Research Paper

Rotherham's Economic Transformation:

Productivity, Structural Change and the Advanced Manufacturing Economy

Northern Powerhouse Partnership | June 2026

Foreword

by Lord Jim O'Neill, Life President of Northern Powerhouse Partnership

Over a decade ago, I led the Cities Growth Commission which made the case for the scale of opportunity represented by the city regions of Liverpool, Greater Manchester, West and South Yorkshire, otherwise known as *ManSheffLeedsPool*. This started a chain of events which led to the Northern Power Hall speech by then Chancellor George Osborne which launched the concept and ambition for the Northern Powerhouse.

Working at the Treasury as a Minister, I came to Sheffield to negotiate devolution with them and their neighbours, including the town of Rotherham. I had first come and got to know Sheffield studying economics before my career in investment banking which followed. I followed the role the University had played in the Advanced Manufacturing Research Centre, which was a triple-helix of university, private, and public collaboration, more evocative of how the US works than of how Britain has gone about things.

The economic data of recent years has shown green shoots here which mirror the changes happening across in Greater Manchester. In that city region, as much as success has been seen in the city centre there has also been change for the better in towns like Stockport. Best connected to the city and to London by the West Coast Mainline, it's unsurprising that the investment is now visible on the skyline.

However, the fact that Rotherham, not on the mainline to London or Leeds to the north, has seen productivity growth of 63.9% in two decades, more than any other northern town, with the asset of the M1 but disconnected by mainline rail is harder to explain at first glance. However, it is in fact the world-class innovation district straddling the border with Sheffield. 230% growth since 2004 in the value generated by the Advanced Manufacturing Park in fact. For a town to change its fortunes not by standing alone, but co-operating with its neighbouring city, is Manchester-like behaviour, and it has had a Greater Manchester equivalent success. The investors, from developer Harworth to occupiers like McLaren, have been working with two councils which have referred investors to each other and expedited planning. It has changed the material fortunes of the wider town of Rotherham which the combined authority Metro Mayor is now building on. The Don Valley growth corridor will fix the connectivity issues, including a new Rotherham station on Northern Powerhouse Rail opening up to investors needing links to rest of North, Birmingham and beyond.

We hear the need for re-industrialisation. I agree with that call, and suggest anyone looking for a template of how to do it heads for South Yorkshire. The answer is not to hold on to underperforming or historic assets but to build a new future. The industries at the cutting edge of manufacturing technology on the site of the Battle of the Orgreave are serious progress. Rotherham is a template of economic geography changing dramatically, and it's an exemplar of the Chancellor's Growth Corridor in the North has the route for building on, and replicating.

Executive Summary

Since 2004, Rotherham has experienced a significant structural transformation. Starting from one of the lowest productivity bases in the country (4th lowest of 182 ITL3 areas in 2004, with GVA per hour worked at just 72% of the UK average) the borough has shifted away from energy generation and heavy industry toward advanced manufacturing, engineering services, and knowledge-intensive activities centred on the Advanced Manufacturing Park (AMP) at Waverley.

This paper uses ONS local authority GVA data, MSOA-level small area GVA estimates, and Business Register and Employment Survey (BRES) data to document this transformation. It uses a small-area GVA per employee job measure, offering the most detailed view of Rotherham's spatial economic performance below the local authority level.

The key findings are:

- **Productivity growth of 63.9% from 2004 to 2023,** driving up the wider South Yorkshire functional economic area performance. Sheffield grew by 11.6% over the same period; Barnsley by 7.8%; Doncaster by 29.9%.
- **Real borough GVA grew by 13.4%** from 2004 to 2022 (2022 prices), though this figure conceals significant sectoral and spatial shifts.
- **The Advanced Manufacturing Park (Rotherham 027)** is the highest-growth MSOA in the borough. Real GVA grew from £111.6m in 2004 to £369.8m in 2022, a 231% increase in real terms, the strongest of any MSOA in the borough by a substantial margin. In 2022, small-area GVA per employee job in Rotherham 027 reached £79,400 (2022 prices), 50% above the borough average and up 46.5% in real terms since 2015. This strongly indicates that the AMP is generating high-value economic activity**.**
- **Borough-wide GVA per employee job** was broadly flat between 2019 and 2022 (£55,000 to £52,900 per job).

1. Introduction and Context

The Rotherham swing plough revolutionised agriculture, and is a town which had a clear economic purpose in and following the Industrial Revolution. Based on steel at places including Orgreave, coal mining, and energy generation, the borough underwent significant deindustrialisation. This resulted in low productivity, high economic inactivity, and many communities, as a result, trapped in deprivation.

Recent data reveals a more complex picture. Rotherham's productivity has grown faster than any other South Yorkshire area over the past two decades. The borough now hosts one of the UK's most significant concentrations of advanced manufacturing investment at the Advanced Manufacturing Park, which includes the University of Sheffield Advanced Manufacturing Research Centre (AMRC) and Royce Institute, McLaren Automotive, Boeing, Rolls-Royce, and a growing cluster of high-value supply chain firms.

This paper presents an in-depth analysis of Rotherham's economic performance from 2004 to 2022/23, using four primary data sources.

- **ONS Regional GVA(B) by industry**, local authority level, Yorkshire and The Humber edition (1998-2023, April 2025 release), chained volume measures
- **ONS ITL3 labour productivity index**, chained volume measures, rebased to 2004=100
- **ONS Small Area GVA estimates**, MSOA level, current prices (1998-2022) -- deflated to 2022 prices using ONS L8GG GDP deflator
- **Business Register and Employment Survey (BRES)**, MSOA level via NOMIS (2015-2023)

2. Headline Productivity Trajectory

Rotherham's labour productivity shows a striking long-run trajectory. In 2004, all four South Yorkshire areas are indexed at 100. By 2023, Rotherham had reached 163.9, the highest growth of any South Yorkshire area. By contrast, Sheffield reached 111.6, Barnsley 107.8 and Doncaster 129.9 as shown in Figure 1 below. However, as Figure 2 illustrates, absolute levels of productivity in Rotherham still remain below those of its neighbours Barnsley and Sheffield.

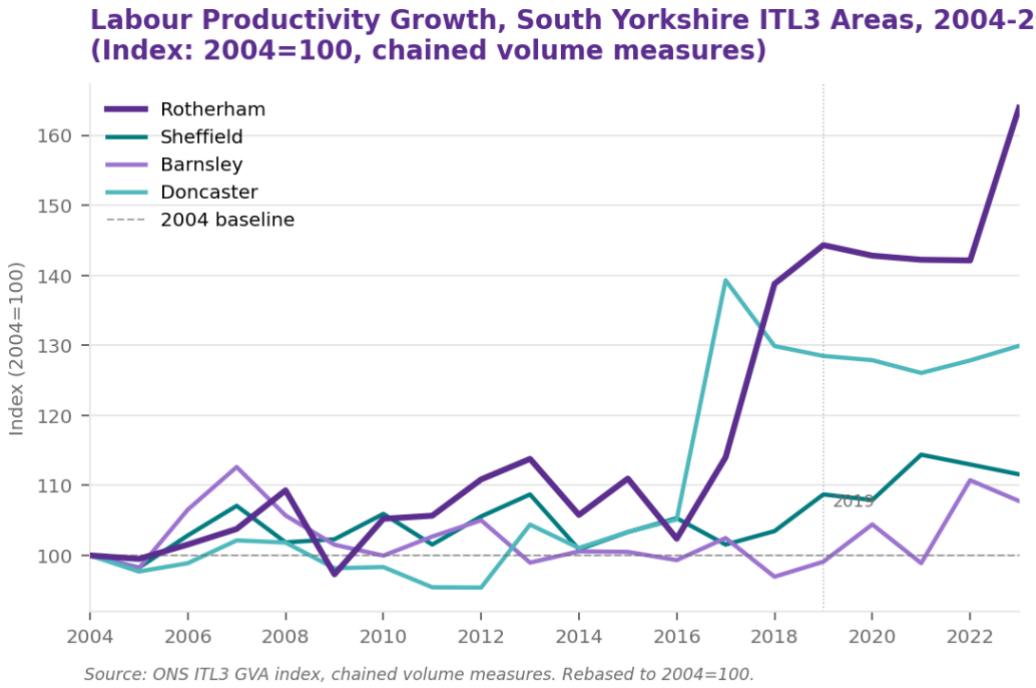


Figure 1: Labour Productivity Growth, South Yorkshire ITL3 Areas, 2004-2023 (Index: 2004=100)
Source: ONS ITL3 GVA index, chained volume measures. Rebased to 2004=100.

