

Measuring Economic Growth; an InfoNet Briefing (July 2006)

Introduction

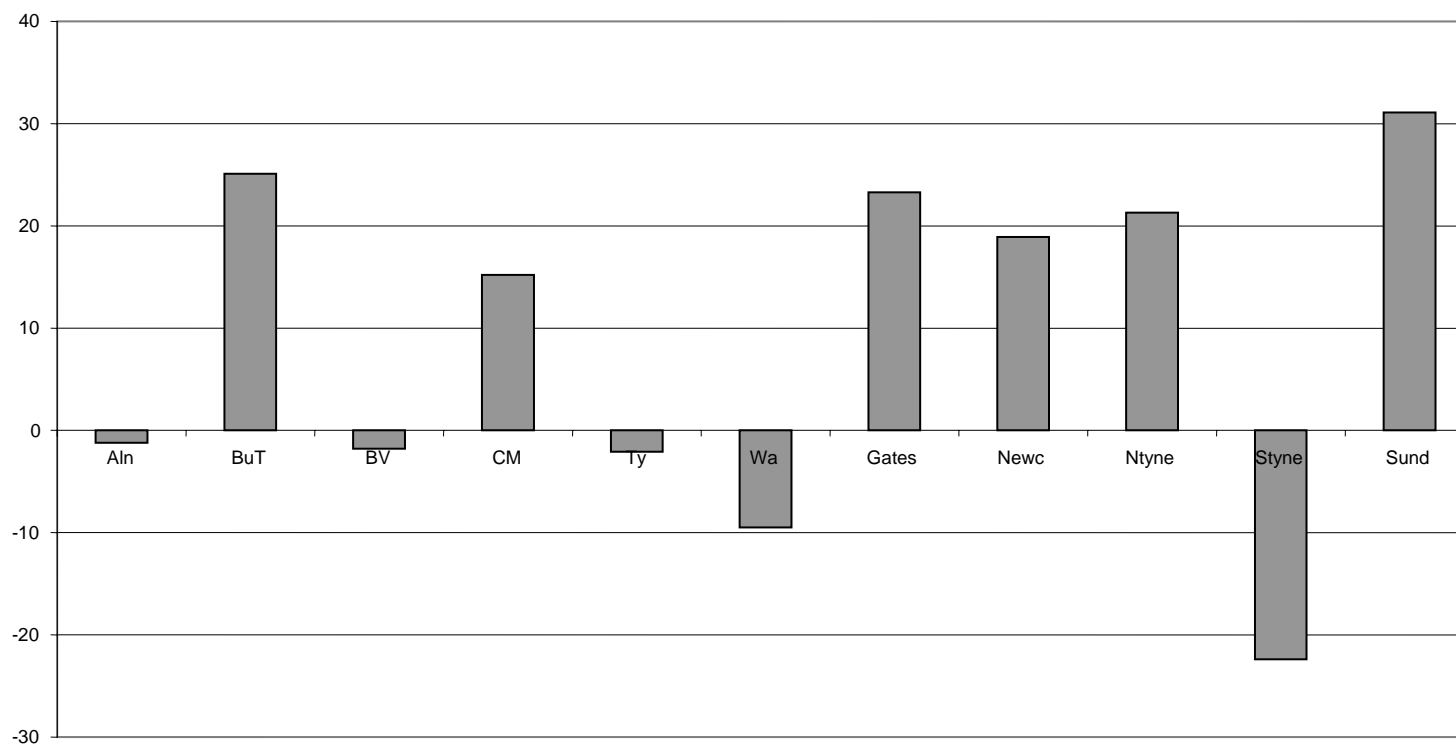
Economic growth is the most fundamental indicator of an economy's health; the rate at which national income is growing. It can be measured by two means: Gross Value Added (GVA) and Gross Domestic Product (GDP), which are intrinsically linked. This note uses data from the Office for National Statistics to look at how economic growth is measured at a: national, regional, sub-regional and local (district) level and explains the relationship between GVA and GDP. A frustration in this data is the time-lag in its availability.

