated as part of analysis for the NRP DCO application.
Source: Oxera.

[20] Ivy Holdco Limited (2021), 'Annual Report and the Consolidated and Parent Company Financial Statements for the year ended 31 December 2021', p. 87.
[21] Gatwick Airport Limited (2016), 'Gatwick Employer and Travel to Work Survey'.
[22] Department for Transport (2020), 'WebTAG databook', July.
[23] Data is for 2022. 2022 data was used, as equivalent data for 2021 was not available. The passholder data provided is anonymised.

Figure 2.2 Direct employment by local authority district (2021)



Note: The map shows the total number of direct employees estimated to live in the LADs within the local area (i.e. the Six Authorities Area). As shown by the key in the top right-hand corner, darker shading indicates that a greater number of direct employees reside within a given LAD.
Source: Oxera.

2.3 Indirect footprint

2.3.1 Estimation of the indirect footprint

The indirect footprint is an estimate of the employment and GVA supported throughout the UK through the supply chain of Gatwick Airport.

The indirect GVA was first calculated using the direct GVA of the airport and Input-Output Tables—which describe how primary inputs and products are used to produce further products and outputs for final consumption—provided by the ONS.[24] The indirect employment was then estimated using the average GVA per job for the South East.[25]

[24] Office for National Statistics (2020), 'UK Input-Output Analytical Tables (2018 data)'.
[25] Office for National Statistics (2022), 'Sub regional productivity: labour productivity indices by UK ITL2 and ITL3 subregions', 6 July.

The indirect footprint of Gatwick Airport in 2021 and 2019 is presented in Table 2.6, and an overview of the method used is provided in Table 2.7. A more detailed explanation of the method is given in Appendix A2.

Table 2.6 Indirect footprint of Gatwick Airport

	2021		2019	
	Employment	GVA (m)	Employment	GVA (m)
Total indirect footprint	7,735	£479	20,930	£1,308

Note: Employment is measured by headcount and does not include furloughed employees. Employment figures are rounded to the nearest five and GVA figures are rounded to the nearest million and are presented in 2022 real prices. Figures for 2019 are estimated as part of analysis for the NRP DCO application.
Source: Oxera.

Table 2.7 Calculation of indirect employment and GVA

	Description
Indirect GVA	The direct GVA (discussed in section 2.2) is first apportioned to each sector operating at the airport to give an estimate of the direct GVA associated with the different activities at the airport such as retail, catering, immigration and customs, baggage handling, and airline operations. The direct GVA per sector is then converted to direct output using the ratio of GVA to output for each sector based on ONS UK Input-Output Tables.[1] The indirect output associated with the direct output of each sector is then estimated using the Input–Output model. Finally, the indirect output is converted to indirect GVA using the ratio of output to GVA for each sector.
Indirect employment	Indirect employment is estimated using the total indirect GVA (as calculated above) and the GVA per job in the South East in 2021 obtained from ONS data.[2]

Note: [1] Office for National Statistics (2020), UK Input-Output Analytical Tables (2018 data). [2] Office for National Statistics (2022), 'Sub regional productivity: labour productivity indices by UK ITL2 and ITL3 subregions', 6 July.
Source: Oxera.

2.3.2 Indirect footprint by study area

Unlike the direct footprint (which is contained on site at Gatwick Airport), the indirect footprint is spread across the local area and the UK as a whole, as suppliers to Gatwick Airport can be located anywhere in the country.

To calculate how much indirect activity is expected to occur in the local area and how much would occur in the rest of the UK, we use estimates for the percentage of Gatwick Airport's indirect GVA that is supported in different areas of the UK based on the distribution of Gatwick Airport's supply chain.[26] We use these percentages to disaggregate the total indirect GVA and employment to each study area. Table 2.8 summarises the indirect employment and GVA supported in each study area.

[26] Oxford Economics (2017), 'The Economic impact of Gatwick Airport', p. 13.

Table 2.8 Indirect footprint by study area

	2021		2019	
Area	**Employment**	**GVA (m)**	**Employment**	**GVA (m)**
Gatwick Diamond	1,855	£115	5,015	£313
Gatwick Airport Labour Market Area	2,835	£176	7,635	£477
Six Authorities Area	5,510	£341	15,440	£965
Rest of UK	2,225	£138	5,490	£343
Total indirect footprint	**7,735**	**£479**	**20,930**	**£1,308**

Note: The figures show an estimate of the location of the indirect jobs and the indirect GVA supported by Gatwick Airport. Employment is measured by headcount and does not include furloughed employees. Employment figures are rounded to the nearest five and GVA figures are rounded to the nearest million and are presented in 2022 real prices. Estimates for each local study area include overlaps between the regions as shown in Figure 1.1, and should not be considered additive. Figures may not sum due to rounding. Figures for 2019 are estimated as part of analysis for the NRP DCO application.
Source: Oxera.

To summarise, we estimate that £479m in GVA and 7,735 jobs were supported through the indirect footprint of Gatwick Airport in 2021. This implies that, for every direct job at Gatwick Airport, an additional 0.6 indirect jobs are supported via Gatwick Airport's supply chain. Over 70% of the indirect footprint is estimated to arise within the Six Authorities Area.

As the indirect footprint is calculated based on the direct footprint, which reflects the impact of COVID-19 in 2021, the indirect footprint accounts for the effect of COVID-19 on the supply chain of Gatwick Airport. However, when furloughed employees are taken into account, it is estimated that Gatwick Airport may have supported around 11,050 indirect jobs through its supply chain in 2021.

