

Appendix A – SRDP Ex Post – Economic Impact Assessment

1. Economic Impact Assessment

1.1 Introduction

[Appendix A](#) presents the Economic Impact Assessment (EIA) which reports the quantitative economic impacts that have been generated through the Scotland Rural Development Programme (SRDP).

The information presented in this section is based on the result indicators and gross impacts reported in the a number of surveys conducted over the course of the on-going EKOS evaluation of the SRDP programme and was conducted using a variety of methods (telephone, online and postal). The beneficiaries were selected at random to ensure a representative and robust sample. Surveys were conducted in the following time periods:

- 2010 (466 respondents);
- 2011 (261 responses);
- 2012 (258 responses);
- 2013 (442 responses); and
- 2016 (33 responses).

After duplicates were removed there were a total of [1,239 unique respondents](#).

There were some difficulties in determining impact, mainly due to some inconsistencies in data collection over time, namely:

- direct impact questions were not asked in the 2013 survey (focusing on results indicators only). In this case, changes in employment were used as a proxy and converted to impacts based upon the ratios in previous surveys;
- turnover impacts were not consistently asked for, therefore the impact assessment has focussed solely on job and GVA impacts;
- the mid-term evaluation findings are the only survey data available for a number of Measures, including all of Axis 2 and Measure 111 (training);
- result indicators were not asked in the 2010 mid-term evaluation survey – meaning that these are not presented for Axis 2 and some Measures;
- at Measure level the samples of survey responses were too low to be representative and to have a robust basis for impact assessment; and
- in addition to the low representativeness of the survey sample, Measures 111 and 132 was excluded from the EIA for contextual reasons (training and food quality schemes do not create jobs).

It should be noted that since the surveys were undertaken a number of years in the past, future impacts have likely already been realised for the majority of beneficiaries.

We have conducted EIA analysis at the Measure, Axis and Programme level. However, it should be noted that the EIA is only

robust for four Measures (121, 123, 214 and 311), the findings for the other Measures must be considered not representative for the totality of beneficiaries funded under these Measures.

Our analysis follows best practice established by HM Treasury Green Book¹.

1.2 Results Indicators

Gross jobs are based on direct feedback from beneficiaries and are reported as Full Time Equivalent (FTE) posts. An FTE is defined as a post that consists of more than 35 hours/week on a regular basis. Beneficiaries were asked to report their employment broken down by full time, part time, seasonal and casual employment. In order to convert the jobs into FTEs, the following assumptions have been made:

- 1 full time job = 1 FTE;
- 1 part time job (between 15 - 35 hours/week on a regular basis) = 0.5 FTE;
- 1 casual job casual (less than 15 hours/week on an irregular basis) = 0.33 FTE; and
- 1 seasonal job (certain times of the year, regardless of hours = 0.25 FTE.

¹ http://www.hm-treasury.gov.uk/d/green_book_complete.pdf

Gross Value Added (GVA) is a measure of the value of goods and services produced, it is the same as Gross Domestic Product (GDP) at basic prices. GVA has been calculated using financial information reported by beneficiaries through the survey. Please note that subsidies are included within company profits.

$$\text{GVA} = \text{salaries/wages (including drawings)} + \text{profits (=turnover - costs + subsidies)}$$

The survey results have been 'grossed up' to account for only a proportion of the population responding to the survey. In order to gross up, outliers were removed from the sample i.e. data values that are statistically outwith the range of responses from the majority of the sample.

Final results were grossed up to the entire supported population based on the inverse of the proportion responding to the survey (e.g. a response rate of 15% generates a grossing up factor of $100\%/15\% = 6.7$). The outliers were added back into the indicators after grossing up.

Any level of grossing up has a margin of error, which in the cases of some of the Measures are considerable. Measures with a margin of error in excess of 10% should be regarded as not statistically representative of the overall population and should not be used.

The key Result Indicators are presented in **Table A.1** and **Table A.2** (over) with the change in GVA across supported businesses for the period broken down by agricultural and non-agricultural businesses.

Table A.1: Change in Agricultural GVA in Supported Businesses Over 2 Years

	Year 1	Year 3	Change in GVA (£)	No of Respondents	Population	Margin of error
112	£7m	£9m	£1m - £2m	7	51	+/- 34.75
121	£901m	£1bn	£116m - £126m	490	5,845	+/- 4.24
123	£300m	£337m	£33m - £41m	58	218	+/- 11.05
124	£11m	£24m	£8m - £18m	5	31	+/- 40.8
125	£364m	£464m	£66m - £135m	8	864	+/- 34.51
Axis 1	£2bn	£2.3bn	£274m - £296m	568	7,009	+/- 3.94

Table A.2: Non-Agricultural Gross Value Added In Supported Businesses Over 2 Years

	Year 1	Year 3	Change in GVA (£)	No of Respondents	Population	Margin of error
311	£20m	£25m	£5m - £6m	121	284	+/- 6.76
312	£6m	£6m	£0.1m - £0.2m	35	102	+/- 13.49
313	£75m	£86m	£9m - £13m	27	901	+/- 18.59
321	£8m	£9m	£0.7m - £0.9m	33	475	+/- 16.47
Axis 3	£109m	£132m	£22m - £25m	216	1,762	+/- 6.25

Overall, there has been an increase of **£308 in GVA** over two years across all supported businesses in Axis 1 and Axis 3, broken down by:

- agricultural businesses – £285m; and
- non-agricultural businesses - £23m.