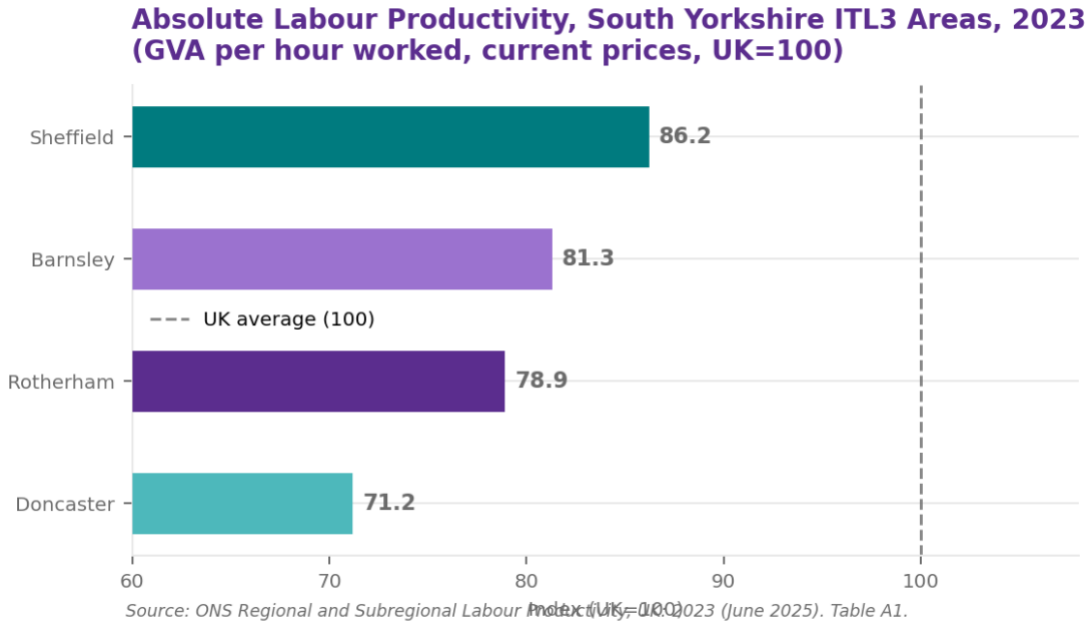


Figure 2: Absolute Labour Productivity, South Yorkshire ITL3 Areas, 2023 (GVA per hour worked, UK=100)

Source: ONS Regional and Subregional Labour Productivity, UK: 2023 (June 2025). Table A1.

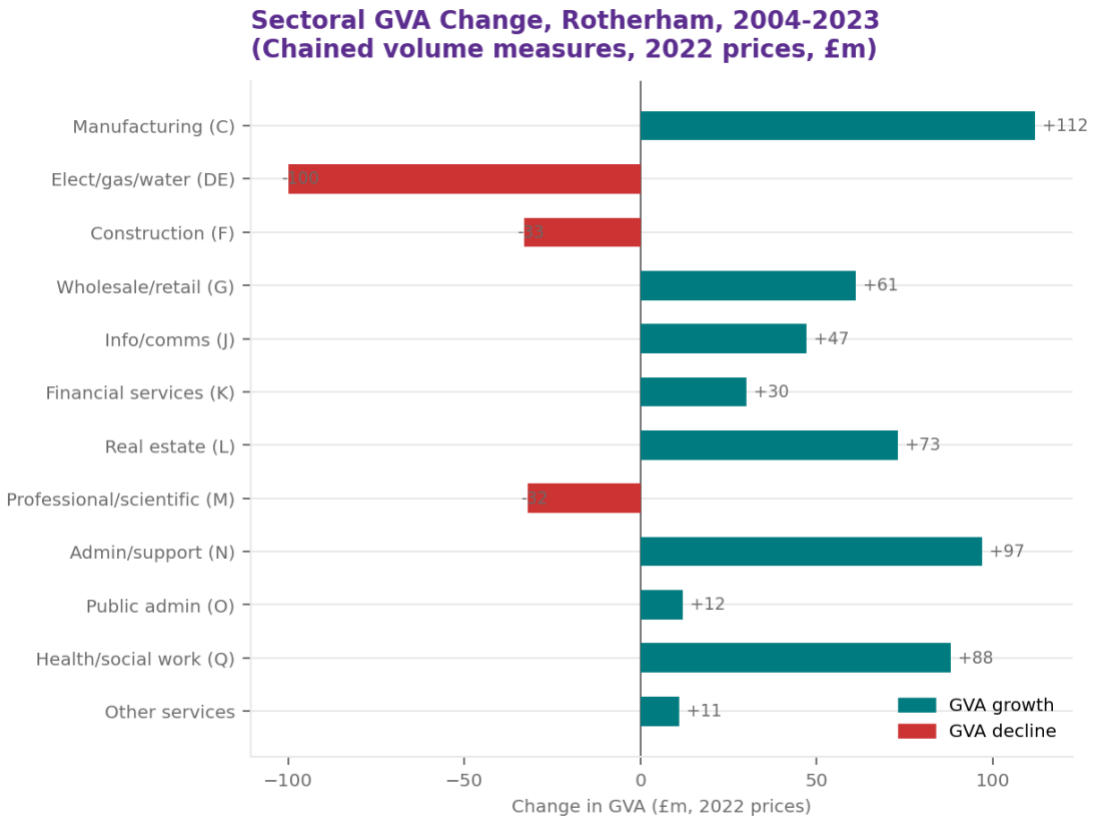
Area	2004	2010	2015	2019	2021	2023	2004-2023	2019-2023
Rotherham	100.0	105.2	111.0	144.3	142.2	163.9	+63.9%	+13.6%
Sheffield	100.0	105.9	103.3	108.7	114.4	111.6	+11.6%	+2.6%
Barnsley	100.0	100.0	100.5	99.1	98.9	107.8	+7.8%	+8.7%
Doncaster	100.0	98.3	103.3	128.5	126.1	129.9	+29.9%	+1.1%
UK average	--	--	--	--	--	--	--	+3.0%

Source: ONS ITL3 GVA index, chained volume measures. Rebased to 2004=100 for comparability. UK post-2019 change from ONS Regional and Subregional Labour Productivity bulletin (June 2025).

Two distinct growth phases are evident. From 2004 to 2015, growth reflected a shift away from heavy manufacturing and energy, with expansion in services and the early development of the AMP. From 2019 to 2023, growth became more concentrated, driven by continued AMP expansion.

3. Sectoral Decomposition of GVA

ONS local authority GVA by industry data shows Rotherham's total GVA grew from £4,819m in 2004 to £5,147m in 2023 (+6.8%). However, this modest aggregate growth conceals significant sectoral shifts.



Source: ONS Regional GVA(B) by industry, local authorities, Yorkshire and The Humber edition (April 2025).

Figure 3: Sectoral GVA Change, Rotherham, 2004-2023 (Chained volume measures, 2022 prices, £m)
Source: ONS Regional GVA(B) by industry, local authorities, Yorkshire and The Humber edition (April 2025).

Sector	2004 £m	2015 £m	2019 £m	2023 £m	2004-2023	2019-2023
All industries	4,819	5,197	5,277	5,147	+6.8%	-2.5%
Manufacturing (C)	754	880	885	866	+14.9%	-2.1%
Electrical/machinery (CI-CL)	165	190	229	225	+36.4%	-1.7%
Basic and fabricated metals (CH)	348	307	271	304	-12.6%	+12.2%
Electricity, gas and water (DE)	261	210	302	161	-38.3%	-46.7%
Construction (F)	620	556	600	587	-5.3%	-2.2%
Wholesale and retail (G)	563	570	569	624	+10.8%	+9.7%

Sector	2004 £m	2015 £m	2019 £m	2023 £m	2004-2023	2019-2023
Information and communication (J)	57	88	124	104	+82.5%	-16.1%
Financial services (K)	28	28	92	58	+107.1%	-37.0%
Professional and scientific (M)	176	156	160	144	-18.2%	-10.0%
Architectural/engineering (71)	24	20	27	50	+108.3%	+85.2%
Scientific R&D (72-75)	110	102	86	53	-51.8%	-38.4%
Admin and support (N)	207	421	291	304	+46.9%	+4.5%
Public administration (O)	305	396	357	317	+3.9%	-11.2%
Health and social work (Q)	502	528	616	590	+17.5%	-4.2%

Source: ONS Regional GVA(B) by industry, local authorities, Yorkshire and The Humber edition, April 2025. Chained volume measures, 2022 prices.