2.4 Induced footprint

2.4.1 Estimation of the induced footprint

The induced footprint is an estimate of the employment and GVA supported in the UK through the spending of wages by direct and indirect employees.

Similarly to the indirect footprint, the induced footprint is estimated using Input–Output analysis. However, we amend the Input–Output model to account for compensation of employees and final consumption expenditure by households. This accounts for the extent to which an increase in GVA in one sector (e.g. transportation) would generate additional income (i.e. more wages through additional employment) and additional spending (i.e. more spending through the additional income generated) in other sectors.

The induced footprint of Gatwick Airport in 2021 and 2019 is presented in Table 2.9, and an overview of the method used to calculate the induced footprint is given in Table 2.10. A more detailed explanation is given in Appendix A2.

Table 2.9 Induced footprint of Gatwick Airport

	2021		2019	
	Employment	GVA (m)	Employment	GVA (m)
Total induced footprint	9,615	£595	26,010	£1,626

Note: Employment is measured by headcount and does not include furloughed employees. Employment figures are rounded to the nearest five and GVA figures are rounded to the nearest million and are presented in 2022 real prices. Figures for 2019 are estimated as part of analysis for the NRP DCO application.
Source: Oxera.

Table 2.10 Calculation of induced GVA and employment

	Description
Induced GVA	Direct GVA (discussed in section 2.2) is first apportioned to each sector operating at the airport. The direct GVA per sector is then converted to direct output using the ratio of GVA to output for each sector using ONS UK Input-Output Tables.[1] The induced output associated with the direct output of each sector is then estimated using a Type II Leontief Input–Output model. In addition to supply-chain effects (indirect effects), this model accounts for the effect of compensation of employees and final consumption expenditure by households (induced effects). Finally, the induced output is converted to induced GVA using the ratio of output to GVA for each sector.
Induced employment	Estimated using the total induced GVA (as calculated above) and the GVA per job for the South East in 2021 obtained from ONS data.[2]

Note: [1] Office for National Statistics (2020), UK Input-Output Analytical Tables (2018 data). [2] Office for National Statistics (2022), 'Sub regional productivity: labour productivity indices by UK ITL2 and ITL3 subregions', 6 July.
Source: Oxera.

2.4.2 Induced footprint by study area

As mentioned, the induced footprint is spread across the UK, as direct and indirect employees may spend their wages anywhere in the UK.

To calculate how much induced activity is expected to be supported in the local area and how much would be supported in the rest of the UK, we first estimate a regional input–output table for the South East area of the UK.[27] Based on this, we estimate the induced footprint of the airport in the South East.

We then derive the induced footprint expected to be supported in the local area (i.e. the Six Authorities Area) by adjusting the induced GVA supported in the South East by the share of total household consumption in the Six Authorities Area relative to total household consumption in the South East.[28] Finally, we disaggregate the induced GVA and employment in the Six Authorities Area to the Gatwick Diamond and the Gatwick Airport Labour Market Area using the proportion of direct employees living in each study area.[29]

[27] We do this using location quotients, which reflect the proportion of regional input requirements that are met by firms located within the region estimated using ONS data on GVA per product by region. For further details on location quotients, see Flegg, A.T. and Webber, C.D. (2000), 'Regional Size, Regional Specialization and the FLQ Formula', *Regional Studies*, **34**:6, pp. 563–569.
[28] Office for National Statistics (2020), 'National Household Final Consumption Expenditure by COICOP commodities, 2009 to 2018'.
[29] We do this using passholder data for Gatwick Airport employees for 2022, based on the assumption that greater induced GVA will be supported in areas where a greater

Table 2.11 summarises the induced employment and GVA supported in each study area.

Table 2.11 Induced footprint by study area

	2021		2019	
Area	**Employment**	**GVA (m)**	**Employment**	**GVA (m)**
Gatwick Diamond	2,425	£150	6,550	£409
Gatwick Airport Labour Market Area	3,110	£193	8,705	£544
Six Authorities Area	3,430	£212	9,655	£603
Rest of UK	6,185	£383	16,355	£1,022
Total induced footprint	**9,615**	**£595**	**26,010**	**£1,626**

Note: The figures show an estimate of the location of the induced jobs and the induced GVA supported by Gatwick Airport. Employment is measured by headcount and does not include furloughed employees. Employment figures are rounded to the nearest five and GVA figures are rounded to the nearest million and are presented in 2022 real prices. Estimates for each local study area include overlaps between the regions as shown in Figure 1.1 and should not be considered additive. Figures may not sum due to rounding. Figures for 2019 are estimated as part of analysis for the NRP DCO application.
Source: Oxera analysis.

We estimate that £595m in GVA and 9,615 jobs were supported through the induced footprint of Gatwick Airport in 2021. This implies that, for each direct job at Gatwick Airport and indirect job supported through Gatwick Airport's supply chain, a further 0.5 jobs are supported through induced spending. Approximately 40% of these benefits are estimated to arise within the Six Authorities Area.

As the induced footprint is calculated based on the direct footprint of Gatwick Airport, which reflects the impact of COVID-19 in 2021, the estimation of the induced footprint accounts for the effect of COVID-19. However, when furloughed employees are taken into account, it is estimated that Gatwick Airport may have supported around 13,740 induced jobs in 2021.