GVA and GDP in Northumberland

Figure 1 illustrates the growth of GVA in each of the districts/metropolitan boroughs in the North East. It can be seen that 4 of the 6 Northumberland districts have actually had a decline from 2000-2003. Alnwick, Blyth Valley and Tynedale have seen a reduction up to 2.1%, Wansbeck has had the largest reduction at 9.5%.

Of the 2 districts that have seen a growth, Castle Morpeth has the lowest growth in the region at 15.2%, and Berwick-upon-Tweed the second highest, 25.1%.

Figure 1: GVA Growth by District 2000-2003



Analysing this growth by sector in Figures 3 and 4, shows that Education is the most volatile sector in the region. It has had a substantial negative effect in Alnwick and a positive effect in Tynedale. Large, positive effects on the districts in Northumberland

have been from construction; transport, storage and communication and real estate; and renting and business activity. Large negative effects have been from agriculture, hunting and forestry; and from fishing.

Figure 2: GVA Growth by Sector and District 2000-2003

	Aln	BuT	BV	CM	Ty	Wa	Gates	Newc	Ntyne	Styne	Sund
Agriculture (pt), hunting and forestry	-74.4	-28.3			-68.4			-69.9	-28.2		
Fishing	-80.0	-80.0	-77.0			-81.9			-79.5		-91.6
Mining & quarrying				-18.8	-39.3						
Manufacturing	-11.0	83.5	-20.4	-47.3	-7.7	-15.5	28.6	25.3	-8.7	-24.4	10.1
Electricity, gas and water supply											
Construction	66.7	102.1	128.5	112.6	53.1	81.0	63.0	20.5	75.1	34.8	91.3
Wholesale and retail trade et al	-24.2	-25.8	-20.9	-11.7	-21.4	-26.2	9.3	-8.7	7.7	-29.6	7.2
Hotels and restaurants	-17.9	-13.9	-0.5	12.4	-10.9	-10.3	8.4	15.2	-0.7	6.2	10.2
Transport, storage and communication	36.3	36.3	34.1	11.1	16.0	23.0	36.0	-3.2	121.1	-22.1	104.4
Real estate, renting and business activity	60.2	33.0	29.5	28.0	18.3	9.1	0.0	30.8	29.9	-44.2	-0.2
Education	-2430.8				320.2		-943.2				-194.9
Health and social work	6.7	6.2	15.2	7.7	14.6	-39.8	18.3	36.4	12.9	6.8	17.2
Other community, social and personal service activity	-54.8	-1.8	7.0	4.0	12.7	-4.5	45.0	109.4	-39.6	19.6	-29.1
Total	-1.2	25.1	-1.8	15.2	-2.1	-9.5	23.3	18.9	21.3	-22.4	31.1
£ millions	133.3	194.9	425.5	276.0	384.0	208.1	1,968.0	2,991.0	1,375.9	617.7	2,855.9

Source: ONS Special Request (2006)