1.3 Gross Impacts

Tables A.3, A.4 and A.5 (over) reports the gross impacts attributable to the support based on direct feedback from surveyed businesses.

Table A.3: Gross Impacts - Overall Programme

	To date	Future
Jobs	2,100	1,200
GVA	£67m	£34m

N = 1,239

Table A.4: Gross Impacts – by Axis

	Jobs		GVA	
	To date	Future	To date	Future
Axis 1	1,600	900	£59m	£30m
Axis 2	100	-	£3m	-
Axis 3	300	300	£4m	£4m

N - Axis 1= 730, Axis 2 = 243, Axis 3 = 266

Note: Turnover and GVA may not sum due to rounding

Table A.5: Gross Impacts – by Measure

	Jobs		GVA	
	To date	Future	To date	Future
112	40	30	£6.6m	£1.9m
121	690	450	£17.6m	£13m
122	-	-	-	-
123	850	410	£28.2m	£10.3m
124	50	5	£0.7m	£0.03m
125	30	30	£5.7m	£5.3m
212	50	-	£1.7m	-
214	30	-	£1m	-
215	-	-	-	-
216	-	-	-	-
221 & 223	10	-	£0.3m	-
225	10	-	£0.3m	-
227	5	-	£0.1m	-
311	160	160	£2.2m	£2.9m
312	100	70	£1.2m	£0.6m
313	40	40	£0.5m	£0.3m
321	30	5	£0.7m	£0.1m
323	10	-	£0.3m	-
331	-	-	-	-

The total gross impacts² that have been created to date and are expected to be created in the future, captured through our survey of 1,239 beneficiary businesses are:

- gross additional impacts **created/safeguarded to date**:
 - 2,100 gross jobs created/safeguarded
 - £67m gross GVA per annum generated/safeguarded;
and
- gross additional impacts **predicted in the future**:
 - 1,200 gross jobs created/safeguarded
 - £34m gross GVA per annum generated/safeguarded.

1.4 Net Effects

In order to move from gross to net impacts, the additionality factors of deadweight, leakage, displacement and multipliers are applied.

Application of Additionality Factors

The additional effect of the Programme is the difference between what would have happened anyway (i.e. the reference case) and the benefits generated by the support (i.e. the intervention case), adjusted for displacement, leakage, substitution, and multiplier effects. This is demonstrated in **Figure A.1** below, with definitions of the additionality factors outlined in **Table A.6**.

²Turnover and GVA rounded to the nearest £0.1m

Table A.6: Additionality Logic Chain

Term	Definition
The Intervention Option	This is the level of gross and directly attributable outputs and outcomes generated through the intervention, i.e. impacts that would not have happened in the absence of the intervention.
The Reference Case	This is the level of forecast outputs and outcomes that would be secured if the individual/business did not participate in the project.
Deadweight	The proportion of total outputs/outcomes that would have been secured anyway.
Leakage	The number or proportion of outputs/outcomes that benefit economies outside Scotland.
Substitution	This is a negative effect that arises when a firm substitutes a jobless person to replace an existing worker to take advantage of public sector assistance.
Displacement	The number or proportion of outputs/outcomes that reduce outputs/outcomes elsewhere in Scotland. These effects can occur in product markets (e.g. amongst non-assisted business competing in the same market) or in factor markets (e.g. in the labour market).
Multipliers	This is further economic activity (e.g. jobs, expenditure or income) associated with additional income to those employed by the project (income multipliers), with local supplier purchases (supplier multipliers) and with longer term development effects (dynamic effects e.g. induced inward migration).

Additionality factors are determined on a case by case basis and therefore are determined only by those beneficiaries that reported impacts.