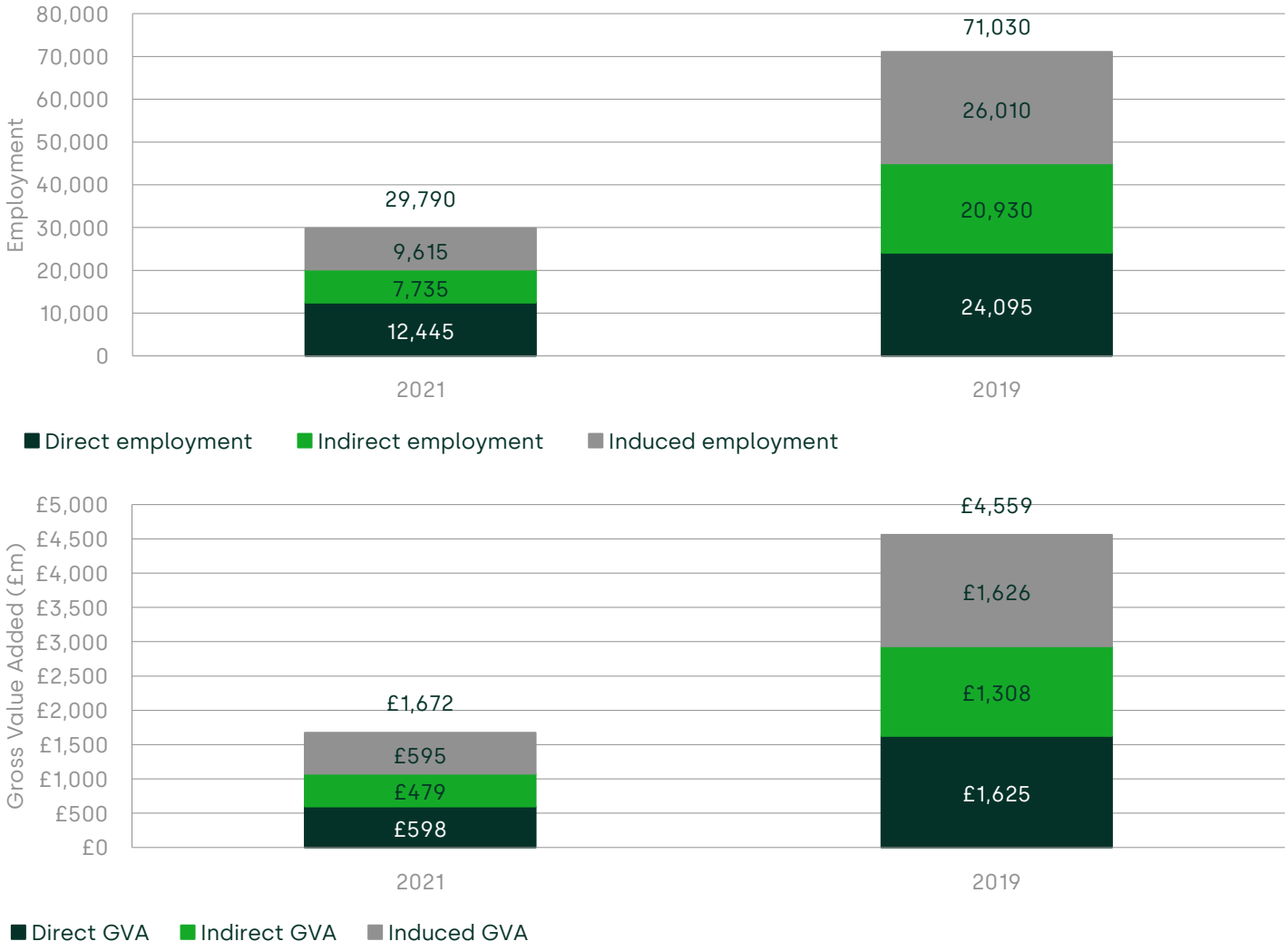
2.5 Total economic footprint

Drawing the estimates for the direct, indirect and induced footprints together, Gatwick Airport generated £1.7bn in GVA and supported 29,795 jobs in the UK in 2021.

Figure 2.3 presents the total economic footprint of Gatwick Airport in 2021 and 2019.

number of direct employees are living. The passholder data is obtained from GAL and is anonymised. Data for 2022 is used, as equivalent data for 2021 was not available.

Figure 2.3 Total economic footprint of Gatwick Airport (2021 and 2019)



Note: Employment is measured by headcount and does not include furloughed employees. Employment figures are rounded to the nearest five and GVA figures are rounded to the nearest million and are presented in 2022 real prices. Figures may not sum due to rounding.
Source: Oxera.

Of the airport's total footprint presented above, approximately 80% of the impact arose in the local area (i.e. the Six Authorities Area). Table 2.12 presents the total economic footprint of Gatwick Airport in 2021 and 2019 in each study area. This provides an estimate of the total scale of the economic activity supported by the airport in the local area and beyond.

Table 2.12 Total economic footprint of Gatwick Airport by study area

	2021		2019	
Area	**Employment**	**GVA (m)**	**Employment**	**GVA (m)**
Gatwick Diamond	16,725	£862	35,660	£2,348
Gatwick Airport Labour Market Area	18,390	£966	40,435	£2,646
Six Authorities Area	21,385	£1,151	49,190	£3,194
Rest of UK	8,405	£521	21,840	£1,365
Total economic footprint	**29,790**	**£1,672**	**71,030**	**£4,559**

Note: The figures show an estimate of the location of the jobs and the associated GVA supported by Gatwick Airport. Employment is measured by headcount and does not include furloughed employees. Employment figures are rounded to the nearest five and GVA figures are rounded to the nearest million and are presented in 2022 real prices. Estimates for each local study area include overlaps between the regions as shown in Figure 1.1, and should not be considered additive. Figures may not sum due to rounding.
Source: Oxera.