Figure 3: GVA Growth by Sector and District 2000-2003 - Excluding Education

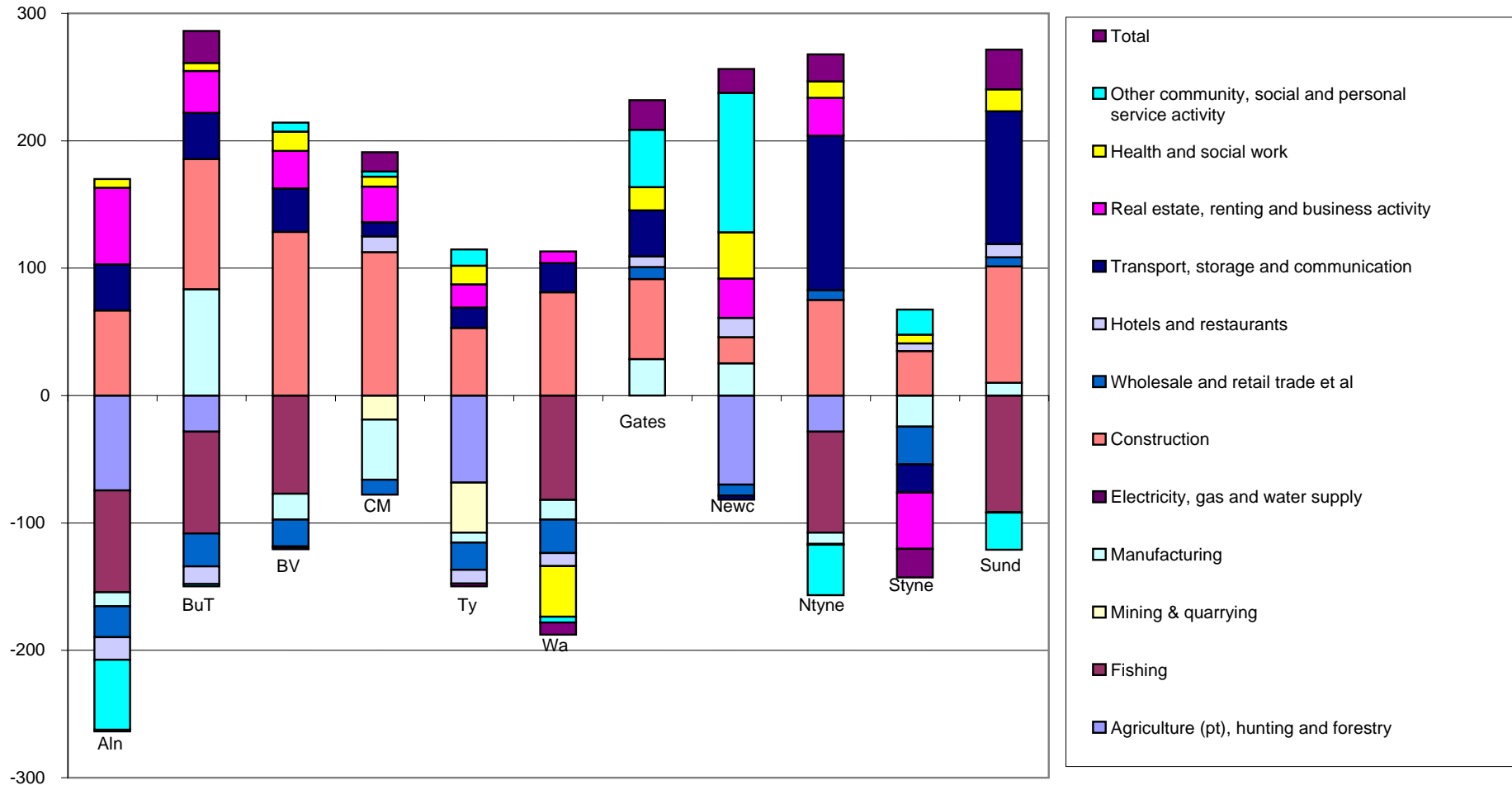


Figure 4: GVA Growth by Sector and District 2000-2003

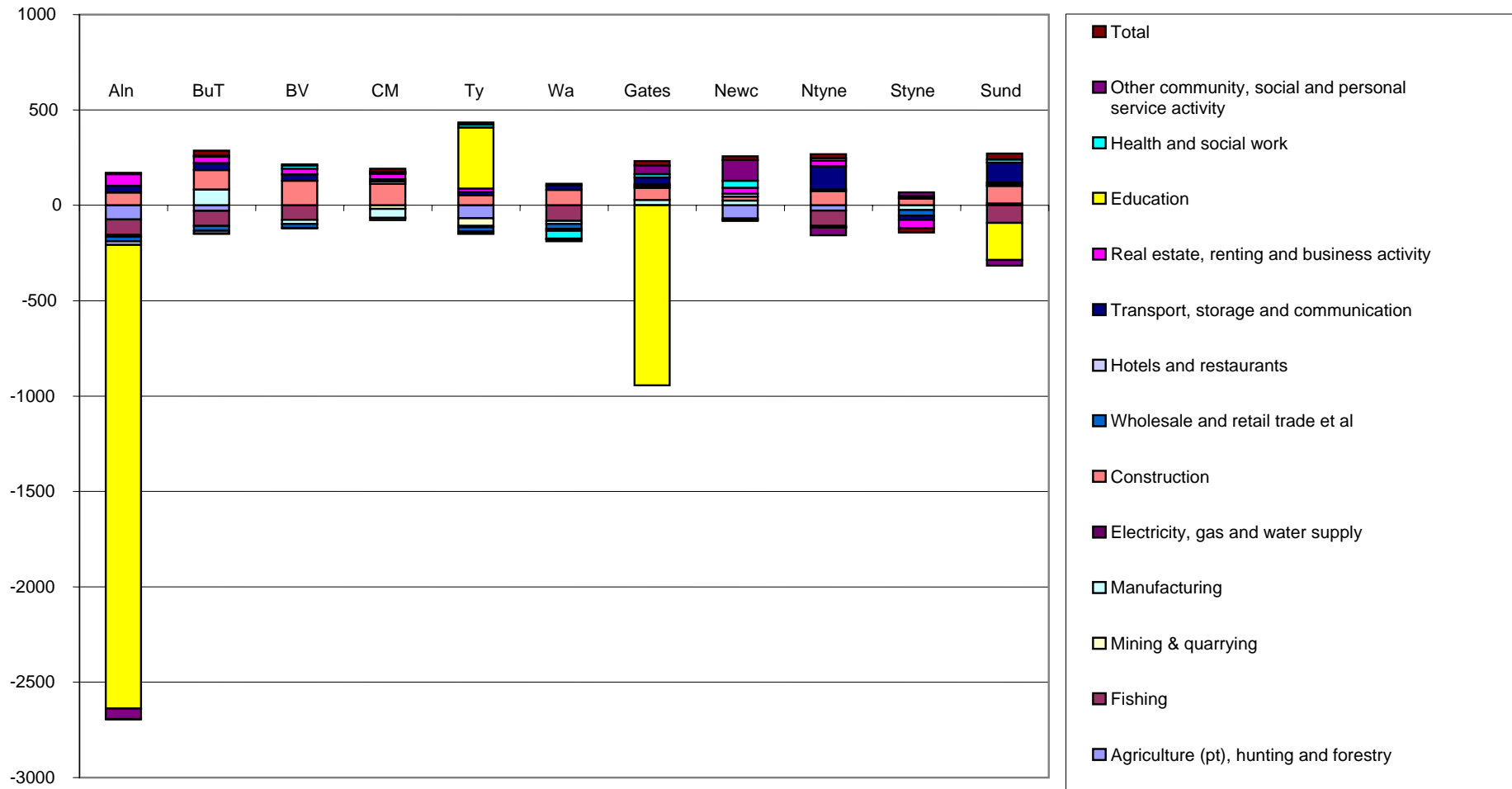


Figure 5 illustrates how Northumberland as a whole compares with the rest of the country for GVA per person. For 2001 Northumberland was the 2nd lowest NUTS3 area out of 91 areas in the country, with a GVA per head of £8,722. This is below the North East (£11,009) (the lowest performing region) and the UK (£14,418). (*N.B. The graph is unbalanced by the area of Berkshire which has the highest GVA per head*)

Figure 6 illustrates GVA and GDP for the NUTS3 areas in the North East. The most recent data for GDP is for 1998 so the comparison has been done for GVA in the same year. With the exception of Northumberland and South Teeside, GDP is greater than GVA. This amount varies across the region from around £350-£900 extra per head for GDP, with an average of £280 extra per head for the North East, and £310 extra per head in the UK. For Northumberland GDP is slightly lower than GVA, by £279 less per head.

The basic reason for the discrepancy between GVA and GDP is because GVA is an economic measure at basic prices, whereas GDP is at market prices. This means it GDP includes taxes but removes subsidies. Therefore for GVA to be higher than GDP, Northumberland must receive more money from subsidies than it does on taxes.

A more detailed discussion on the methodology of GVA and GDP is in the next section.

