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# Linking the IDBR High Growth Firms to Other Business Surveys

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## SUMMARY

Recently published research applied the Organisation for Economic Cooperation and Development (OECD) measure of High Growth, defined as any business with 10 or more staff experiencing an annualised 20% growth in either employment or turnover over a 3-year period compared to a baseline year, to businesses in the Northern Ireland economy between 1998 and 2013<sup>1</sup>.

In brief, that research established that High Growth businesses in NI over the period were relatively evenly spread throughout the economy and represented a very important, though over time, a declining contributor of employment and turnover to the NI economy. The research generated a number of additional questions among which were; what new information about High Growth firms could be gleaned by linking the Inter Departmental Business Register (IDBR) database containing the High Growth marker flag to other businesses surveys? How feasible would it be to link other surveys to the HGF database and what sort of technical difficulties might be encountered when analysing the results?

Before attempting to link other business surveys to the HGF database, statistical colleagues from Economic & Labour Market Statistics Branch (ELMS) were consulted and their advice and guidance sought on how best this might be carried out. Due to the exploratory nature of linking the HGF database to other surveys, it was decided to use just one cohort period of surviving (in scope) firms with 10 or more staff in order to test the analysis. Business survey methodologies had changed over time, but the most suitable cohort period was thought to be between 2008 and 2011. The following surveys<sup>2</sup> were identified as being the most beneficial to analyse for High Growth outcomes: the Northern Ireland Annual Business Inquiry (ABI), the Manufacturing, Sales and Exports Survey (MSES) and the Northern Ireland Research & Development Survey (R&D).

Following the completion of work linking HGF results to the R&D survey; it was decided not to include the R&D survey due to the very small number of firms involved. This update bulletin therefore contains analysis by High Growth outcomes using the ABI and MSES surveys only. The success rates for the ABI linkage (the proportion of the survey samples which successfully linked to the IDBR cohort), were 48.1% in 2008 and 42.4% in 2011, while the corresponding rates for the MSES were 58.5% in 2008 and 49.6% in 2011. Non-linkage can be mostly attributed to firms within the survey sample employing less than 10 staff. The ABI is the largest survey of NI businesses, collecting both financial and employment information from businesses and other establishments and covers about two thirds of the economy. The MSES provides information on the value of sales and exports generated only by those businesses classified within the manufacturing industry in Northern Ireland.

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<sup>1</sup> For further information including methodology, see "Measuring Northern Ireland's High Growth Firms: 1998-2013" (June 2014): <http://www.detini.gov.uk/index/what-we-do/deti-stats-index/economic-research/measuring-nis-high-growth-firms.htm>

<sup>2</sup> For further information including methodologies on these and other ELMS surveys, see the following link: [http://www.detini.gov.uk/index/what-we-do/deti-stats-index/stats\\_and\\_economic\\_research\\_about\\_us.htm](http://www.detini.gov.uk/index/what-we-do/deti-stats-index/stats_and_economic_research_about_us.htm)

## **Linking the Northern Ireland Annual Business Inquiry (ABI) Survey to the IDBR**

- The percentage change between base year and final year of the observed cohort was greater for HGFs than for non-HGFs for each of the main ABI measurement indicators. For example, total GVA increased by 24.7% for HGFs between 2008 and 2011, while total GVA fell by 4.3% for non-HGFs during the same period.
- The financial change in absolute terms was greater among HGFs than non-HGFs between 2008 and 2011. For example, the total turnover for HGFs increased by £1.81 billion compared to a £0.44 billion increase for non-HGFs.
- The contribution from HGFs, measured as their percentage share of the financial totals, increased by between 2.6% and 4.0% for the period 2008 to 2011 among the following ABI metrics: total turnover, total GVA, total employment cost and total purchases.
- The financial results per head for HGFs and non-HGFs between 2008 and 2011 showed that the gap between both groups tended to narrow over the period for most of the ABI per capita metrics, except purchases per head, where the gap increased from £4,300 per head in 2008 to £11,700 per head in 2011.