3 The catalytic effect of Gatwick Airport

The catalytic effect refers to the economic activity of firms that choose to locate near the airport because of the connectivity that it offers. The activity of these firms is not directly related to the airport's activities—i.e. it is not directly related to the direct, indirect or induced footprint—but the firms nevertheless benefit from the additional connectivity that the airport provides. Catalytic effects are concentrated locally, since they are related to the connectivity that the airport provides in the local area. For the purpose of this assessment, it is assumed that the geographic scope of catalytic impacts is the Six Authorities Area, although some of the catalytic impact of the airport could occur outside of this area.[30]

The catalytic effect is calculated as a residual of other impacts—i.e. the remaining employment impact in the study area that does not correspond to the direct, indirect or induced impacts. It is estimated in three steps:

- calculate the total net impact of the airport in the Six Authorities Area;
- identify the combined direct, indirect and induced impact that is attributable to the Six Authorities Area;
- calculate the difference between the total net impact and the direct, indirect and induced impacts.

We discuss the estimation of the total net economic impact and the catalytic effect in a business-as-usual year, and the adjustments made for 2021 to reflect the impact of the COVID-19 pandemic, in more detail in section 3.1.2.

3.1 Total net economic impact of Gatwick Airport

While the economic footprint analysis in section 2 shows the scale of the economic activity associated with Gatwick Airport, it does not take account of the alternative uses of resources and people if the airport did not exist. Therefore, the total net impact of the airport would include net direct, indirect, induced and other impacts once alternative uses of resources and people absent the airport are accounted for and are removed from the gross (footprint) impacts at the local level.

To estimate the total net impact of Gatwick's activities in the Six Authorities Area, an elasticity of local employment to air traffic (0.13%) is used. This employment elasticity is derived from an econometric analysis of the relationship between local employment and air passenger traffic in the UK.[31] This elasticity estimate is

[30] Catalytic impacts outside of the Six Authorities Area are not within the scope of the local impact assessment and have therefore not been assessed.

[31] The analysis in Percoco, M. (2010), 'Airport Activity and Local Development: Evidence from Italy, *Urban Studies*, **47**:11, September, pp. 2427–2443; and Brueckner, J.K. (2003), 'Airline Traffic and Urban Economic Development', *Urban Studies*, **40**:8, July, pp. 1455–1469 is replicated to produce elasticity estimates. The approach takes the form of a two-stage regression analysis with a non-linear first stage, and makes use of the variation between locations in the UK (cross-sectional analysis) to assess the impact of increased air traffic on local employment levels. The results suggest that a 1% increase

combined with the air traffic figure due to the airport to obtain the corresponding percentage increase in local employment. This percentage increase in local employment is then applied to the forecast local employment estimated by Cambridge Econometrics[32] to produce the total net employment impact of the airport in the Six Authorities Area.

This net employment impact measures the change in local employment that occurs as a result of the existence of Gatwick Airport. This accounts for the increase in local employment driven by either a decrease in local unemployment and inactivity, or an inflow of workers into the area (e.g. workers migrating or commuting into the area for work).

3.2 Catalytic effect

As mentioned above, the catalytic effect refers to the economic activity of firms that choose to locate near the airport because of the connectivity that it offers. It is calculated as the difference between the total net impact and the direct, indirect and induced impacts.

This is because the catalytic effect is calculated as a residual of other impacts—i.e. the remaining employment impact in the study area that does not correspond to the direct, indirect or induced impacts.

The net impact estimates provide a robust approach to identifying local impacts, as the elasticity used to produce these estimates is specific to the local area. If one assumes that the net impact of the airport at the Six Authorities Area level is equal to the combined net direct, indirect, induced and catalytic impacts at this geographic scale, it follows that the net catalytic impact would correspond to the difference between the net total impact and net direct, indirect and induced impacts.

However, estimating net direct, indirect and induced impacts requires assumptions on displacement that are difficult to determine robustly due to a lack of evidence and information. Gross impacts are therefore used to derive local catalytic effects. This approach is conservative because the catalytic footprint would be likely to be higher if the gross total footprint at the local level (i.e. the economic impact of the airport without accounting for alternative uses of resources and people) were used to estimate the catalytic impact.

From the catalytic employment effect, the catalytic GVA is estimated by using the average GVA per job in the South East, since all catalytic employment is generated within the Six Authorities study area.

3.1.2 Adjustments for COVID-19

For 2021, the usual relationship between activity at Gatwick Airport—measured by passenger traffic—and the catalytic employment supported by the airport is unlikely to hold due to the impact of the

in traffic levels increases local employment levels around Gatwick on average by 0.13%, given the labour market conditions and air traffic levels in the UK in 2018.

[32] Cambridge Econometrics (2022), 'Local employment by industry', March. The results of the estimated impacts have been cross-checked using employment forecasts from Experian, with no significant changes in estimates.

COVID-19 pandemic. This is because the travel restrictions and the reduction in air traffic are likely to have affected businesses within the catalytic effect of the airport in different ways. For example, tourism-related activities such as those of hotels and restaurants may have been more severely affected by the reduction in passenger traffic in 2021, which reduced patronage. In contrast, other businesses such as professional services firms and manufacturers that benefit from the international connectivity provided by the airport may not be wholly reliant on this connectivity to carry out their day-to-day activities and therefore may not have been as severely affected by the reduction in activity of the airport.