Figure 5: GVA £ per head (2001)

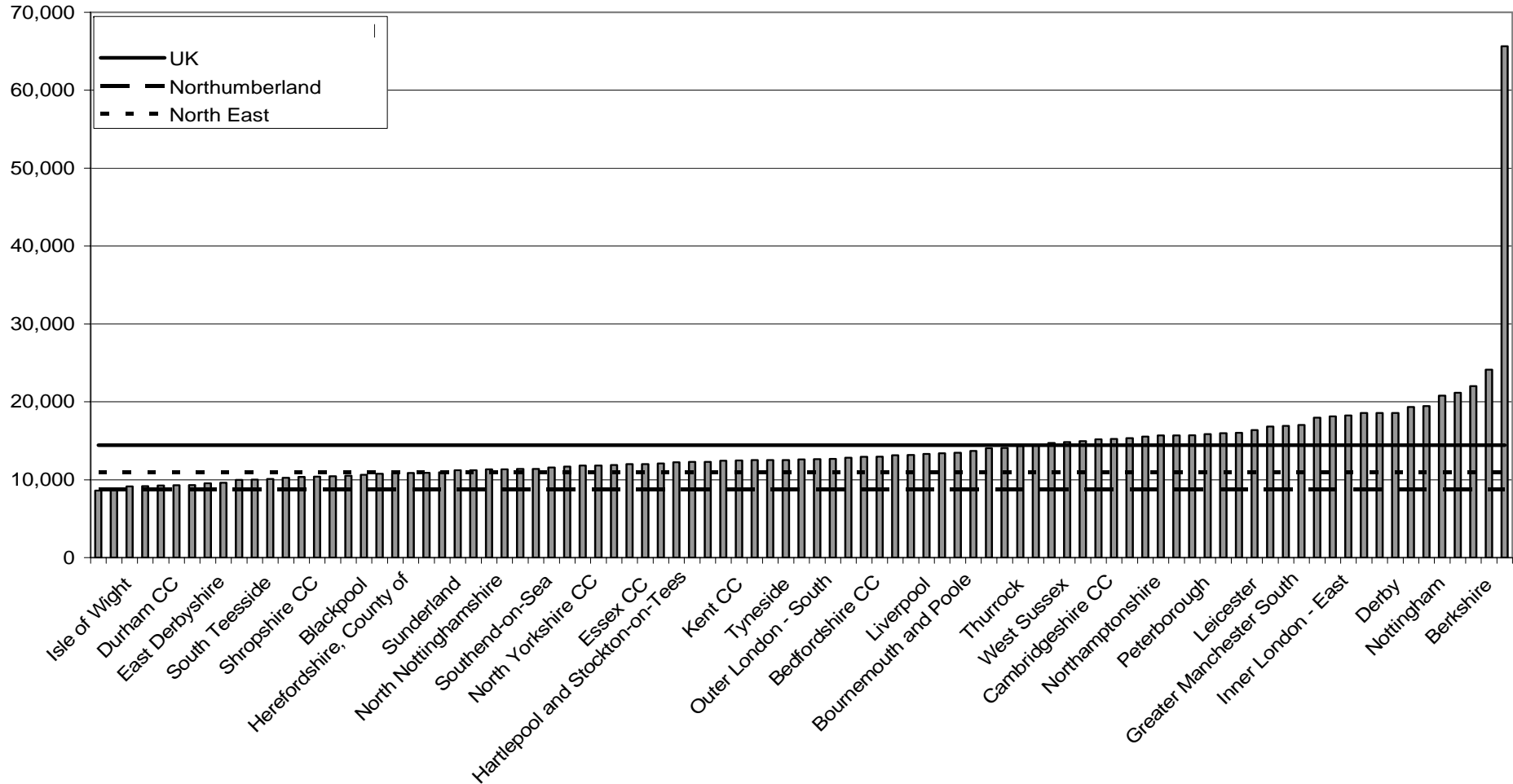