## **Linking the Northern Ireland Manufacturing, Sales & Exports Survey (MSES) to the IDBR**

- The bulk of sales by manufacturing firms measured across all the main sales categories by the MSES from 2008-11, were made by non-High Growth firms.
- HGFs increased their sales revenues over the period for all MSES metrics, while non-HGFs sales increased in all categories except sales to the Republic of Ireland, and only marginally increased their total export sales by £20 million compared with a £150 million increase in HGF exports.
- Overall, the share of MSES total sales by HGFs increased from 4% in 2008 to 6% in 2011. HGFs increased their share of total sales within all MSES metrics between 2008 and 2011.
- The percentage change in sales from 2008-11 for manufacturing firms was much higher for HGFs than non-HGFs, with total sales by HGFs increasing by 65.5% compared with a 9.2% rise for non-HGFs. A similar pattern was observed for HGFs across all MSES metrics.

## **Conclusion**

Linking the HGF database to other ELMS business surveys proved to be more problematic than was originally expected. Some of the problems encountered meant that the resulting linked datasets using the R&D survey were unsuitable for meaningful analysis. However, the

two surveys (ABI and MSES) which were successfully linked have shown that High Growth businesses did produce different outcomes from non-High Growth businesses across a range of metrics.

The results indicated that HGFs appear to have been generally more successful than non-HGFs in their business performance during the period 2008 to 2011. Some results also showed changes which appeared correlated with being a HGF, for example HGFs experienced higher rising employment costs per head as well as purchases per head. There were some surprising results, for example, HGFs reported lower turnover per head and employment costs per head than non-HGFs and had lower than expected MSES sales to GB compared to non-HGFs.

In conclusion, given the level of linkage between the High Growth database and both the MSES and ABI, the linking of IDBR High Growth firms onto Northern Ireland business surveys has not been as successful as was hoped and as a consequence, the results should be treated with due caution.. This is somewhat disappointing but useful information has nevertheless been revealed. New research on High Growth firms may help to reveal more information in the future particularly given recent developments in relation to a new enhanced Broad Economy Export measure for Northern Ireland, based on development of the ABI survey.

## **BACKGROUND**

Recently published research into Northern Ireland's High Growth Businesses between 1998 and 2013 applied the Organisation for Economic Cooperation and Development (OECD) measure of High Growth representing any business employing 10 or more which experienced an annualised 20% growth in either employment or turnover over a 3-year period compared to a baseline year.

Utilising the Inter Departmental Business Register (IDBR) a database was constructed covering the periods 1998/01 to 2011/14 from which it was possible to identify, within any given period, the number of High Growth businesses employing 10 or more. The database excluded all public sector organisations and, within each time period, included only businesses which were present on the Inter Departmental Business Register in each of the 4 years of each observation period. This approach was also extended to businesses employing less than 10. On that basis, 12 distinct observation time periods were constructed ranging from 1998/01 to 2011/14 (excluding 1999/02 as data was unavailable for 1999).

In brief, that research concluded that taking the longer view between 1998–2001 and 2011–2014, the contribution of High Growth businesses to the NI economy remains important on the basis that, in each period examined, a relatively small number of businesses accounted for a disproportionate share of business employment and turnover. The longer term view between 1998–2001 and 2011–2014, also indicated that the scale and impact of High Growth Firms employing 10 or more in the NI economy had broadly declined over time. In terms of the High Growth measure itself, an increase in business turnover was the main driver underpinning the identification of a business as experiencing High Growth.

No strong business predictors or correlates of growth emerged from the analyses conducted although some subtle and nuanced differences emerged. However, none of the business characteristics examined within the IDBR appeared to provide strong candidates which would enable effective targeting of businesses to support and encourage High Growth.

The research raised a number of additional questions, including what new information could be revealed by linking other business surveys to the IDBR High Growth database?

## ANALYTICS

Consistent with the High Growth work completed to date, businesses included from the IDBR in the period examined excludes the public sector. Businesses which were included are those firms which had data in each of the years within the observation period and termed 'in scope'. On that basis, for example, businesses which were born or ceased trading, or were not included on the IDBR for any year within the observation period were not included in the observation cohort of firms.