3.1 Structural reallocation

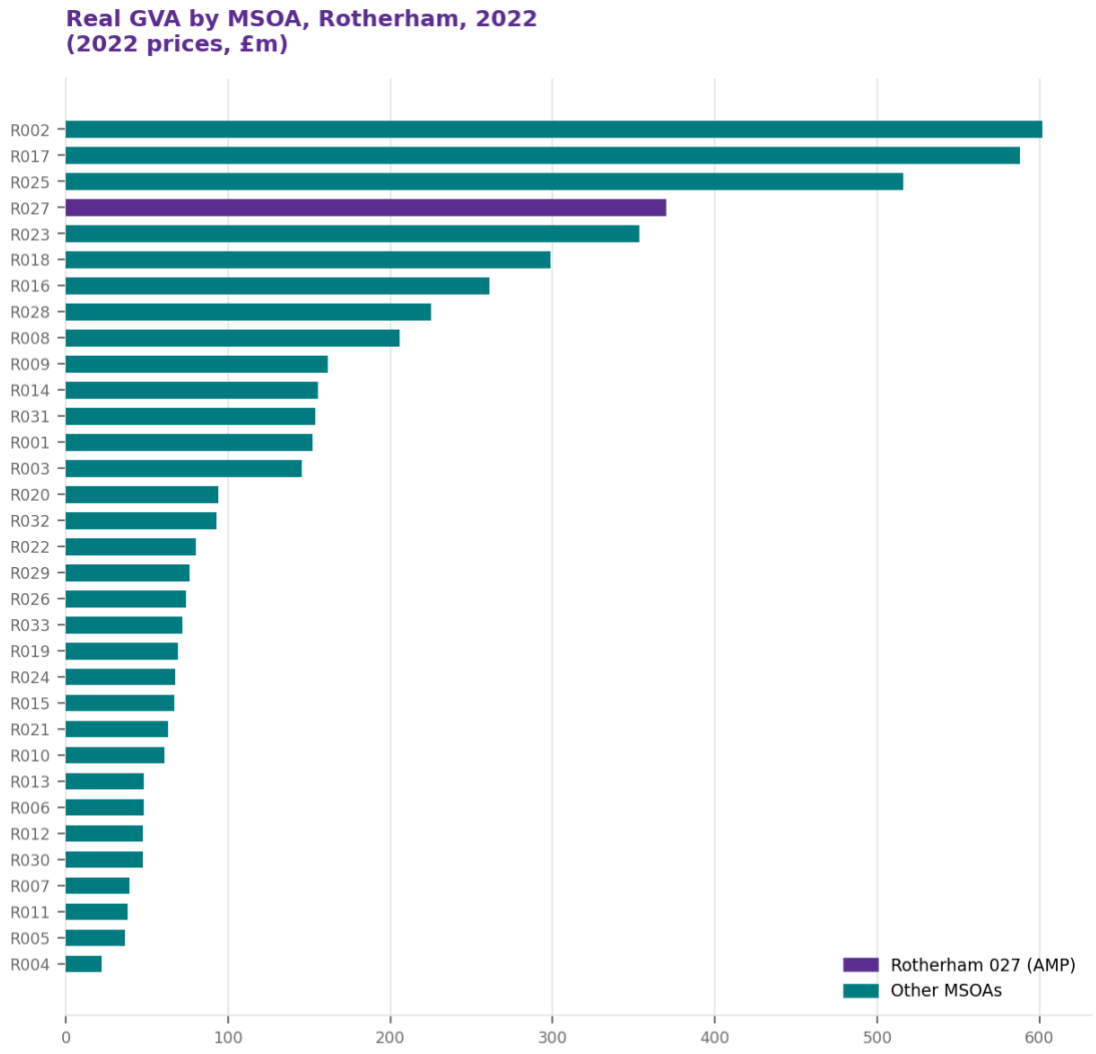
The main trend from 2004 to 2023 is a shift away from energy generation (DE: -£100m, -38.3%) toward advanced manufacturing and engineering services. Architectural and engineering activities (SIC 71), closely linked to AMRC and AMP supply chains, more than doubled from £24m to £50m (+108.3%), with most growth occurring after 2019 (+85.2%).

3.2 Falling output, rising productivity

From 2019 to 2023, total GVA fell by £130m (-2.5%), while the ITL3 productivity index rose by 13.6%. This apparent contradiction is likely to reflect two factors. Public-sector employment contraction may reduce hours worked faster than output, increasing output per hour. At the same time, the expansion of high-value advanced manufacturing at the AMP is likely to have increased the GVA numerator. Together, these factors are consistent with the observed improvement in productivity.

4. Spatial Distribution of GVA: MSOA-Level Analysis

ONS small area GVA estimates (current prices) have been deflated to 2022 prices using the ONS implied GDP deflator. This allows valid time-series comparisons at the MSOA level with greater geographic detail than previously possible.



Source: ONS Small Area GVA estimates (August 2024), deflated using ONS L8GG GDP deflator.

Figure 4: Real GVA by MSOA, Rotherham, 2022 (2022 prices, £m)
Source: ONS Small Area GVA estimates (August 2024), deflated using ONS L8GG GDP deflator.

4.1 Real GVA by MSOA

MSOA	2004 £m	2015 £m	2019 £m	2022 £m	04-22 real	19-22 real
Rotherham 002 (Wath upon Dearne)	545.1	597.4	619.7	602.0	+10.4%	-2.9%
Rotherham 017 (Rotherham Central)	585.3	677.8	673.1	588.1	+0.5%	-12.6%

MSOA	2004 £m	2015 £m	2019 £m	2022 £m	04-22 real	19-22 real
Rotherham 025 (Brinsworth)	315.4	340.0	487.6	516.2	+63.7%	+5.9%
Rotherham 023 (Rotherham South)	258.4	350.3	381.1	353.6	+36.8%	-7.2%
Rotherham 027 (Catcliffe, Treeton & Waverley)	111.6	187.3	355.7	369.8	+231.4%	+4.0%
Rotherham 016 (Masbrough & Bradgate)	285.5	229.2	221.0	261.2	-8.5%	+18.2%
Rotherham 024 (Whiston)	30.7	272.7	153.9	67.6	+120.2%	-56.1%
Rotherham 018 (Maltby West & Hellaby)	273.7	296.4	295.4	298.4	+9.0%	+1.0%
Rotherham 014 (Eastwood & East Dene)	133.9	114.5	118.6	155.6	+16.2%	+31.2%
Rotherham 008 (Rawmarsh South)	179.6	185.5	205.4	205.7	+14.5%	+0.1%
Borough total	4,701.9	5,135.0	5,315.5	5,331.2	+13.4%	+0.3%

Source: ONS Small Area GVA estimates, current prices, deflated to 2022 prices using ONS L8GG GDP deflator annual averages.

Borough-wide real GVA grew by only 13.4% from 2004 to 2022. The sharp rise in Rotherham 024 (Whiston) to £272.7m in 2015 and subsequent fall to £67.6m by 2022 remain unexplained from publicly available data and should be treated as an unresolved anomaly.

4.2 Spatial concentration

In 2022, the top five MSOAs by GVA accounted for 45.6% of the borough total, up from 42.6% in 2004, indicating a slight increase in economic concentration. Rotherham 027's rise from the 16th largest MSOA in 2004 to 4th in 2022 marks the most significant change in the borough's economic geography.

5. Real GVA per Employee Job

The methodology for this measure, along with a full statement of limitations, is detailed in Appendix A.

5.1 Borough-level trend

Year	Real GVA £m	BRES jobs	Real GVA/job £000	Change on 2015
2015	5,135	101,455	50.6	--
2016	5,156	104,355	49.4	-2.4%
2017	5,331	97,875	54.5	+7.7%
2018	5,271	99,185	53.1	+5.0%
2019	5,316	96,640	55.0	+8.7%
2020	4,892	98,895	49.5	-2.2%
2021	5,157	99,665	51.7	+2.2%
2022	5,331	100,720	52.9	+4.5%

Source: ONS Small Area GVA (deflated to 2022 prices) and BRES via NOMIS. Note: nominal GVA/job rose from £42,000 to £52,900 over this period; much of this was inflation. Real GVA/job shows a more modest underlying trend.

In real terms, borough-wide GVA per employee job ranged from £49,500 to £55,000 during the period, with no clear trend. Most variation reflects volatility in employment figures rather than sustained changes in output per worker.

