

**Scottish Enterprise  
Commercialisation  
Programme Review**

**Working Paper 6:  
Economic Impact  
To Date (2004-2007) –  
Grossed Results**

**Scottish Enterprise**

# 1 Economic Impact

This working paper summaries the key economic impacts arising from the Scottish Enterprise Commercialisation Programme to date (2004-2007), with a particular focus on turnover, GVA and employment arising across the 1,300 companies who have engaged with the commercialisation programme.

## 1.1 Approach to Assessing Economic Impact

The economic impact calculations are based on best practice guidance in Economic Impact Assessment developed by Scottish Enterprise<sup>1</sup>. It uses the approach as well as the standard question set<sup>2</sup> for assessing economic impact. This includes:

- collecting key impact variables
- adjusting the impact variables for additionality
- grossing from 100 companies to 1,300
- conducting a cost benefit analysis of the results

### 1.1.1 Collecting key impact variables

The key impact variables collected to understand the impact of Scottish Enterprise intervention covers turnover, employment and GVA.

Projected turnover was collected from the companies for key periods over the next 10 years, as was employment (2008, 2009, 2011, 2013, 2018). GVA was developed by subtracting the cost of bought in goods and services (excluding employee costs) on an annual basis projected over the next 10 years from the annual turnover level in each of the key data collection years (or annual estimated cost of bought in goods and services where the company was pre turnover). In all cases the intervening years were assumed to be the same as for the last full year for which data was collected (in effect a flat profile between milestone years)<sup>3</sup>. This approach is validated by the Centre for Technology Development paper on employment growth in new firms<sup>4</sup>. This paper evaluated growth patterns of new firms over a 10 year period and grouped firms into four categories:

- Early growth and plateau (73% of firms)
- Continuous growth (0.3% of the firms)
- Growth setback (17%)
- Delayed growth (10%)

The implication is that most firms do not grow on a continuous basis. Our assessment works on spikes of growth rather than continual growth providing a more cautious estimate of impact and fitting the evidenced growth patterns of firms.

### 1.1.2 Gross to net adjustments (Additionality)

In order to understand the full impact of the commercialisation programme there is a need to assess the additionality of the intervention. In effect what has happened that would not have happened anyway.

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<sup>1</sup> Scottish Enterprise (2008) *Additionality and Economic Impact Assessment Guidance Note, A Summary Guide to Assessing the Additional Benefit, or Additionality of and Economic Development Project or Programme*, Appraisal and Evaluation Team

<sup>2</sup> Scottish Enterprise (2008) *Additionality & Economic Impact Assessment Guidance Note: Appendix 2: Standard Questions and Standard Reporting Outputs*, Appraisal and Evaluation

<sup>3</sup> While the intervening years are held constant – they are adjusted for business failure and company acquisition, therefore the data in the tables vary slightly on a year to year basis

<sup>4</sup> Stam,E, Gibcus,P, Telussa,J and Gamsey,E (2008) *Employment Growth of New Firms*, Centre for Technology Management, University of Cambridge

The additional benefit of an intervention is the difference between the reference case (what has happened anyway) and the intervention case (the position when the intervention has been implemented).

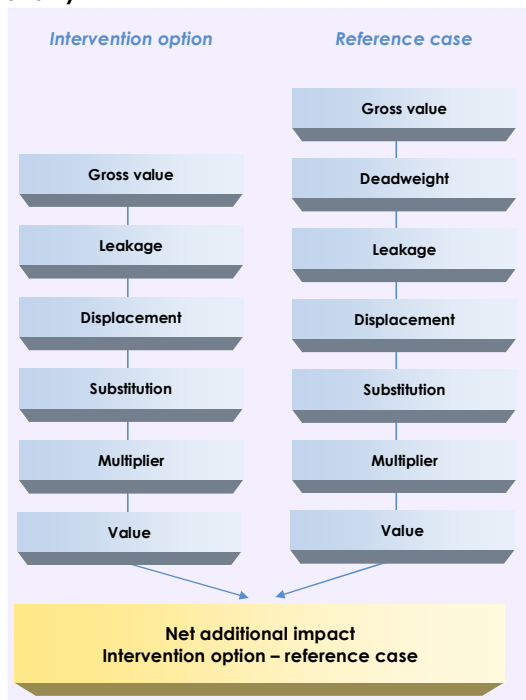
In order to fully understand this there is a need to move all results from gross to net. This adjusts for

- deadweight – what would have happened anyway
- leakage – the extent to which the benefits are lost to Scotland
- displacement – the extent to which the benefits are coming at the expense of other Scottish based businesses
- substitution – the extent to which one activity is simply substituted for another
- multipliers – the positive downstream effects created through spending on supplies and the wider wages generated from these downstream effects

This process is illustrated in the diagram 1.1 below.