### Linking the Northern Ireland Annual Business Inquiry (ABI) Survey to the IDBR

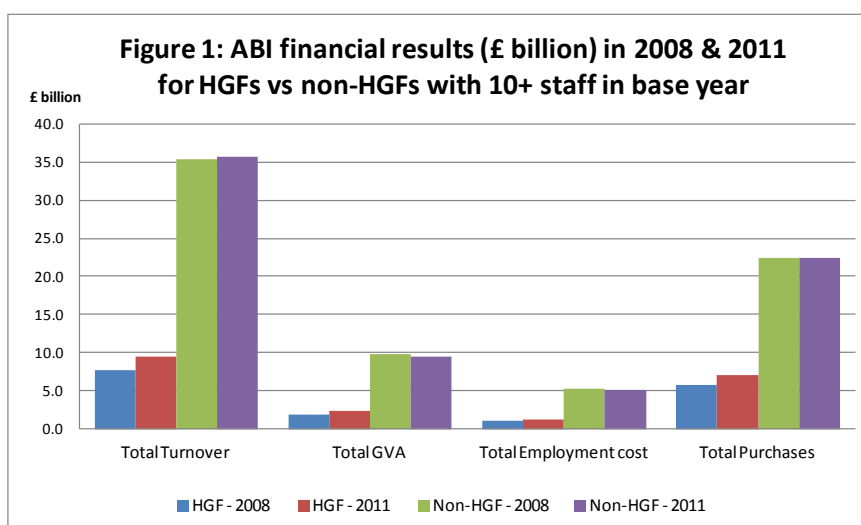


Figure 1 shows the overall financial result totals between 2008 and 2011 for HGFs and non-HGFs. Although the absolute totals for non-HGFs were around 4 to 5 times greater than HGFs in 2008, this reduced to around 3 to 4 times greater by 2011. HGF total

turnover had the biggest change, increasing £1.81 billion from £7.65 billion to £9.46 billion from 2008-11, while non-HGF turnover increased £0.44 billion from £35.28 to £35.72 billion. Similarly, HGF purchases rose from £5.77 billion in 2008 to £7.09 billion in 2011 (an increase of £1.32 billion), while non-HGF purchases went from £22.40 billion to £22.49 billion (an increase of £90 million) over the same period.

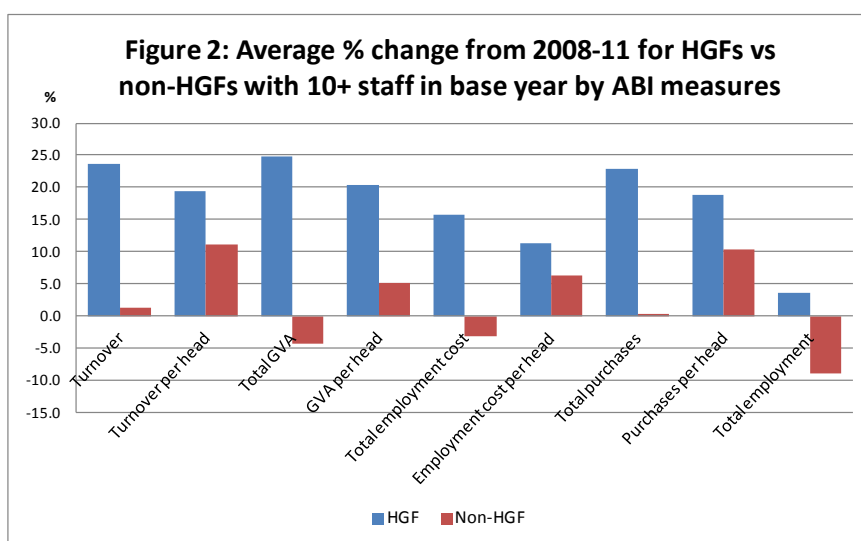


Figure 2 highlights the percentage change between 2008 and 2011 for HGF and non-HGF businesses. The results show that HGFs had a higher percentage change compared with non-HGFs for each ABI business performance indicator. The indicator with the greatest

percentage change was between HGFs (24.7%) and non-HGFs (-4.3%) for total gross value

added (GVA). Total employment costs for HGFs increased by 15.7% between 2008-11, while those for non-HGFs declined by 3.1% over the same period. Employment costs per head also increased more for HGFs than for non-HGFs (11.3% compared to 6.4%) although employment increased by 3.6% for HGFs but reduced by 9.0% for non-HGFs. Total turnover and turnover per head also increased more for HGFs than non-HGFs, as did total purchases and purchases per head.