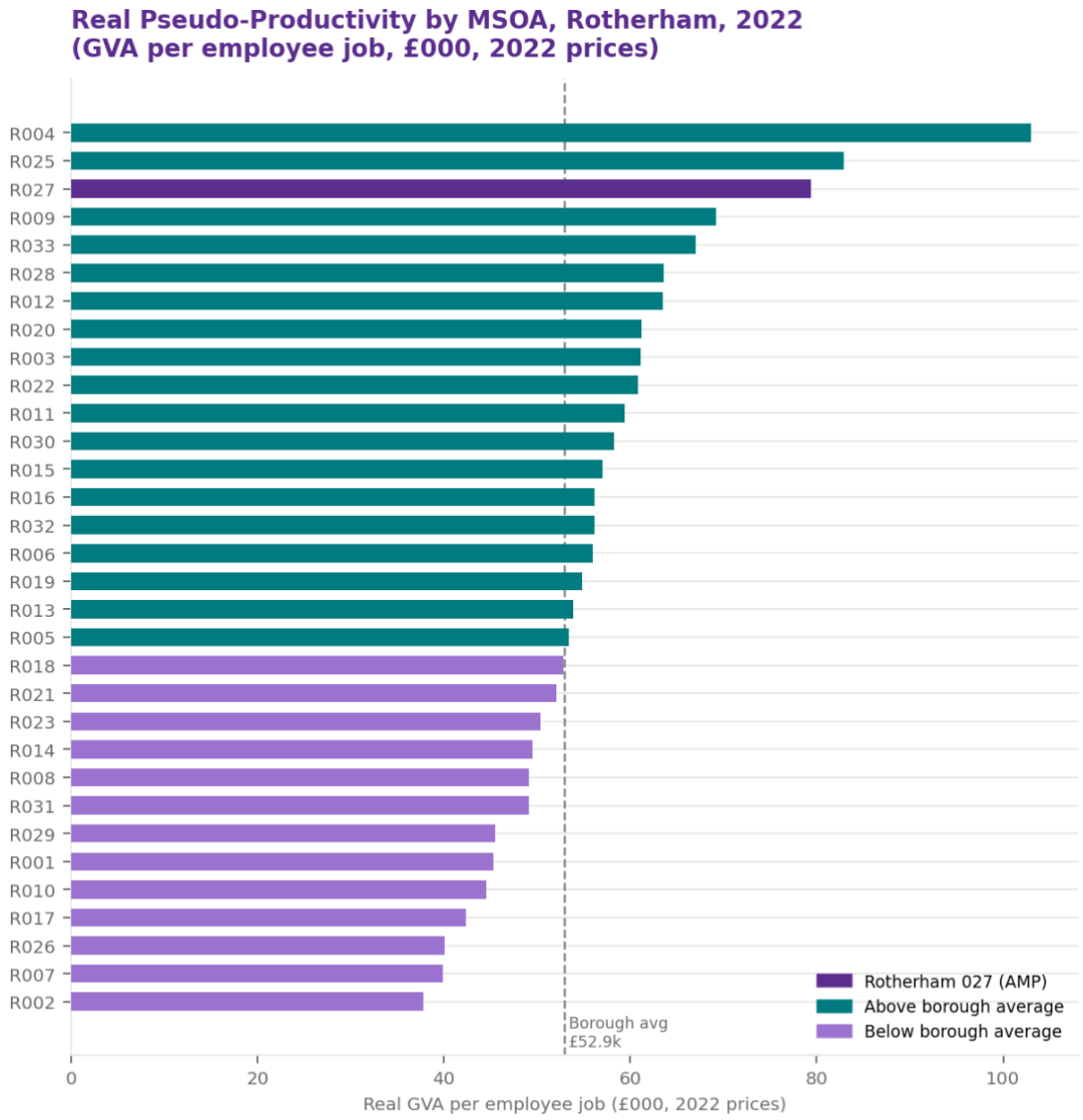
5.2 MSOA-level real GVA per employee job

MSOA	2015 £k	2019 £k	2022 £k	2015-22 real
Rotherham 024 (Whiston)	182.4	155.5	92.6	-49.2%
Rotherham 027 (Catcliffe, Treeton & Waverley)	54.2	80.2	79.4	+46.5%
Rotherham 025 (Brinsworth)	62.0	85.3	82.9	+33.7%
Rotherham 004 (Swinton South)	89.3	97.0	103.0	+15.3%
Rotherham 009 (Greasborough)	56.8	63.3	69.2	+21.8%

MSOA	2015 £k	2019 £k	2022 £k	2015-22 real
Rotherham 022 (Wickersley South & Bramley South)	45.7	49.7	60.8	+33.0%
Rotherham 014 (Eastwood & East Dene)	35.2	45.0	49.5	+40.6%
Rotherham 002 (Wath upon Dearne)	35.6	41.4	37.8	+6.2%
Rotherham 017 (Rotherham Central)	45.2	49.3	42.4	-6.2%
Borough average	50.6	55.0	52.9	+4.5%

Source: Authors' calculation. Real GVA (2022 prices) / BRES employee jobs. See Appendix A for methodology and caveats.

The most notable finding is the real productivity growth in Rotherham 027. GVA per employee job rose from £54,200 in 2015 to £80,200 in 2019, a 48% real increase driven by GVA growth outpacing employment as the AMP matured. By 2022, it remained at £79,400, sustaining the 2019 level in real terms.



Source: ONS Small Area GVA (deflated to 2022 prices) and BRES via NOMIS. R024 excluded (see note).
** Rotherham 024 excluded (energy infrastructure; GVA per job £92.6k, distorts scale)*

Figure 5: Real GVA per Employee Job by MSOA, Rotherham, 2022 (£000, 2022 prices)
Source: ONS Small Area GVA (deflated) and BRES via NOMIS. Rotherham 024 excluded.

6. The Advanced Manufacturing Park

The Advanced Manufacturing Park at Waverley, located in Rotherham 027, is the most significant investment in Rotherham's economic transformation. Anchored by the University of Sheffield's Advanced Manufacturing Research Centre (AMRC), the AMP, developed by Harworth Estates and in long-term partnership with Rotherham and Sheffield City Councils, now hosts a cluster of globally significant manufacturers and research institutions, including McLaren Automotive, Boeing, Rolls-Royce, and Nikken.

6.1 Real GVA trajectory

Rotherham 027's real GVA growth is the strongest of any MSOA in the borough. Real GVA increased from £87.3m in 1998 and £111.6m in 2004 (both in 2022 prices) to £187.3m by 2015 as the AMRC became established, then accelerated to £355.7m in 2019 and £369.8m in 2022, a 231% real increase from 2004. The next fastest-growing MSOA, Rotherham 025, grew by 63.7% over the same period.