The total net additional impacts of the support are calculated by subtracting the net impacts of the reference case (i.e. what would have happened without the support) from the net impacts of the intervention option (what happened as a result of the support), see **Figure A.1** (over)

Figure A.1: Moving from Gross to Net Impacts

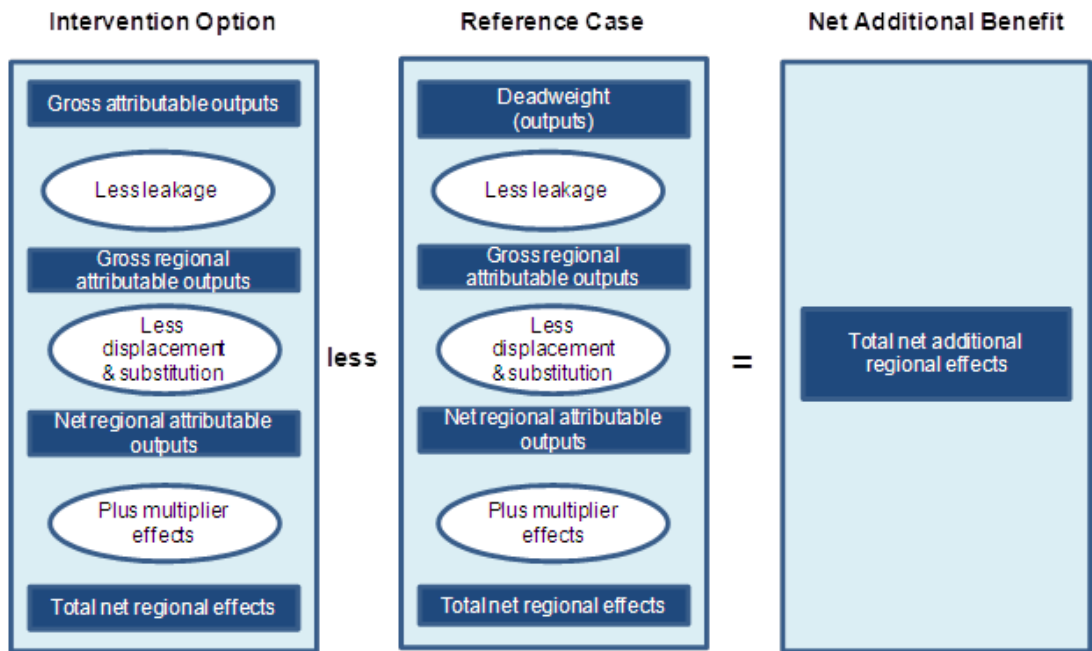


Table A.7 details the average additionality factors (based on beneficiary feedback) applied in moving from gross to net impacts³.

Table A.7: Average Additionality Factors

Additionality Factors	
Deadweight	8%
Leakage	0%
Displacement	46%
Multiplier	1.65

³ Please note, the average additionality factors are calculated based on the total sum of responses, and of those that reported employment impacts to date.

The impact assessment has identified the Programme has/will generate the following **net impacts** from the 1,239 respondents, as outlined in **Tables A.8, A.9** and **A.10** (over).

Table A.8: Net Impacts - Overall Programme

	To date	Future
Jobs	2,100	1,100
GVA	£69m	£32m

N = 1,239

Table A.9: Net Impacts – by Axis

	Jobs		GVA	
	To date	Future	To date	Future
Axis 1	1,800	900	£59m	£30m
Axis 2	70	-	£3m	-
Axis 3	240	190	£4m	£4m

N - Axis 1= 730, Axis 2 = 243, Axis 3 = 266

Note: Turnover and GVA may not sum due to rounding

Table A.10: Net Impacts – by Measure

	Jobs		GVA	
	To date	Future	To date	Future
112	30	20	£5.6m	£1.2m
121	650	390	£17.6m	£13m
122	-	-	-	-
123	1,040	480	£34.5m	£10.8m
124	80	-	£1.1m	-
125	20	20	£5m	£4.8m
212	40	-	£1.4m	-
214	10	-	£0.4m	-
215	-	-	-	-
216	-	-	-	-
221 & 223	10	-	£0.3m	-
225	10	-	£0.3m	-
227	5	-	£0.1m	-
311	140	120	£2.1m	£2.1m
312	60	50	£0.9m	£0.5m
313	20	20	£0.4m	£0.3m
321	20	-	£0.6m	-
323	10	-	£0.3m	-
331	-	-	-	-

The **total net impacts**⁴ that have been created to date and are expected to be created in the future, captured through our survey of 1,239 beneficiary businesses are:

- net additional impacts **created/safeguarded to date**:
 - 2,100 net jobs created/safeguarded
 - £69m net additional GVA per annum generated/safeguarded; and
- net additional impacts **predicted in the future**:

⁴Turnover and GVA rounded to the nearest £0.1m.

- 1,100 net jobs created/safeguarded
- £29m net additional GVA per annum generated/safeguarded.

Grossed Up Impacts

Based on monitoring data, there have been 42,963⁵ individual businesses that have received support through the SRDP programme.