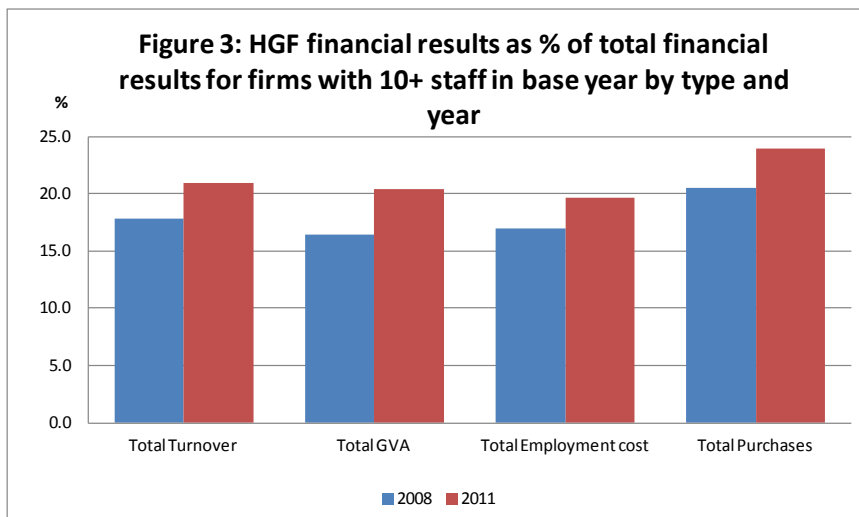
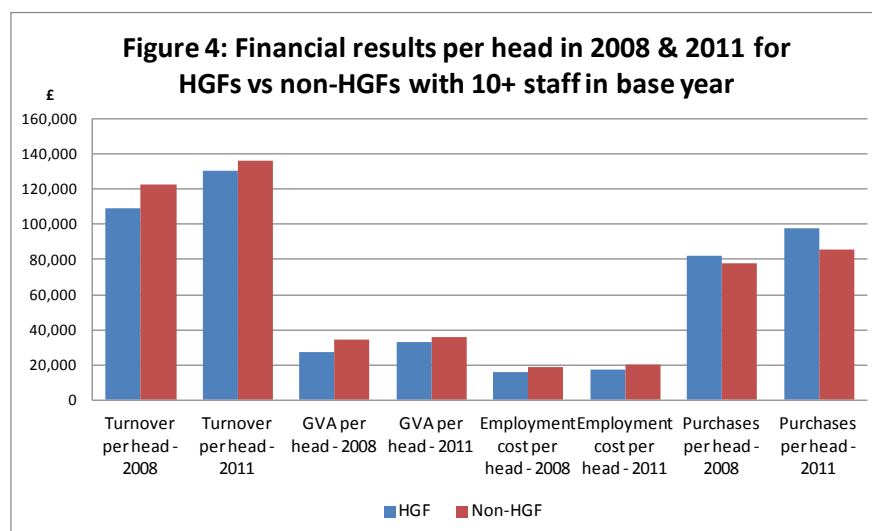


Figure 3 shows the total financial results for HGFs as a proportion of the total financial results of both HGFs and non-HGFs combined in 2008 and 2011. Over the period, the HGF contribution as a share of the financial total increased in each of the four ABI metrics

highlighted in Figure 3. The smallest increase was 2.6 percentage points for total employment costs (16.9% in 2008 rising to 19.6% in 2011), while the largest increase was 4.0 percentage points for total GVA (16.4% in 2008 rising to 20.4% in 2011).



The financial results on a per head basis for HGFs and non-HGFs are shown in Figure 4. Turnover per head increased for HGFs and non-HGFs between 2008-11 but while non-HGFs had higher turnover per head in both years, the gap between the

two groups decreased from £13,800 per head in 2008 to £6,300 per head in 2011. This was also the case for GVA per head, where the gap between the two groups reduced from £6,700 to £2,800 per head over the same period. Employment costs per head were higher in both years for non-HGFs than HGFs but this gap narrowed slightly over the period from £3,300 to £2,800 per head. Conversely, HGFs in both years experienced higher levels of purchases per head than non-HGFs and the gap also increased from £4,300 in 2008 to £11,700 in 2011.