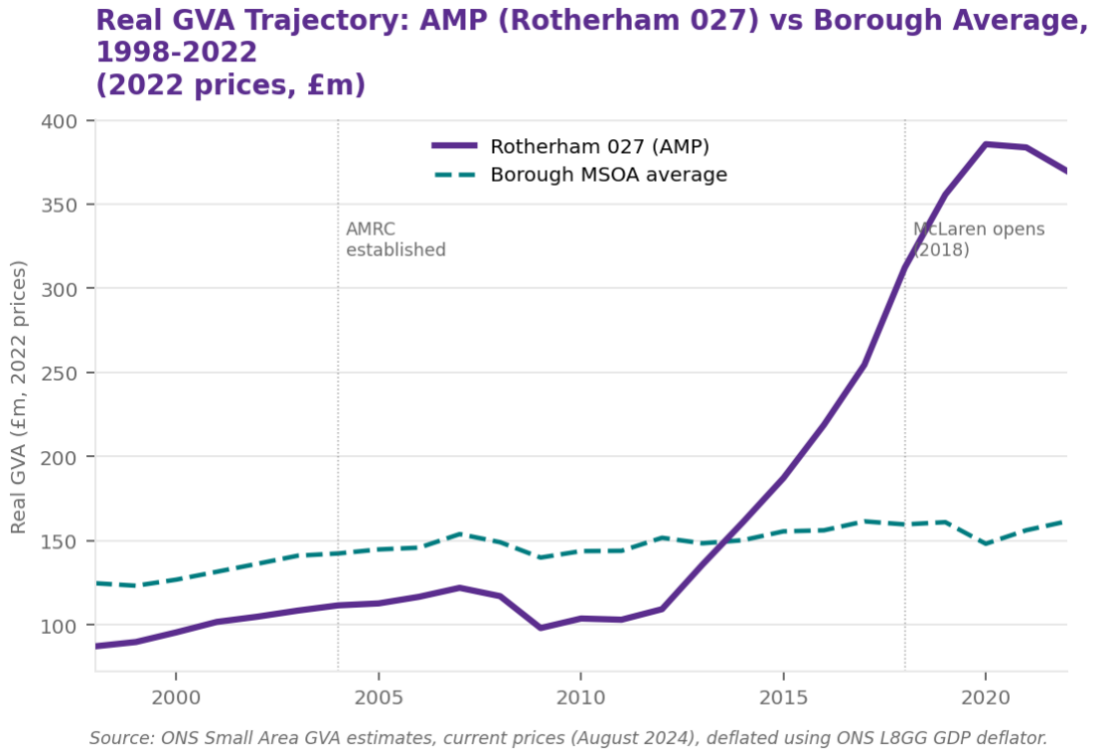


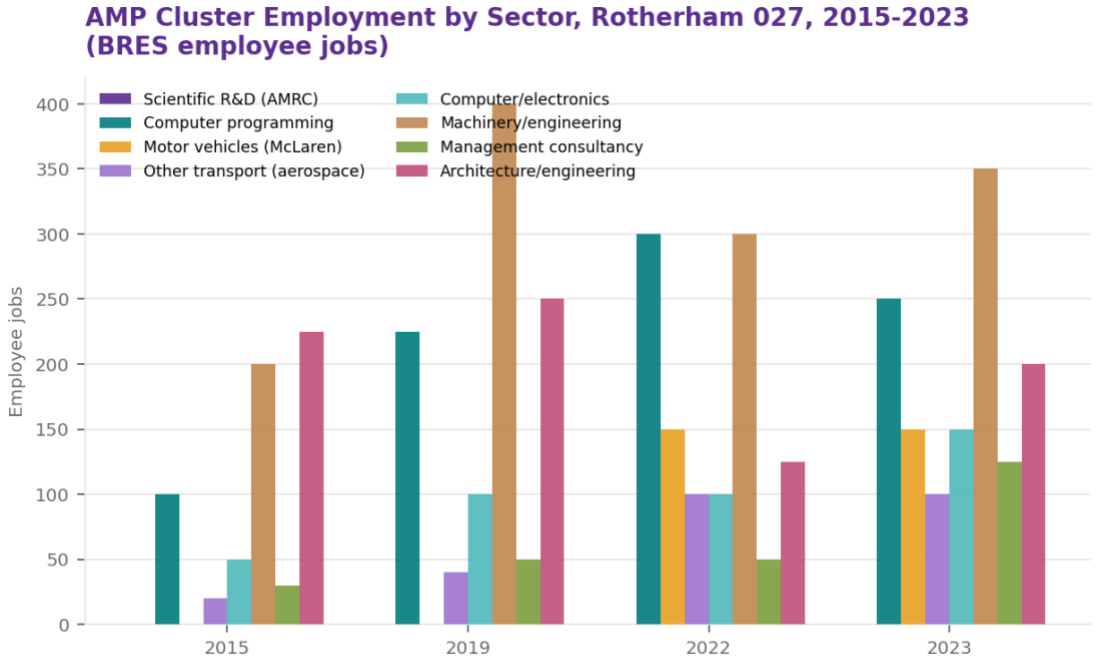
Figure 6: Real GVA Trajectory, AMP (Rotherham 027) vs Borough Average, 1998-2022 (£m, 2022 prices)
Source: ONS Small Area GVA estimates (August 2024), deflated using ONS L8GG GDP deflator.

6.2 Employment in Rotherham 027

Sector	2015	2019	2022	2023	2015-23	Likely occupant
Scientific R&D (SIC 72)	75	150	125	150	+75	AMRC and affiliates
Computer programming (SIC 62)	100	225	300	250	+150	Digital/tech supply chain

Sector	2015	2019	2022	2023	2015-23	Likely occupant
Motor vehicles (SIC 29)	0	0	150	150	+150	McLaren Automotive
Other transport (SIC 30)	20	40	100	100	+80	Aerospace supply chain
Computer/electronics (SIC 26)	50	100	100	150	+100	Electronics manufacturing
Machinery (SIC 28)	200	400	300	350	+150	High-precision engineering
Mgmt consultancy (SIC 70)	30	50	50	125	+95	Business services/spinouts

Source: BRES via NOMIS, Rotherham 027.



Source: Business Register and Employment Survey (BRES) via NOMIS, Rotherham 027 (E02001603).

Figure 7: AMP Cluster Employment by Sector, Rotherham 027, 2015-2023 (Employee jobs)
Source: Business Register and Employment Survey (BRES) via NOMIS, Rotherham 027 (E02001604).

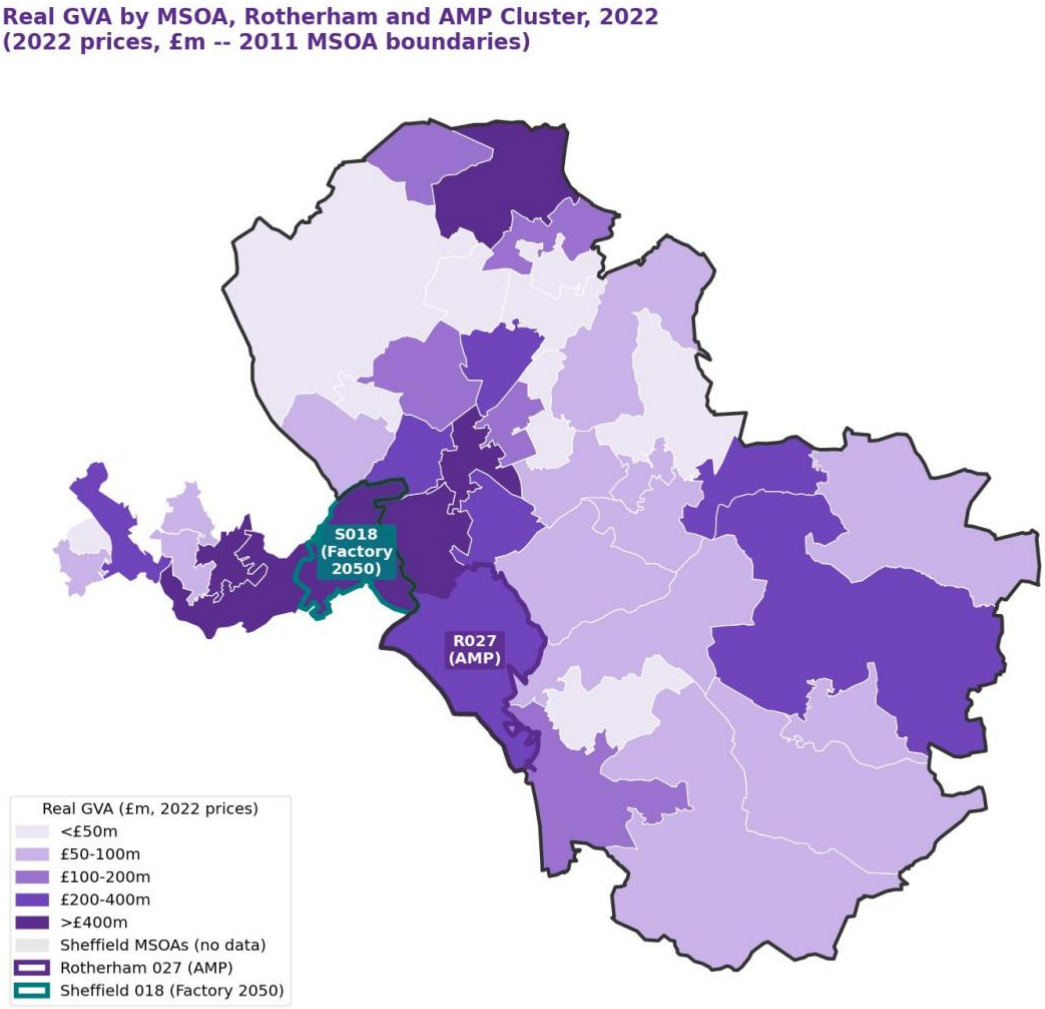
6.3 The cross-boundary cluster: Sheffield 018

The Advanced Manufacturing Park cannot be fully understood within Rotherham's administrative boundary. The Sheffield Parkway (A630) forms a hard geographic divide: the original 150-acre AMP sits entirely within Rotherham (S60 postcodes), but the AMRC's expansion (Factory 2050, opened in 2016) and the University of Sheffield's Advanced Manufacturing Campus are located on Sheffield Business Park on the Sheffield side of the road. Boeing Sheffield is also registered at this address. These facilities fall within Sheffield and are therefore attributed to Sheffield in both BRES employment and the MSOA GVA data, not to Rotherham.

Sheffield 018 is a large and diverse MSOA covering a wider geography than the AMP-related cluster alone. With real GVA of £1,634m in 2022 and approximately 22,600

employee jobs, it encompasses significant non-AMP economic activity, including the former Sheffield City Airport site, adjacent industrial and commercial uses along the Don Valley corridor, and established employers predating the AMP's development. The GVA and employment figures for Sheffield 018 should therefore not be attributed completely to the AMP cluster; they represent an upper-bound estimate of the Sheffield side of the wider advanced manufacturing corridor. Notwithstanding this caveat, the GVA per employee job figure for Sheffield 018, £72,100 in 2022, growing from £61,400 in 2015 (+17.4%) is comparable to Rotherham 027's £79,400 and well above the Rotherham borough average of £52,900. This is consistent with a concentration of high-value economic activity across the full cross-boundary corridor.

Figure 8 shows real GVA by MSOA across Rotherham and the adjacent Sheffield 018 cluster in 2022, using 2011 MSOA boundaries. The spatial concentration of high-value economic activity along the Don Valley corridor is clearly visible, as is the cross-boundary nature of the cluster.