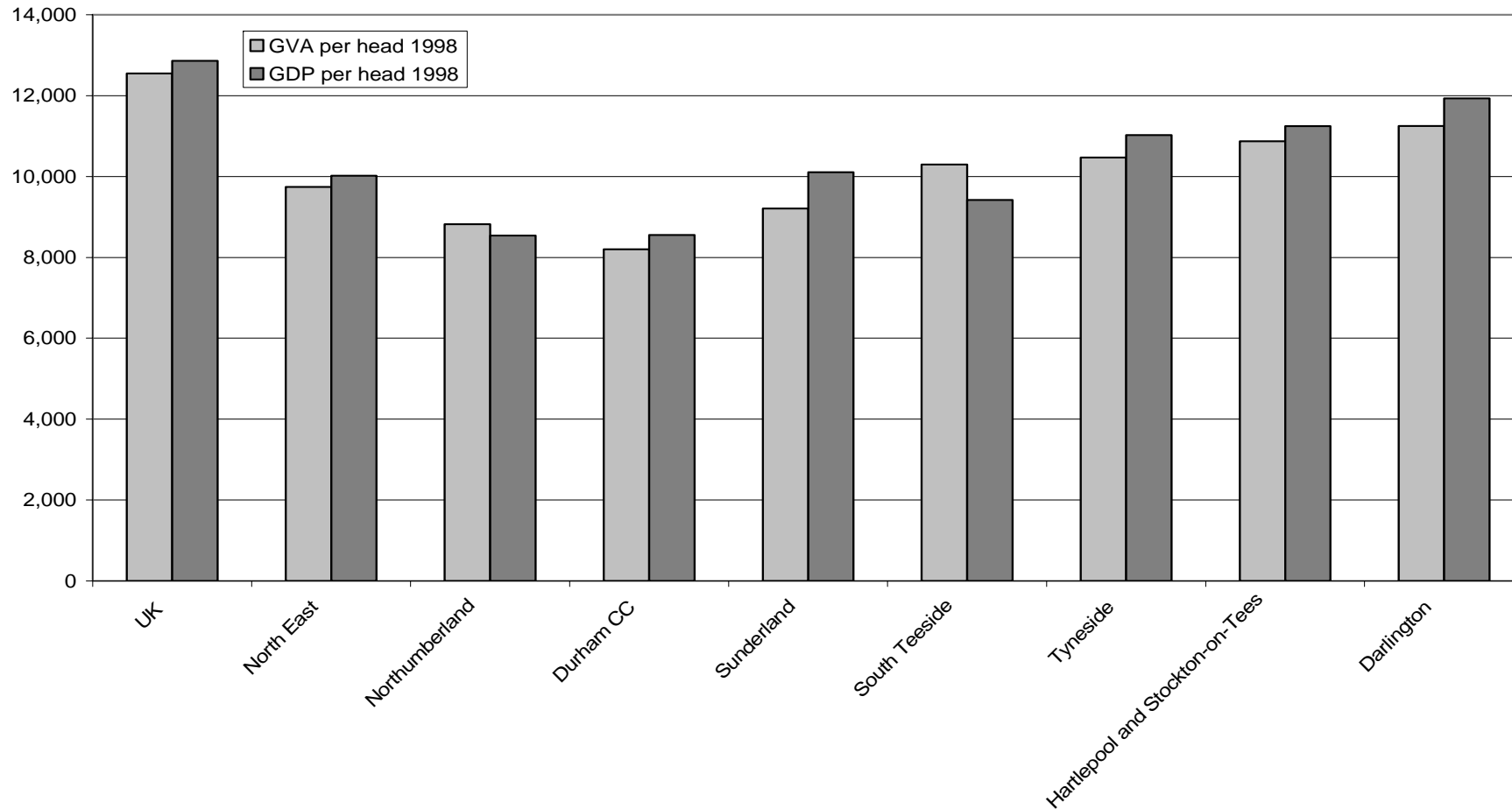