## Linking the Northern Ireland Manufacturing, Sales & Exports Survey (MSES) to the IDBR

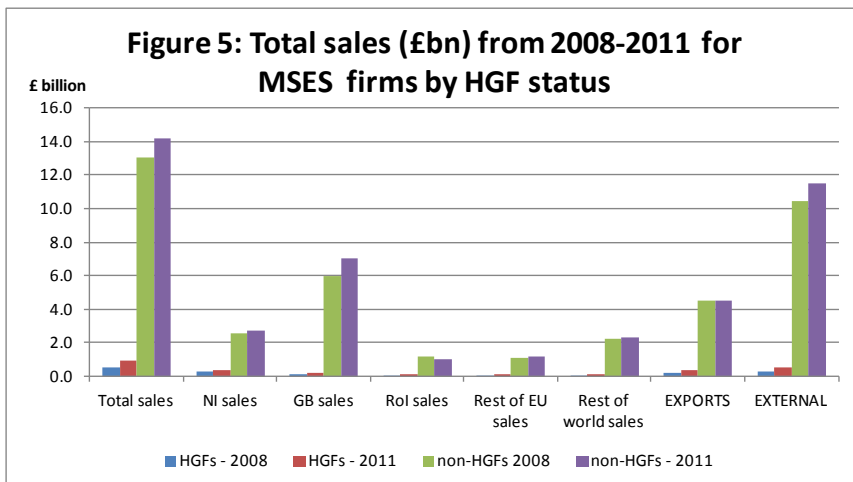


Figure 5 shows that the bulk of MSES sales between 2008 and 2011 were by non-HGFs for total sales as well as for each of the other sales categories highlighted. For most of the sales categories highlighted in Figure 5, there was an increase

in sales for both HGFs and non-HGFs from 2008 to 2011.

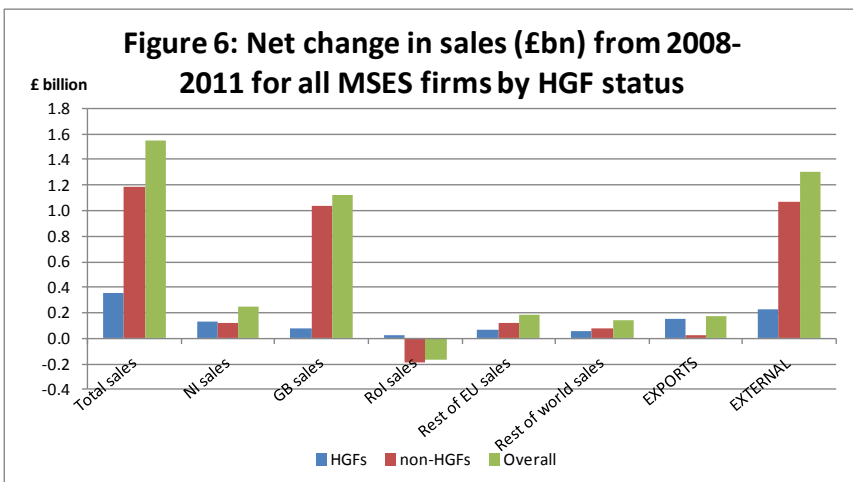
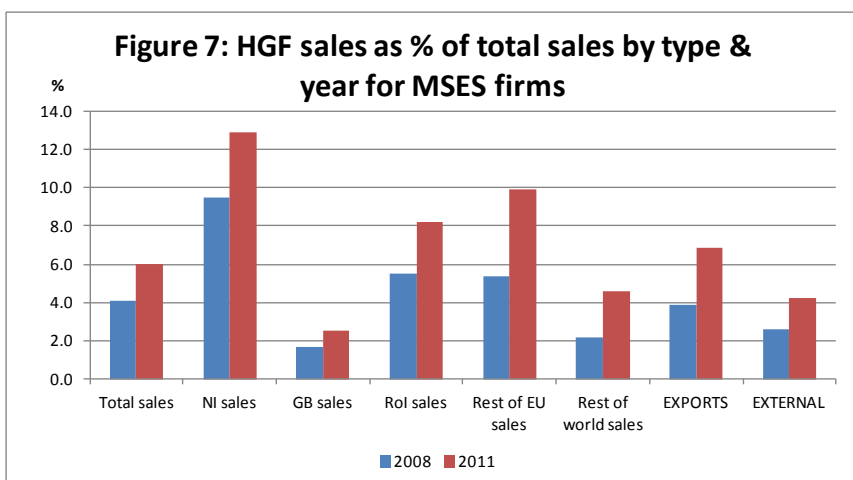