To estimate the catalytic effect in 2021, we adjust the catalytic effect employment in 2019 by the percentage of people furloughed in the Six Authorities Area over 2021 based on ONS data (which shows that 6% of people were furloughed).[33] This assumes that the same proportion of catalytic employees were furloughed in 2021 as the proportion of employees furloughed in the Six Authorities Area as a whole. Given that businesses within the catalytic effect are likely to cover a range of industries (e.g. accommodation and food services, manufacturing, and professional services), we consider that this assumption is reasonable.

Table 3.1 below presents the catalytic effect for 2021 and 2019 (the pre-COVID-19 benchmark).

Table 3.1 Catalytic effect of Gatwick Airport

	2021		2019	
	Employment	GVA (m)	Employment	GVA (m)
Total catalytic effect	13,400	£830	14,315	£895

Note: Employment figures are rounded to the nearest five and GVA figures are rounded to the nearest million and are presented in 2022 real prices.
Source: Oxera.

As previously discussed, the resulting catalytic effect is a conservative estimate as it is derived from a net impact total. Net impacts take account of the alternative uses of resources and people absent the airport. To the extent that a share of the economic footprint of the airport would still occur in the local area absent the airport, this share of the footprint is not net additional to the local economy and is excluded from the net impacts of the airport.

3.1.3 Catalytic effect by study area

Catalytic estimates at the level of the Six Authorities Area are disaggregated further into estimates for other study areas (Labour Market Area and Gatwick Diamond) using the 2019 Civil Aviation Authority (CAA) passenger survey data to determine the local authorities from which passengers originate and depart when travelling through Gatwick.

[33] See HM Revenue & Customs (2021), 'Coronavirus Job Retention Scheme statistics: 16 December 2021', furlough by local authority and UK Parliamentary constituency.

As catalytic effects reflect the economic activity of firms that choose to be located near the airport because of the connectivity that it offers, such economic activity would be reflected in individuals travelling from the airport to their place of work, a company locating close to the airport because of the connectivity that it offers, or the economic activity generated by tourists travelling from/to the airport and their spending in the local economy. The CAA data would therefore capture the distribution of the economic activity around the airport due to its connectivity.

Table 3.2 summarises the catalytic effect that employment and GVA supported in each study area.

Table 3.2 Catalytic effect by study area

	2021		2019	
Area	**Employment**	**GVA (m)**	**Employment**	**GVA (m)**
Gatwick Diamond	3,200	£198	3,420	£214
Gatwick Airport Labour Market Area	7,735	£479	8,265	£517
Six Authorities Area	13,400	£830	14,315	£895
Total catalytic effect	**13,400**	**£830m**	**14.315**	**£895**

Note: The figures show an estimate of the location of the catalytic jobs and the catalytic GVA supported by Gatwick Airport. Employment figures are rounded to the nearest five and GVA figures are rounded to the nearest million and are presented in 2022 real prices. Estimates for each local study area include overlaps between the regions as shown in Figure 1.1 and should not be considered additive. No results are presented for 'Rest of UK', as the catalytic effect occurs only within the Six Authorities Area because the catalytic effect relates to the local business opportunities provided by proximity to the airport. Figures may not sum due to rounding.
Source: Oxera.

We estimate that 830m in GVA and 13,400 jobs were supported in the local area through the catalytic effect of Gatwick Airport in 2021.

4 Conclusion

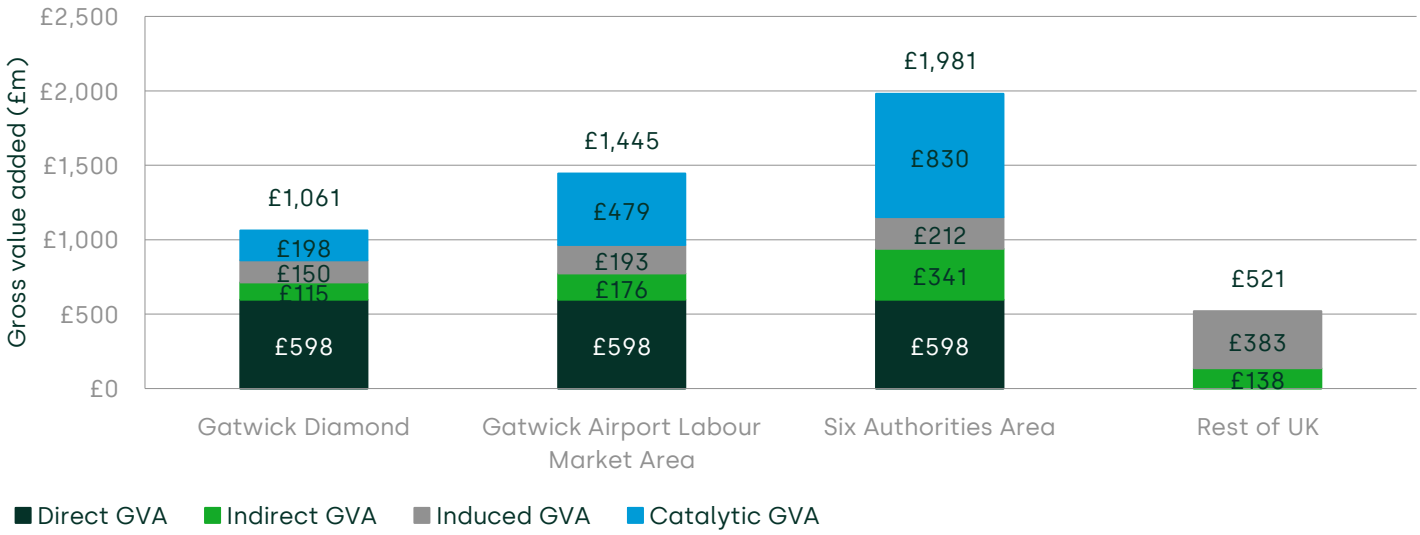
Despite an 86% reduction in air traffic in 2021 relative to 2019 as a result of the COVID-19 pandemic, Gatwick Airport had a sizeable economic footprint in 2021 and continues to make a substantial positive impact on the economy of the local area and the UK more widely. This includes direct activity on site associated with servicing passenger traffic, indirect activity across the airport's supply chain, induced activity through spending of wages by direct and indirect employees, and the catalytic effect from businesses relocating or expanding in the local area due to the connectivity that the airport provides. We estimate that Gatwick generated £2.5bn in GVA and supported 43,195 jobs in the UK in 2021. Approximately 80% of this impact arose in the local area (i.e. the Six Authorities Area), equivalent to 34,785 jobs and £1.9bn in GVA supported in the local area. The total footprint of the airport in each study area in 2021 is shown in Table 4.1 and Figure 4.1 below.