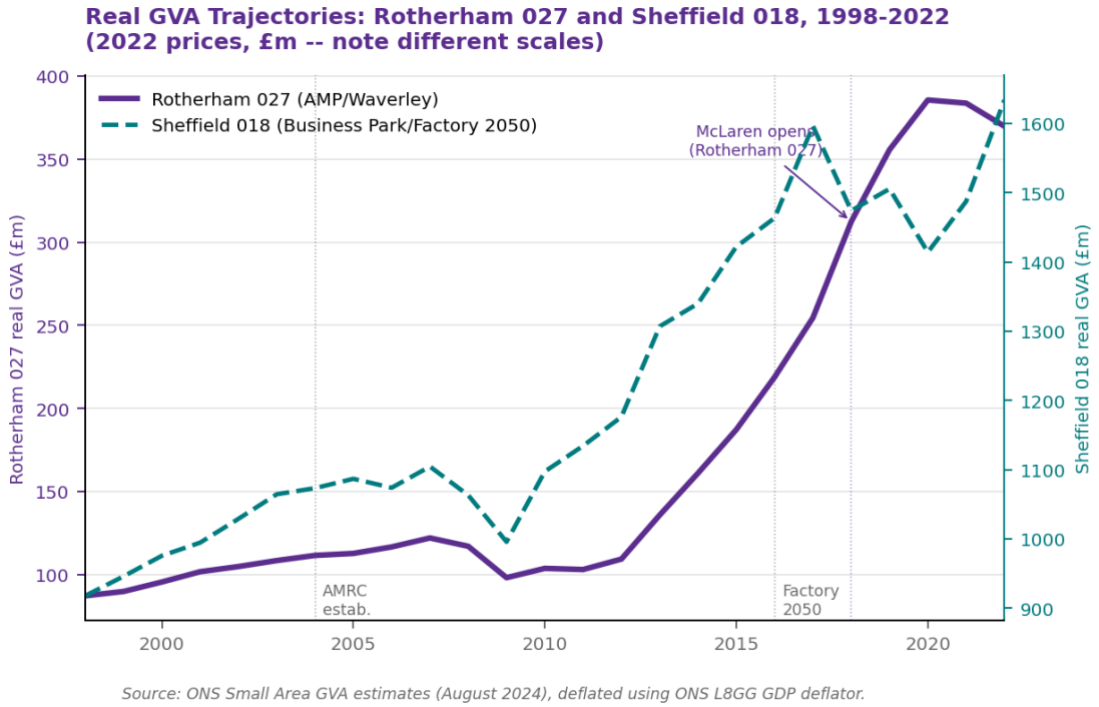


Source: ONS Small Area GVA estimates (August 2024). Rotherham local authority boundary shown as dark border.

Figure 8: Real GVA by MSOA, Rotherham and AMP Cluster, 2022 (2022 prices, £m)

Source: ONS Small Area GVA estimates (August 2024), deflated to 2022 prices. Rotherham local authority boundary shown as dark border. 2011 MSOA boundaries.

Figure 9 shows the real GVA trajectories of Rotherham 027 and Sheffield 018 since 1998. Note the different scales: Sheffield 018 has consistently generated much larger absolute GVA, reflecting its broader geographic coverage, while Rotherham 027 shows the more dramatic proportional growth rate as the AMP has matured.



Source: ONS Small Area GVA estimates (August 2024), deflated using ONS L8GG GDP deflator.

Figure 9: Real GVA Trajectories, Rotherham 027 and Sheffield 018, 1998-2022 (2022 prices, £m)

Source: ONS Small Area GVA estimates (August 2024), deflated using ONS L8GG GDP deflator. Note different vertical scales for each series.

6.4 Combined cluster analysis

Taking Rotherham 027 and Sheffield 018 together as a proxy for the wider Don Valley advanced manufacturing corridor, the combined real GVA reached approximately £2.0bn in 2022, up from £1.2bn in 2004 (+69% in real terms). Combined employee jobs total around 27,300, giving a combined GVA per employee job of around £73,600, consistent with both component MSOAs and well above the Rotherham borough average of £52,900.

This combined figure should, however, be treated with care for two reasons. First, Sheffield 018 is a large MSOA and a significant proportion of its GVA pre-dates and is unrelated to the AMP cluster. The combined figure, therefore, overstates the cluster's contribution in absolute terms. Second, the GVA per employee job figures for both MSOAs are subject to the same limitations as the rest of the small-area analysis (see Appendix A), and cross-MSOA comparisons should be treated as indicative.

6.5 GVA per employee job: the cluster pulling away from the borough

Figure 10 below tracks real GVA per employee job for Rotherham 027, Sheffield 018 and the Rotherham borough average from 2015 to 2022. The chart reveals a finding that goes beyond the absolute GVA story: the AMP cluster is not just growing faster than the rest of the borough in output terms, it is widening the productivity gap. The premium of Rotherham 027 over the borough average has grown from just 7% in 2015 to 50% in 2022.

The key figures are set out in the table below, followed by the full 2015-2022 trajectory.

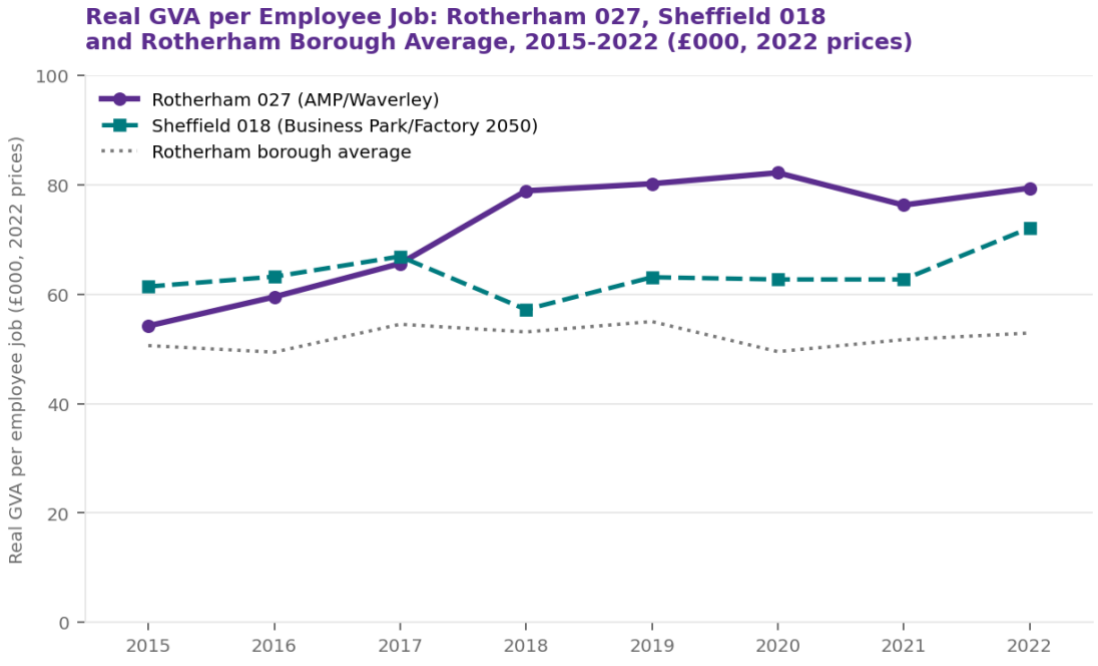
	2015 £k	2019 £k	2022 £k	Premium over avg
Rotherham 027 (AMP)	54.2	80.2	79.4	+7% → +50%
Sheffield 018 (Business Park)	61.4	63.1	72.1	+21% → +36%
Rotherham borough average	50.6	55.0	52.9	—

Source: ONS Small Area GVA estimates (deflated to 2022 prices) and BRES via NOMIS. Premium = % above Rotherham borough average GVA per employee job in that year.

Rotherham 027's trajectory is the most significant. In 2015, its GVA per employee job was just 7% above the borough average. By 2019 the premium had grown to 46%, driven almost entirely by GVA growth in the MSOA rather than employment loss elsewhere. By 2022 the premium stood at 50%. The available data does not show the cluster raising the borough's productivity average through measurable diffusion, GVA per employee job in the surrounding MSOAs has remained broadly flat throughout the period.

However, this measure cannot capture supply chain effects that reach beyond MSOA boundaries. Boeing, for example, sources approximately 70% of its supply chain from within 50 miles of its Sheffield facility, a diffusion impact that is not captured in this data. While the cluster is generating concentrated, measurable productivity gains within Rotherham 027, its wider economic effects, including supply chain linkages, skills demand and knowledge spillovers, may be significant but are not captured by the data available for this analysis. This is the case both for further intervention to widen connectivity and supply chain linkages between the AMP and the wider borough, and as a caution against reading the absence of measured diffusion as evidence that none is occurring.

Sheffield 018 shows a different pattern. Its premium over the Rotherham borough average narrowed between 2015 and 2019 before recovering to 36% in 2022. This is partly a reflection of Sheffield 018's broader geographic character, it contains a wider mix of economic activity than Rotherham 027, but the recovery in its premium post-2019 is consistent with the concentration of higher-value post-pandemic activity in the Business Park cluster. Both MSOAs now sit substantially above the Rotherham borough average, and the gap is widening.



Source: ONS Small Area GVA estimates (deflated) and BRES via NOMIS.

Figure 10: Real GVA per Employee Job, Rotherham 027, Sheffield 018 and Rotherham Borough Average, 2015-2022 (£000, 2022 prices)

Source: ONS Small Area GVA estimates (deflated to 2022 prices using ONS L8GG GDP deflator) and BRES via NOMIS. Figures are indicative; see Appendix A for methodology and caveats.