### Adjusting for Additionality

Diagram 1.1



The adjustments made to each of these factors are based on information supplied by the individual companies and therefore vary on a company by company basis. However, to provide some context to these variables we have provided the average values for each for reference.

**Deadweight** was calculated by asking the company how different their turnover and employment would have been without the Scottish Enterprise support. This was asked for key periods over the next 10 years (2008, 2009, 2011, 2013 and 2018) providing a full 10 year impact assessment. Date for intervening years was assumed to be the same as for the last full year for which data was asked.

**Displacement** was applied consistently to employment, turnover and GVA based on the location of the companies direct competitors (and adjusted based on the growth of the market they operate in) at the point of survey. For the Commercialisation Programme the average displacement amounted to 4% in 2007. This means that most

companies are suggesting that they have virtually no competitors in Scotland and that they are operating in markets that have been either improving moderately or strongly over the last three years. This value was held constant over the 10 years of the economic appraisal.

**Leakage** was estimated at 0% for turnover and GVA. At present Scottish Enterprise practice is to assume that if turnover and GVA are generated within Scotland then they are retained within Scotland. This assumption has therefore been used in the impact assessment. This value was held constant over the 10 years of the economic appraisal.

**Substitution** was assessed by asking the companies about the extent to which they have replaced one activity with another (or employees for another) to benefit from public sector assistance. No company suggested they did either of these things leading to average substitution values of 0% for turnover, GVA and employment. This value was held constant over the 10 years of the economic appraisal.

**Multiplier** values were sourced from the Scottish Input Output multiplier tables based on the full 4 digit Standard Industrial Classification code of the company. These were matched with Type 2 input output multipliers for Output (in the case of turnover), GVA and employment. These were held constant over the 10 years of the economic appraisal.

### 1.1.3 *Grossing from 100 companies to 1,300*

The impacts are grossed from the 100 companies surveyed to the 1,300 companies who have engaged with the commercialisation programme between 2004 and 2008. Rather than simply apply a consistent factor of 13 (1,300 divided by 100), which would likely over count impacts, an approach was developed that grossed impacts up based on the number of interventions accessed by each of the companies and the potential impact in each group.

As this information was available for the 100 surveyed companies and then the 1,300 programme companies this provided a mechanism for taking account of the variation in impact (and the low number of 1 intervention companies in the final 100 surveyed firms) depending on the number of interventions accessed. The process followed four stages including:

- Stage 1 – the surveyed firms were split into seven bands based on the number of interventions, as were the 1,300 programme participants
- Stage 2 – the proportion of companies in each band of the surveyed firms citing no impact was analysed (in each year between 2004 and 2007<sup>5</sup>)
- Stage 3 – the proportion of the surveyed firms citing no impact was applied to the whole population for each band giving a more accurate count of companies where there was likely to be impact
- Stage 4 – the number of companies in the population likely to be citing impact was divided by the number of firms in each band to arrive at a cautious grossing factor

The grossing factors were calculated for each year on this basis (2004-2007) and applied to the net GVA, turnover and employment impacts to arrive at a grossed impact figure which are presented in this report.

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<sup>5</sup> The values are calculated in each year as the deadweight value changes in each year changing the proportion of companies citing impact

### 1.1.4 Cost Benefit Analysis for the Commercialisation Programme

Once the results were grossed up final grossed net results were imported into the Scottish Enterprise cost benefit calculator.

Total costs committed to the 22 projects that make up the commercialisation programme were collected from the Scottish Enterprise finance team for the period 2004-2008. Data was then added to the cost benefit calculator to provide consistent discounted and non discounted values.

For the Commercialisation programme the base year was 2004, representing year zero for the evaluation. It needs to be recognised that some of the projects within the Commercialisation programme pre date this period, but for consistency of evaluation any costs and benefits associated with activities have been excluded. All impact figures have been collected at 2007 prices.