Table 4.1 Total economic impact of Gatwick Airport by study area (2021)

	Employment	GVA (m)
Total economic impact	**43,195**	**£2,501**
Gatwick Diamond	19,925	£1,061
Gatwick Airport Labour Market Area	26,125	£1,445
Six Authorities Area	34,785	£1,981
Rest of UK	8,410	£521

Note: The figures show an estimate of the location of the jobs and the GVA supported by Gatwick Airport. Employment is measured by headcount and does not include furloughed employees. Employment figures are rounded to the nearest five and GVA figures are rounded to the nearest million and are presented in 2022 real prices. Estimates for each local study area include overlaps between the regions as shown in Figure 1.1, and should not be considered additive. Figures may not sum due to rounding.
Source: Oxera.

Figure 4.1 GVA and employment impact of Gatwick Airport by study area (2021)



Note: The figures show an estimate of the location of the jobs and the GVA supported by Gatwick Airport. All direct impacts occur on site at the airport, i.e. within the Gatwick Diamond. However, as the Gatwick Airport Labour Market Area and the Six Authorities Area both encompass the Gatwick Diamond (see Figure 1.1), the direct footprint is the same in each local study area and there is no direct footprint outside of the Six Authorities Area. There is no catalytic effect outside of the Six Authorities Area, as the catalytic effect relates to the local business opportunities provided by proximity to the airport. Estimates for each local study area include overlaps between the regions as shown in Figure 1.1, and should not be considered additive. Employment is measured by headcount and does not include furloughed employees. Employment figures are rounded to the nearest five and GVA figures are rounded to the nearest million and are presented in 2022 real prices. Figures may not sum due to rounding.
Source: Oxera.

A1 Appendix 1—economic footprint of Gatwick Airport by local authority district

—

In this appendix, we present the economic impact of Gatwick Airport disaggregated by the LAD in the local area (i.e. the Six Authorities Area). The employment figures presented in this appendix are a measure of headcount and do not include furloughed employees. GVA figures are presented in 2022 real values.

A1.1 Direct footprint

While all direct activity occurs on site at the airport, we estimate the number of direct employees living in each LAD in the local area and in the rest of the UK based on the residency of Gatwick Airport employees.[34] Given that direct GVA which occurs on site at the airport is the sum of operating surplus, worker compensation and taxes, there is not a straightforward approach to estimate direct GVA by LAD. In the table below, we provide an indicative estimate of GVA by LAD proportionate to the number of employees living at each LAD.

Table A1.1 Direct footprint by local authority in 2021

LAD	Employment (no.)	GVA (£m)
Adur	147	7.1
Arun	226	10.8
Ashford	32	1.5
Brighton and Hove	459	22.0
Canterbury	19	0.9
Chichester	88	4.2
Crawley	2,920	140.2
Croydon	542	26.0
Dartford	31	1.5
Dover	9	0.4
Eastbourne	117	5.6
Elmbridge	48	2.3
Epsom and Ewell	40	1.9
Folkestone and Hythe	14	0.7
Gravesham	37	1.8
Guildford	56	2.7
Hastings	21	1.0
Horsham	1,252	60.1
Lewes	177	8.5
Maidstone	56	2.7
Mid Sussex	1,600	76.8
Mole Valley	283	13.6
Reigate and Banstead	778	37.4
Rother	42	2.0
Runnymede	45	2.1
Sevenoaks	92	4.4
Spelthorne	44	2.1

[34] The residency of Gatwick employees is obtained from Gatwick Airport passholder data for 2022. The passholder data is anonymised. 2022 data is used as equivalent data for 2021 was not available.

LAD	Employment (no.)	GVA (£m)
Surrey Heath	39	1.9
Swale	30	1.4
Tandridge	496	23.8
Thanet	14	0.7
Tonbridge and Malling	76	3.7
Tunbridge Wells	58	2.8
Waverley	50	2.4
Wealden	303	14.5
Woking	31	1.5
Worthing	154	7.4
Rest of UK	2,020	97.0

Note: The figures in the table show an estimate of where direct employees working at the airport live. Employment is measured by headcount and does not include furloughed employees.
Source: Oxera.

A1.2 Indirect footprint

The indirect footprint is spread across the UK, as suppliers to Gatwick Airport can be located anywhere in the local area or elsewhere in the country. To estimate the indirect footprint by LAD, we disaggregate the indirect footprint supported in the Six Authorities Area (as discussed in section 2.3) by the proportion of total UK GVA generated in each LAD in the local area.[35]

As such, the table below shows an estimate of the location of the indirect jobs and the indirect GVA supported in the LADs in the local area and in the rest of the UK.