7. Conclusions

7.1 A sustained economic transformation

Since 2004, Rotherham has undergone a genuine and sustained economic transformation. Four independent data sources confirm this: the ITL3 productivity index shows 63.9% growth from 2004 to 2023, the highest in South Yorkshire; deflated MSOA GVA data shows 231% real growth in the Advanced Manufacturing Park MSOA; and BRES employment data links sectoral changes to physical infrastructure. The productivity increase likely reflects both the expansion of high-value advanced manufacturing and engineering services at the AMP and a reduction in public sector headcount.

7.2 Convergence from a low base

The headline productivity figures require careful interpretation. Rotherham's 63.9% growth since 2004 reflects convergence from a low starting point. In absolute terms, GVA per hour worked was 78.9 (UK=100) in 2023, below Sheffield (86.2) and Barnsley (81.3). The 13.6% post-2019 acceleration is real but mainly compositional. Real GVA was nearly flat (+0.3%) from 2019 to 2022, while productivity improved. This pattern is consistent with a combination of public sector headcount reduction and AMP-led GVA growth.

While Rotherham has narrowed the gap with Sheffield from 16.5 index points in 2004 to 7.3 in 2023, it has not yet reached the South Yorkshire or UK averages. Equally, starting from one of the lowest productivity bases in the country means the conditions for continued convergence remain in place. Rotherham has more room to grow than most.

7.3 The AMP as the engine of future growth

The Advanced Manufacturing Park at Waverley provides the strongest evidence of high-value economic activity in Rotherham, with its trajectory indicating further growth. Real GVA in Rotherham 027 increased by 231% from 2004 to 2022, more than three times any other MSOA in the borough. GVA per employee job reached £79,400 in 2022, 50% above the borough average and rising. The cluster has been expanding, with growth in motor vehicles (McLaren), aerospace, electronics, high-precision engineering, and R&D. The AMP is not a legacy project but an active and growing hub of high-value manufacturing and innovation, aligning with the UK's Modern Industrial Strategy. Its potential to drive further productivity will depend on future expansion, much of which may be on the Sheffield side of the boundary.

8. Policy Recommendations

This analysis has implications for policy at national, regional, and local levels. Rotherham serves as a test case for the UK's Modern Industrial Strategy and the South Yorkshire Mayoral Combined Authority's Growth Plan 2025-2035. Advanced manufacturing investment has clearly driven productivity improvement from a low base, with infrastructure for further growth already established and remaining constraints identifiable. The following recommendations are organised by the three relevant policy tiers.

8.1 National: aligning the Modern Industrial Strategy to existing advanced manufacturing clusters

The UK's Modern Industrial Strategy (June 2025) identifies advanced manufacturing as one of eight priority sectors (the IS-8), with a commitment to nearly double annual business investment in the sector and up to £2.8 billion in research and development over the next five years. The Advanced Manufacturing Sector Plan specifically targets aerospace, automotive, agri-tech, batteries, space and advanced materials. The Advanced Manufacturing Park at Rotherham is directly relevant to several of these sub-sectors: McLaren sits within automotive; the AMRC's aerospace and composites work spans aerospace and advanced materials; and the wider Waverley cluster includes significant electronics and high-precision engineering activity.

The AMRC is already embedded in the Modern Industrial Strategy's implementation framework as a member of the High Value Manufacturing Catapult, which sits at the centre of the Advanced Manufacturing Sector Plan. The government's relationship with the AMP cluster is therefore not new. What this analysis adds is the quantitative case for deepening that relationship in two specific ways.

First, the Advanced Manufacturing Sector Plan identifies six frontier industries - aerospace, automotive, agri-tech, batteries, space and advanced materials - as the focus for nearly doubled business investment by 2035. The AMP cluster has demonstrable strengths across at least four of these: aerospace (Boeing, Rolls-Royce), automotive (McLaren), advanced materials (AMRC composites and metallurgy research), and batteries (growing electrification work). The recommendation is that the AMP be formally designated as the primary national demonstrator site for implementing the Advanced Manufacturing Sector Plan, rather than simply as one of several nodes within the HVM Catapult network. A demonstrator designation would direct the coordination of frontier industry investment activity, supply chain development and skills infrastructure to an existing cluster that the MSOA data shows is already generating the highest measured GVA per employee job of any MSOA in Rotherham. Directing IS-8 investment towards an established and expanding cluster, rather than building new ones from scratch, offers demonstrably better value and lower risk.

Second, the AMRC's HVM Catapult allocation should be reviewed upward in the next spending round on the basis of the productivity evidence presented here. The AMP MSOA recorded real GVA per employee job of £79,400 in 2022, 50% above the Rotherham borough average and growing at 46.5% in real terms since 2015. This is the strongest measurable productivity performance of any comparable geography in the region, and it has been delivered on the back of sustained government co-investment through the Catapult model. The Modern Industrial Strategy commits £4.3 billion to advanced manufacturing over the next five years. The MSOA productivity data makes the analytical case that the AMP cluster should be considered a priority candidate for a substantial share of that investment, where the indicative returns on public R&D co-investment are high and the physical and institutional infrastructure to absorb further investment is already in place.

The Modern Industrial Strategy's commitment to reducing electricity costs by up to 25% for electricity-intensive manufacturers from 2027 is also important for Rotherham. The analysis

in Section 3 identifies energy sector contraction as the dominant driver of GVA decline post-2019. Lower energy costs would directly improve the operating economics of the steel and advanced manufacturing base that remains, supporting the retention and growth of the industrial employment that anchors the borough's productivity trajectory.

8.2 Regional: Don Valley Growth Corridor

The South Yorkshire Growth Plan 2025-2035 (September 2025) sets out SYMCA's vision for a bigger and better South Yorkshire economy by 2035, organised around four missions and four growth areas. Critically for this paper, the Growth Plan explicitly cites Rotherham's productivity trajectory as evidence that industrial strategy can work: "the lesson from Rotherham, one of the few places in the UK to have delivered industrial strategy successfully around the Advanced Manufacturing Park". The four growth areas identified in the plan are Sheffield City Centre and Innovation Spine, Don Valley, South Yorkshire Airport City, and Barnsley Town Centre. The Don Valley corridor directly encompasses the AMP and the geography analysed in this paper. The analysis presented here provides evidence of the Growth Plan's qualitative assessment of the AMP's significance.

Two specific recommendations follow from the analysis. First, SYMCA should consider commissioning a follow-up spatial analysis of the Don Valley growth area corridor using the GVA per employee job methodology developed in this paper, extended to cover the full cross-boundary geography of the AMP cluster, including the adjacent Sheffield MSOAs into which some Rotherham economic activity is currently attributed. The Growth Plan identifies this corridor as a priority growth area; the data provides the quantitative foundation, but the geographic boundary used in official statistics does not accurately reflect the cluster's true extent. A cross-boundary spatial analysis would give the Don Valley programme a stronger and more accurate evidence base for investment decisions.

Second, the Growth Plan's Mayoral Economic Advisory Council explicitly flags that only 1% of South Yorkshire's population can reach the Advanced Manufacturing Park within 30 minutes on public transport, describing this as "deeply concerning". There is no better recommendation for the South Yorkshire People's Network approach to public transport, and whatever interim arrangements are possible, it is undoubtedly the case that franchising will make market building and alternative models easier to deploy.

The opportunity to deliver a new innovation quarter adjacent to the Rotherham Gateway railway station gives the potential for an additional driver for the wider Don Valley Corridor. It will be critical to develop new strengths in defence, for example, which will benefit from a location well connected to the rest of the North and Midlands.

8.3 Local: addressing the remaining productivity gap

Rotherham's productivity gap compared to South Yorkshire and UK averages reflects the labour market composition outside the AMP. Most MSOAs have GVA per employee job below the borough average, mainly in public sector, retail, and social care roles with limited exposure to productivity growth at Waverley. Closing this gap requires both strengthening the AMP cluster and extending its benefits across the borough.

MSOA-level analysis identifies Rotherham 025 (Brinsworth) as the area with the second highest real GVA per employee job outside the AMP. The corridor between the town centre and the AMP offers the greatest potential for supply chain development and spillover investment. Local industrial strategy should prioritise site development, infrastructure, and connectivity along this corridor to link the AMP's anchor institutions with a broader industrial base and extend productivity gains to more of the borough's workforce.

Appendix A: Methodology

This paper constructs a real small-area GVA per employee job measure by dividing deflated MSOA GVA (ONS small area estimates, converted to 2022 prices using the ONS implied GDP deflator) by total employee jobs (BRES via NOMIS) for the years 2015-2022, where both datasets overlap.

A.1 Methodological precedent

GVA per job filled is a well-established measure in the UK regional economics literature. ONS publishes it as its primary small area productivity indicator for travel to work areas and towns and cities, explicitly recommending it over GVA per head for areas with significant in- or out-commuting. The rationale is that GVA is a workplace measure of economic output, and a workplace-based denominator is therefore the most appropriate match.