Figure 6: GVA and GDP Per Head



The Definition of GVA and GDP

GVA measures the contribution to the local/national economy of each individual producer, individual or sector and is used in the estimation of GDP the key indicator of the state of the whole economy. GVA is consistent with the European System of Accounts (ESA95)¹ and is the accepted measure of total economic activity and economic growth at a regional and sub-regional level. GDP is equal to GVA (at basic prices) plus taxes on products minus subsidies on products.

At a **National level**, three approaches are used by ONS to estimate GVA:

- Production
- Income
- Expenditure.

The **production** approach to estimating GDP looks at the contribution of each economic unit by estimating the value of an output (goods or services) less the value of inputs used in that output's production process. The **expenditure** approach to estimating GDP measures total expenditure on finished or final goods and services produced in the domestic economy.

However, there is insufficient information available to estimate GVA for all regions of the UK using either the production or expenditure approaches, so all **sub-national** estimates of GVA (i.e. at NUTS1-3)² are derived using the **income** approach.

¹ The European System of Accounts 1995 (ESA95) is based on the System of National Accounts 1993 which was sponsored by all major international organisation and is adopted world wide.

² The North East is a NUTS1 area; Northumberland and Tyne and Wear is a NUTS2 area; and Northumberland is a NUTS3 area.

In simple terms, GVA at sub-national level is measured as the sum of incomes earned from the production of goods and services (i.e. salaries paid to employees and profits earned by businesses).

Sources of information used in calculating GVA at a sub-regional level are as follows

- **Compensation of Employees (CoE) for Non-manufacturing industries** - employee data from the Annual Business Inquiry (ABI³) and average earnings estimates from the Annual Survey of Hours & Earnings (ASHE) are used to measure the total expenditure by non-manufacturing organisations on salaries and wages.
- **Compensation of Employees for manufacturing Industries** - using ABI2 cost of employment data.
- **Compensation of Employees for Agriculture** - from the DEFRA Agricultural Census.
- **Mixed Income - Inland Revenue Survey of Personal Incomes Data.** This is an analysis of self-assessment returns and includes income from self-employment.
- **Gross Operating Surplus for non-manufacturing industries** - a proxy measure of trading profit using wages and salaries from CoE aggregates.
- **Compensation of Employees for manufacturing** - proxy from ABI, based on cost of employment.

ONS National and Regional Accounts do not provide estimates of GVA or GDP below NUTS3 level. However, estimates of economic growth at a district level can be derived from the ABI2 which calculates approximate GVA at basic prices.⁴ ABI2 covers

³ The ABI form is in two parts - one dealing with employment data (ABI1) and the other with accounting data (ABI2). ABI2 is a sub sample of ABI1 in which some of the industry sectors are not covered; but does cover all manufacturing industries.

about two thirds of the UK economy i.e. production; construction; motor trades; wholesale; retail; catering and allied trades; property; service trades, agriculture (part), hunting, forestry and fishing. Results are used to compile the input-output tables in the National Accounts, rebase the Index of Production, benchmark the inventories and capital expenditure quarterly inquiries and are supplied to Eurostat under the European Structural Business Statistics Regulation

However, it is not possible to make meaningful comparisons between district GVA estimates and those relating to NUTS2/3 as estimates of GVA generated by the service sector are not based on ABI2, but on a proxy measure of trading profit using wages and salaries from Compensation of Employees aggregates.

The sources of data used in measuring GVA are all derived from sample surveys and are subject to varying confidence intervals at a sub-regional level. In particular, concerns with the accuracy of the ABI have been expressed by the Information Network (the other Sub-Regional Observatories and other Research and Intelligence Units in the North East) since the survey's inception in 1998.

However, the main problem with GVA estimates at NUTS3 level, is that it is measured on a workplace basis, whilst the denominator for calculating GVA per head is the resident population for that area. As a result, estimates of GVA per head will be high in areas with considerable inward commuting and a low resident population (such as the City of London). Conversely, estimates of GVA per head will be low in areas with significant levels of outward commuting and high residential populations.

⁴ Approximate gross value added represents the income generated by businesses out of which is paid wages and salaries, the cost of capital investment and financial charges, before arriving at a figure for profit. It includes taxes on production (e.g. business rates), net of subsidies but excludes subsidies and taxes on products (e.g. VAT and excise duty).

According to the 2001 Census:

- 91,300 Northumberland residents live and work in the County;
- 44,800 Northumberland residents are employed outside of the County
- 16,200 people from elsewhere in the North East travel into Northumberland for work.
- This gives a net outflow of 28,600 employees, the incomes of whom do not contribute towards the Northumberland GVA estimate.

Residence-based estimates of GVA are available at NUTS1 level, but not at NUTS 2 or NUTS3. This is down to the availability of PAYE data, which is available at a Government Office Region level but has not yet been tested at a lower geographic level.



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