Table A1.2 Indirect footprint by local authority in 2021

LAD	Employment (no.)	GVA (£m)
Adur	46	2.9
Arun	90	5.6
Ashford	103	6.4
Brighton and Hove	277	17.2
Canterbury	69	4.3
Chichester	99	6.2
Crawley	627	38.8
Croydon	353	21.8
Dartford	139	8.6
Dover	184	11.4
Eastbourne	38	2.4
Elmbridge	242	15.0
Epsom and Ewell	81	5.0
Folkestone and Hythe	76	4.7
Gravesham	68	4.2
Guildford	158	9.8
Hastings	38	2.3
Horsham	202	12.5

[35] Office for National Statistics (2022), 'Regional gross value added (balanced) by industry: local authorities by ITL1 region', 30 May.

LAD	Employment (no.)	GVA (£m)
Lewes	60	3.7
Maidstone	127	7.8
Mid Sussex	204	12.7
Mole Valley	283	17.6
Reigate and Banstead	358	22.2
Rother	30	1.8
Runnymede	209	12.9
Sevenoaks	126	7.8
Spelthorne	158	9.8
Surrey Heath	133	8.2
Swale	126	7.8
Tandridge	96	5.9
Thanet	51	3.2
Tonbridge and Malling	193	12.0
Tunbridge Wells	101	6.3
Waverley	77	4.8
Wealden	65	4.0
Woking	86	5.3
Worthing	133	8.2
Rest of UK	2,224	137.7

Note: The figures in the table show an estimate of the location of the indirect jobs and the indirect GVA. Employment is measured by headcount and does not include furloughed employees. GVA figures are presented in 2022 real prices.
Source: Oxera.

A1.3 Induced footprint

The induced footprint is spread across the UK, as direct and indirect employees may spend their wages anywhere in the local area or elsewhere in the country. To estimate the induced footprint by LAD, we disaggregate the induced footprint in the Six Authorities Area (as discussed in section 2.4.2) to each LAD based on the residency of direct employees from passholder data shared by GAL. This is based on the assumption that airport employees (and indirect employees in the airport's supply chain)[36] are more likely to spend their wages close to their place of residence.

As such, the table below shows an estimate of the location of the induced jobs and the induced GVA supported in the LADs in the local area and in the rest of the UK.

Table A1.3 Induced footprint by local authority in 2021

LAD	Employment (no.)	GVA (£m)
Adur	48	3.0
Arun	74	4.6
Ashford	10	0.6
Brighton and Hove	151	9.4

[36] We assume that employees in the airport's supply chain would be distributed throughout the local area in a similar way to airport employees. This assumption reflects the localised nature of the airport's supply chain, as shown by the indirect footprint results (i.e. localities closest to the airport represent a larger share of the airport's supply chain).

LAD	Employment (no.)	GVA (£m)
Canterbury	6	0.4
Chichester	29	1.8
Crawley	960	59.5
Croydon	178	11.0
Dartford	10	0.6
Dover	3	0.2
Eastbourne	39	2.4
Elmbridge	16	1.0
Epsom and Ewell	13	0.8
Folkestone and Hythe	5	0.3
Gravesham	12	0.7
Guildford	18	1.1
Hastings	7	0.4
Horsham	412	25.5
Lewes	58	3.6
Maidstone	19	1.2
Mid Sussex	526	32.6
Mole Valley	93	5.8
Reigate and Banstead	256	15.8
Rother	14	0.9
Runnymede	15	0.9
Sevenoaks	30	1.9
Spelthorne	14	0.9
Surrey Heath	13	0.8
Swale	10	0.6
Tandridge	163	10.1
Thanet	5	0.3
Tonbridge and Malling	25	1.6
Tunbridge Wells	19	1.2
Waverley	16	1.0
Wealden	100	6.2
Woking	10	0.6
Worthing	51	3.1
Rest of UK	6,183	382.9

Note: The figures in the table show an estimate of the location of the induced jobs and the induced GVA. Employment is measured by headcount and does not include furloughed employees. GVA figures are presented in 2022 real prices.
Source: Oxera.

A1.4 Catalytic effect

The catalytic effect of the airport is located within the local area (i.e. the Six Authorities Area), since catalytic impacts are related to the local business opportunities provided by proximity to the airport. To calculate the catalytic effect by LAD, we use the percentage of passengers departing from Gatwick originating from each LAD.[37]

As such, the table below provides an estimate of the location of the catalytic jobs and the catalytic GVA supported in the LADs in the local

[37] Based on 2019 CAA passenger survey data obtained from GAL. Data for 2019 was used as equivalent data for 2021 was not available.

area. As discussed in section 3, the catalytic effect is not a gross footprint measure and should not be interpreted as such.