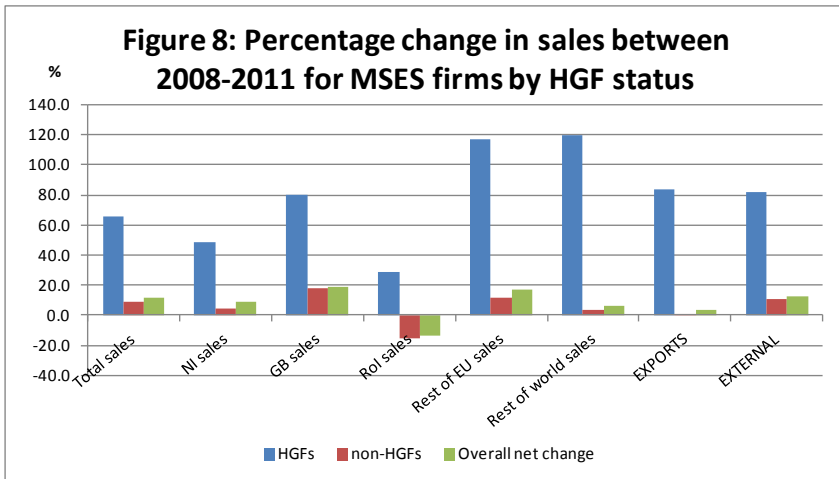
Figure 6 shows that HGFs increased their sales revenues between 2008 and 2011 for all MSES categories, while non-HGFs saw a decrease of almost £200 million in their sales to the Republic of Ireland and with only a small increase (£20

million) in total exports. HGFs in contrast saw an increase of £150 million in total exports and a small increase (£20 million) in sales to the Republic of Ireland.



In terms of the total share of MSES sales by HGFs, Figure 7 highlights that only 4% of total sales in 2008 came from HGFs. However, by 2011 the HGF share of total sales had increased to 6%. Similarly, HGFs increased their share of

sales within all MSES categories between 2008 and 2011. The largest increase in the HGF share of sales was within sales to the rest of the EU (5.4% in 2008 compared with 9.9% in 2011), while the smallest rise was in GB sales (1.7% in 2008 compared with 2.5% in 2011).



HGFs underwent much larger percentage changes in MSES sales between 2008 and 2011 compared with non-HGFs, as outlined in Figure 8. The largest increase was in HGF sales to the rest of the world (120.0%) compared with a 3.6%

increase in sales to the rest of the world by non-HGFs. Similar outcomes were also evident for HGF sales within other MSES categories, such as sales to the rest of EU (116.7% compared with 11.3% for non-HGFs). Overall, total HGF sales increased by 65.5% compared with 9.2% for non-HGFs.

## APPENDIX: Tables of Results

Notes:

1. Totals may not sum due to rounding. Turnover has been rounded to the nearest £0.1 billion, while per head totals have been rounded to the nearest £0.1 thousand and employment to the nearest hundred staff.
2. The terms High Growth Firms (HGFs) and High Growth businesses are used interchangeably throughout.

**Table 1: Result totals for all in scope businesses with 10 or more staff recorded on the NI Annual Business Inquiry (ABI) by year and HGF status (excluding firms with unknown HGF status)**

Overall measures	2008		2011	
	HGF	Non-HGF	HGF	Non-HGF
Turnover (£ billion)	7.6	35.3	9.5	35.7
Turnover per head (£k)	108.9	122.7	130.1	136.4
Total GVA (£ billion)	1.9	9.9	2.4	9.5
GVA per head (£k)	27.6	34.4	33.3	36.1
Total Employment cost (£ billion)	1.1	5.4	1.3	5.2
Employment cost per head (£k)	15.8	19.1	17.6	20.3
Total Purchases (£ billion)	5.8	22.4	7.1	22.5
Purchases per head (£k)	82.2	77.9	97.6	85.9
Total Employment (000's)	70.2	287.6	72.7	261.8
Total Employees (000's)	69.5	281.3	72.2	256.2

**Table 2: Result totals for all in scope businesses with 10 or more staff recorded on the NI Manufacturing, Sales & Exports Survey (MSES) by year and HGF status (excluding firms with unknown HGF status)**

Sales (£ billion)	2008		2011	
	HGF	Non-HGF	HGF	Non-HGF
Total sales	0.6	13.0	0.9	14.2
NI sales	0.3	2.6	0.4	2.7
GB sales	0.1	6.0	0.2	7.0
Rol sales	0.1	1.2	0.1	1.0
Rest of EU sales	0.1	1.1	0.1	1.2
Rest of world sales	0.1	2.2	0.1	2.3
Total Exports	0.2	4.5	0.3	4.5
Total External sales	0.3	10.4	0.5	11.5

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