The most directly comparable published work is Beatty and Fothergill's series of studies at Sheffield Hallam University's Centre for Regional Economic and Social Research (CRESR). Their 2020 report on productivity in Sheffield City Region deployed GVA per filled job as the base measure, alongside a range of adjusted indicators controlling for industry mix, occupational mix and hours worked. Their central finding, that apparent productivity differences between places largely reflect industrial composition as opposed to genuine efficiency gaps, is relevant to the interpretation of Rotherham's MSOA-level variation, where capital-intensive energy and steel sites produce high GVA per job by construction rather than by workforce efficiency.

Centre for Cities' October 2025 report on UK city productivity also uses GVA per job filled and GVA per hour worked as its twin measures, decomposing productivity into GVA growth and labour input components, the same methodology applied here in Section 3.2.

A.2 Why the small-area GVA per employee job measure and the ITL3 productivity index are not directly comparable

The ONS ITL3 labour productivity index for Rotherham (Section 2) and the small-area GVA per employee job measure constructed in this section answer different questions and cannot be directly compared. The gap between them, the ITL3 index showing +13.6% growth between 2019 and 2023 while borough-wide GVA per employee job was broadly flat in real terms over the same period, comes from four fundamental methodological differences.

1. The output measure: chained volume GVA versus deflated current price GVA. The ITL3 index uses the ONS regional GVA(B) data compiled in chained volume measures, a methodologically rigorous approach that removes price effects using sector-specific deflators and accounts for changes in product quality over time. Our small-area GVA per employee job measure uses MSOA GVA in current prices deflated by the national implied GDP deflator. This is a broad approximation: it applies a single economy-wide price index to all sectors equally, whereas the chained volume approach uses different deflators for different industries. In practice this means our deflation approach may overstate real GVA growth in sectors where price inflation has been above average (such as energy post-2021) and understate it in sectors where prices have fallen in real terms (such as technology). The two output series will therefore diverge even before any other differences are considered.

2. The labour input measure: hours worked versus employee headcount. ONS considers output per hour worked its preferred productivity measure because it accounts for differences in working patterns between areas and over time. Our small-area GVA per employee job measure uses BRES employee headcount only. These denominators move differently when the composition of employment shifts towards sectors with shorter average hours, such as services replacing energy and steel, since total hours worked falls faster than headcount. The self-employed are also excluded from BRES but included in the ITL3 hours-

worked denominator, so changes in the self-employed share of total work will cause further divergence between the two measures.

3. Geographic coverage. The ITL3 Rotherham boundary and the 33 MSOA boundaries should be coextensive but are not perfectly aligned. Some activity generated in Rotherham may be registered under Sheffield addresses and vice versa.

4. Time period. The ITL3 index runs to 2023 while the MSOA measure covers 2015-2022 only, missing the final year in which some of the strongest ITL3 growth was recorded.

The ITL3 index is therefore the authoritative measure of Rotherham's overall productivity performance; the small-area GVA per employee job measure adds spatial granularity the ITL3 cannot provide though both provide valuable insight.

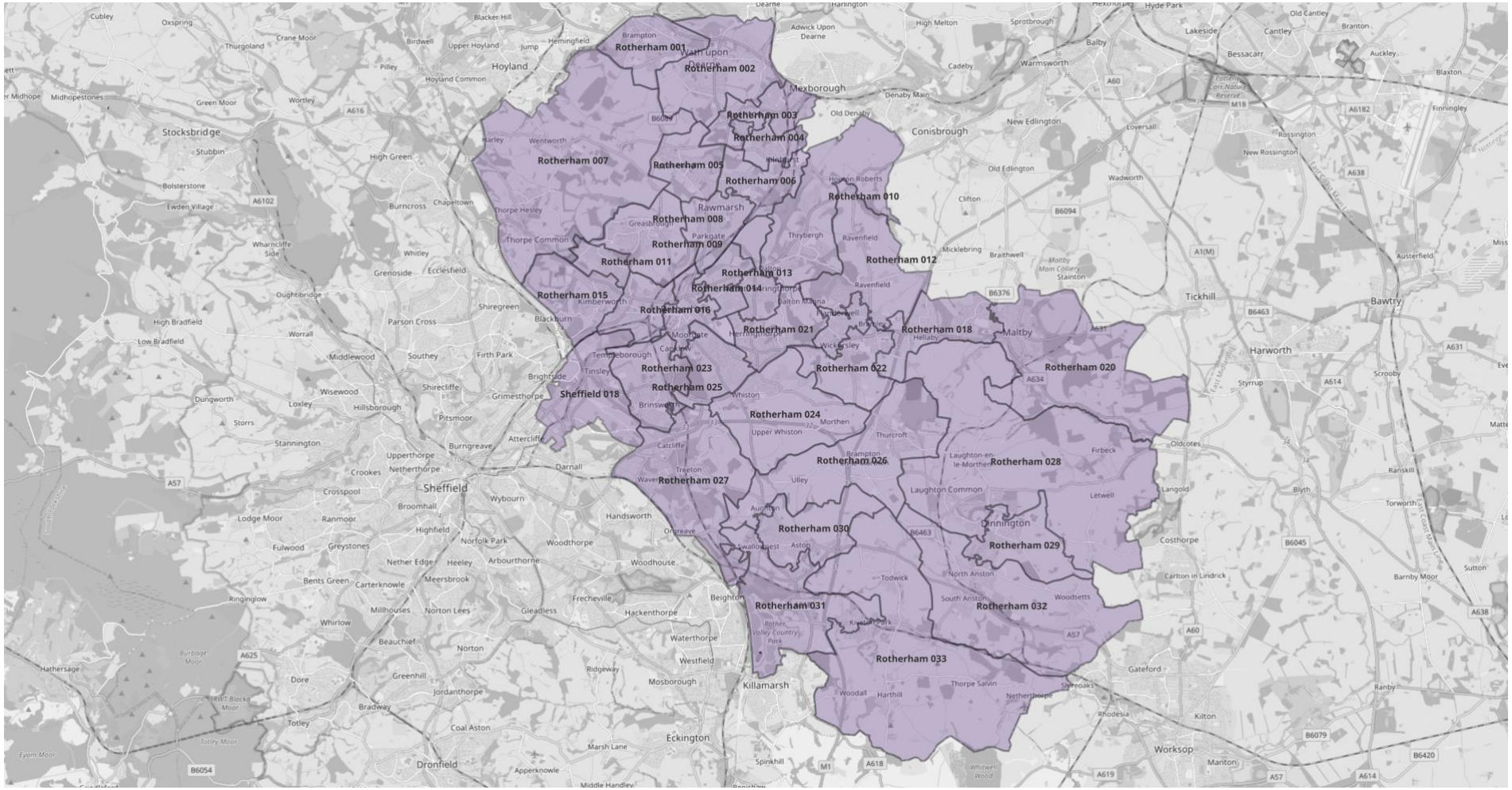
A.3 Limitations of the small-area GVA per employee job measure

The following limitations apply to the small-area GVA per employee job measure and should be borne in mind when interpreting the results in Sections 5.1 and 5.2 of the main paper.

1. **Indicative, not definitive.** ONS has not published constant price MSOA GVA estimates; chained volume measures are non-additive across small areas. The GDP deflator used here is an economy-wide index, not a local or sector-specific one. MSOA GVA is also an apportioned estimate, not directly observed output: ONS derives it by disaggregating local authority GVA using VAT turnover as a proxy, which can misattribute activity where registered and operational addresses differ. Cross-year comparisons and individual MSOA figures should be treated as indicative. The MSOA data is classified as "official statistics in development".
2. **Employee jobs only.** BRES excludes self-employed workers, understating the denominator in construction-heavy or professional services MSOAs. Average hours are not available below local authority level, so no hours adjustment is possible; MSOAs with high part-time shares will show lower GVA per job than their true output per hour warrants.
3. **Capital intensity.** In capital-intensive sectors e.g. energy, steel, infrastructure, GVA per job is high because capital assets contribute substantially to output. Rotherham 024's peak GVA per employee job of £182,400 in 2015 is an example of how capital-intensive activity can inflate the measure; the causes of this spike remain unexplained.
4. **Series length is constrained by BRES methodology changes.** The GVA per employee job series runs from 2015 to 2022 only. Pre-2015 BRES uses a different methodology that cannot be spliced; the 2023 BRES release introduces a further discontinuity. The 2015-2022 window covers the AMP's maturation phase and is internally consistent.

Appendix B: Rotherham MSOA Boundary Map

The map below shows the boundaries of all 33 Rotherham Middle Layer Super Output Areas (MSOAs) and the adjacent Sheffield 018 MSOA covering the Sheffield Business Park and Factory 2050 cluster. MSOA numbers correspond to those used throughout the analysis in the main paper. 2011 MSOA boundaries.



Source: ONS 2011 MSOA Boundaries (BGC). Basemap © OpenStreetMap contributors.