This process can be summarised in Table 1.1 below.

	2004 (Year 0)	2005 (Year 1)	2006 (Year 2)	2007 (Year 3)
	Gross value	Gross value	Gross value	Gross value
Deadweight	96%	96%	90%	75%
Displacement	4%	4%	4%	4%
Substitution	0%	0%	0%	0%
Leakage	0%	0%	0%	0%
Multipliers	1.68	1.68	1.68	1.68
	Net Impact	Net Impact	Net Impact	Net Impact
Discount 3.5%	1.000	0.9662	0.9335	0.9019
	Net Impact NPV	Net Impact NPV	Net Impact NPV	Net Impact NPV

## 1.2 Turnover Impacts

It is appropriate to consider the generation of company benefits. This is measured as the net increase in turnover accruing as a direct result of the programme and represents a key measure of company growth.

The net turnover impact accruing over the period 2004-2007, amounts to **£484.1 million** (£451.4 million NPV). This is a benefit to cost ratio of 1: 7.44, or £7.44 return for every £1 invested in the Commercialisation programme by Scottish Enterprise. Full details are included in Table 1.1 below.

Year	Costs	Net Present Value (Discounted Costs)	Turnover Impact	Net Present Value (Discounted Turnover)
2004	£9,566,159	£9,566,159	£43,161,300	£43,161,300
2005	£15,830,674	£15,295,337	£103,301,582	£99,808,291
2006	£19,985,607	£18,656,778	£123,480,982	£115,270,818
2007	£19,036,860	£17,170,157	£214,164,618	£193,164,215
<b>Total</b>	<b>£64,419,301</b>	<b>£60,688,432</b>	<b>£484,108,482</b>	<b>£451,404,624</b>
<b>Benefit to Cost Ratio</b>				<b>1: 7.44</b>

## 1.3 Employment impacts

While turnover captures one element of business growth, it is also appropriate to consider the generation of employment effects within the businesses. This is also

measured as the net increase or maintenance of employment as a direct result of the programme and represents another key measure of company growth.

The employment impacts need to be considered on an annual basis, as they cover both safeguarded and created jobs and cannot therefore simply be aggregated. Over the period 2004-2007 the total number of jobs either safeguarded or created by the Commercialisation Programme amounts to:

- 410 net jobs in 2004
- 538 net jobs in 2005
- 793 net jobs in 2006
- 1,484 net jobs in 2007

This is a substantial and growing level of employment and suggests that the Commercialisation programme has helped to create and safeguard a number of jobs across the Scottish economy. Full details are outlined in Table 1.2 below.

**Employment Impacts of the Commercialisation Programme** **Table 1.2**

Year	Jobs
2004	410
2005	538
2006	793
2007	1,484

#### 1.4 GVA Impacts

An estimate of 'impact' is the ultimate effect of the project on the economy, or in this case its contribution towards economic growth. This is measured as the net increase in gross value added (GVA) accruing as a direct result of the programme.

The net GVA impact accruing over the period 2004-2007, amounts to **£117.6 million** (£109.3 million NPV). This is a benefit to cost ratio of 1: 80 or a return of £1.80 for every £1 invested in the programme. Full details are included in Table 1.3 below.

**GVA Impacts of the Commercialisation Programme** **Table 1.3**

Year	Costs	Net Present Value (Discounted Costs)	GVA Impact	Net Present Value (Discounted GVA)
2004	£9,566,159	£9,566,159	£12,898,155	£12,898,155
2005	£15,830,674	£15,295,337	£16,784,380	£16,216,792
2006	£19,985,607	£18,656,778	£27,830,756	£25,980,309
2007	£19,036,860	£17,170,157	£60,087,858	£54,195,805
<b>Total</b>	<b>£64,419,301</b>	<b>£60,688,432</b>	<b>£117,601,149</b>	<b>£109,291,061</b>
<b>Benefit to Cost Ratio</b>				<b>1: 1.80</b>

#### 1.5 Conclusions

The net additional benefit generated by the commercialisation programme over the period 2004-2007 amounts to:

- Net turnover impact of £484.1 million (£451.4 million NPV)
- A peak of 1,484 net jobs in 2008
- Net GVA impact of £117.6 million (£109.3 million NPV)