Table A1.4 Catalytic effect by local authority in 2021

LAD	Employment (no.)	GVA (£m)
Adur	171	10.6
Arun	372	23.0
Ashford	186	11.5
Brighton and Hove	1,686	104.4
Canterbury	348	21.6
Chichester	341	21.1
Crawley	516	31.9
Croydon	1,048	64.9
Dartford	179	11.1
Dover	167	10.4
Eastbourne	326	20.2
Elmbridge	335	20.7
Epsom and Ewell	237	14.7
Folkestone and Hythe	186	11.5
Gravesham	167	10.4
Guildford	454	28.1
Hastings	172	10.7
Horsham	625	38.7
Lewes	369	22.8
Maidstone	364	22.5
Mid Sussex	572	35.4
Mole Valley	314	19.5
Reigate and Banstead	604	37.4
Rother	234	14.5
Runnymede	160	9.9
Sevenoaks	341	21.1
Spelthorne	102	6.3
Surrey Heath	203	12.6
Swale	229	14.2
Tandridge	331	20.5
Thanet	196	12.2
Tonbridge and Malling	261	16.2
Tunbridge Wells	338	20.9
Waverley	265	16.4
Wealden	473	29.3
Woking	195	12.1
Worthing	329	20.4

Note: The figures in the table show an estimate of the location of the catalytic jobs and the associated GVA. Employment is measured by headcount and does not include furloughed employees. GVA figures are presented in 2022 real prices.
Source: Oxera.

A2 Appendix 2—estimation of indirect and induced GVA

The tables in this appendix provide a detailed overview of the methods used to calculate the indirect and induced footprint GVA.

Table A2.1 Calculation of indirect GVA

Component	Input	Description
Share of direct GVA by sector (E = C/D)	Direct employees by sector on site (A)	The total number of direct employees working in each occupation at the airport (e.g. airline staff, customs and immigration, security, retail, catering) in 2021 is calculated based on data from the GAL 2015/16 Employer and Travel to Work Survey. Each occupation is then matched to an ONS SIC Code[1] (e.g. Transportation and Storage, Accommodation and Food Service Activities, Administrative and Support Service Activities) and the number of direct employees working in each sector is calculated.
	Average GVA per employee by sector (B)	The average GVA per employee in each sector is calculated using the average labour compensation for that sector from the 2019 Annual Business Survey[2] and the ratio of labour compensation to GVA based on ONS data.[3]
	Implied direct GVA per sector (C = A x B)	The GVA per sector is calculated based on the total number of direct employees per sector (A) and the average GVA per employee by sector (B).
	Total implied direct GVA (D)	The implied direct GVA for each sector (C) is summed to give the total implied direct GVA.
Actual direct GVA by sector (G = E x F)	Share of direct GVA by sector (E)	As calculated above.
	Direct GVA (F)	See direct footprint analysis described in section 2.2.
Direct output by sector (I = G x H)	Direct GVA by sector (G)	As calculated above.
	Output to GVA ratio by sector (H)	The ratio of GVA per final unit of output is calculated using ONS UK Input-Output Tables.[3]
Indirect (supply-chain) output by product (L = I x J x K)	Direct output by sector (I)	As calculated above.
	Share of output per product by sector (J)	The share of output for each product in each sector is calculated using ONS UK Input-Output Tables[3] as the sum of total output for the product divided by the total output of the associated sector.
	Indirect (supply-chain) spending multiplier by unit of final output (K)	The output multiplier for supply-chain spending for a unit of final output by product is calculated using ONS UK Input-Output Tables (Type I Leontief).[3]
Indirect (supply-chain) GVA (N = L / M summed across products)	Indirect (supply-chain) output by product (L)	As calculated above.
	Output to GVA ratio by product (M)	The ratio of GVA per final unit of output is calculated using ONS UK Output Tables.

Note: [1] Office for National Statistics (2022), 'UK SIC 2007', 24 January. [2] Office for National Statistics (2021), 'Non-financial business economy, UK and regional (Annual Business Survey): 2019 results', 24 June. [3] Office for National Statistics (2020), 'UK Input-Output Analytical Tables (2018 data)'.
Source: Oxera.

Table A2.2 Calculation of induced GVA

Component	Input	Description
Share of direct GVA by sector (E = C / D)	Direct employees by sector on site (A)	Same calculation steps as described in Table A2.1.
	Average GVA per employee by sector (B)	Same calculation steps as described in Table A2.1.
	Implied direct GVA per sector (C = A x B)	Same calculation steps as described in Table A2.1.
	Total implied direct GVA (D)	Same calculation steps as described in Table A2.1.
Actual direct GVA by sector (G = E x F)	Share of direct GVA by sector (E)	Same calculation steps as described in Table A2.1.
	Direct GVA (F)	See direct footprint analysis described in section 2.2.
Direct output by sector (I = G x H)	Direct GVA by sector (G)	Same calculation steps as described in Table A2.1.
	Output to GVA ratio by sector (H)	Same calculation steps as described in Table A2.1.
Indirect (supply-chain) and induced output by product (L = I x J x K)	Direct output by sector on site (I)	Same calculation steps as described in Table A2.1.
	Share of product output by sector (J)	Same calculation steps as described in Table A2.1.
	Indirect (supply-chain) and induced spending multiplier by unit of final output (K)	The indirect and induced spending multiplier per unit of final output is calculated using ONS UK Input-Output Tables (derived Type II Leontief)[1] that include the compensation of employees.
Indirect (supply-chain) and induced GVA (N = L / M summed across products)	Indirect (supply-chain) and induced output by product (L)	As calculated above.
	Output/GVA ratio by product (M)	Same calculation steps as described in Table A2.1.
Induced GVA (P = N - O)	Indirect (supply-chain) and Induced GVA footprint (N)	As calculated above.
	Indirect GVA footprint (O)	Same calculation steps as described in Table A2.1.

Note: [1] The Type II Leontief matrix is not provided directly by the ONS. Oxera has derived it using the UK Input-Output Tables and ONS data on total household income. Office for National Statistics (2020), UK Input-Output Analytical Tables (2018 data).
Source: Oxera.

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