In order to calculate the impact of all businesses supported through the Programme, the results are 'grossed up' to reflect the wider population of businesses receiving support (42,963). The breakdown is provided below:

- **Axis 1** - 730 out of 7,023 beneficiaries participated in the survey, this represents a sample size of 10.3% of the total population and generates a grossing up factor of 9.6;
- **Axis 2** - 243 out of 30,267 beneficiaries participated in the survey, this represents a sample size of 0.8% of the total population and generates a grossing up factor of 124.6;
- **Axis 3** - 266 out of 5,673 beneficiaries participated in the survey representing a sample size of 4.7% of the total population and generates a grossing up factor of 21.3; and
- **Overall Programme** – Due to the different response rates within each Axis, a separate grossing up at the programme level was deemed inappropriate, so the grossed up results at the axis level were summed to judge overall programme impacts.

Please note, outliers were removed prior to grossing up then added back in to avoid skewing or over representation of the data.

⁵ Excluding those supported in Measures 111 and 132

Tables A.11, A.12 and A.13 reports the grossed up economic impacts.

Table A.11: Grossed up Impacts - Overall Programme

	To date	Future
Jobs	22,700	9,200
GVA	£772m	£303m

N = 1,239

Table A.12: Grossed up Impacts – by Axis

	Jobs		GVA	
	To date	Future	To date	Future
Axis 1	10,500	6,600	£394m	£263m
Axis 2	8,800	-	£317m	-
Axis 3	3,400	2,600	£61m	£40m

N - Axis 1= 730, Axis 2 = 243, Axis 3 = 266

Note: Turnover and GVA may not sum due to rounding

It should be noted that the combined Measures may not sum to the Axis or programme level impacts due to the large margins of error involved.

Table A.13: Grossed up Impacts – by Measure (of 1,239 respondents)

	Jobs		GVA	
	To date	Future	To date	Future
112	100	100	£7m	£3m
121	4,400	2,800	£123m	£107m
122	-		£0.2m	
123	2,700	1,200	£79m	£44m
124	100	-	£3m	-
125	400	400	£17m	£8m
132	-	-	-	-
212	9,800	-	£371m	-
214	1,000	-	£30m	-
215	-	-		-
216	800	-	£30m	-
221 & 223	400	-	£15m	-
225	700	-	£25m	-
227	200	-	£8m	-
311	300	200	£4m	£4m
312	100	100	£2m	£1m
313	300	200	£9m	£3m
321	300	40	£6m	£1m
323	1,500	-	£52m	-
331	-	-	-	-

The **total net impacts**⁶ that have been created to date and are expected to be created in the future, captured through our survey of 1,239 beneficiary businesses are:

- net additional impacts **created/safeguarded to date**:
 - 22,700 net jobs created/safeguarded
 - £772m net additional GVA per annum generated/safeguarded; and

⁶Turnover and GVA rounded to the nearest £0.1m.

- net additional impacts **predicted in the future**:
 - 9,200 net jobs created/safeguarded
 - 303m net additional GVA per annum generated/safeguarded.

In order to ensure our 'grossed up' results are robust, it is important to undertake an element of sensitivity analysis. To achieve a confidence level of 95%, the different response rates generate the following standard error:

- **Axis 1** – sample size of 10.3% generates a standard error of +/- 3.4%;
- **Axis 2** – sample size of 0.8% generates a standard error of +/- 6.3%; and
- **Axis 3** – sample size of 4.8% generates a standard error of +/- 6.3%.
- **Overall Programme** – after summing of the three Axes, the programme has an overall standard error of 4.7%.

This means that we can be 95% certain that the remaining businesses that received support would report a similar level of impact within +/- the margin of error.

Table A.14 reports the total grossed up gross and net additional impacts, applying the standard error.

Table A.14: Grossed Up Economic Impacts– Sensitivity Analysis

	Impacts to Date		Impacts in the future	
	Low end	High end	Low end	High end
Overall Programme				
Net jobs	21,600	23,900	8,800	9,600
Net GVA per annum (£m)	£735m	£809m	£291m	£315m
Axis 1				
Net jobs	10,100	10,900	6,400	6,800
Net GVA per annum (£m)	£435m	£466	£291m	£312m
Axis 2				
Net jobs	8,300	9,400	-	-
Net GVA per annum (£m)	£297m	£337m	-	-
Axis 3				
Net jobs	3,200	3,600	2,400	2,700
Net GVA per annum (£m)	£57m	£65m	£38m	£43m

Note: Jobs rounded to nearest 100, and turnover/GVA to nearest £m

Sensitivity analysis by Measure is presented in **Table A.15** (over). It should be noted that Measures with a margin of error in excess of 10% should be regarded as not statistically representative of the overall population and should not be used at a Measure level. Therefore the only Measures that we can are representative are

- Measure 121 (Modernisation of Agricultural Holdings);
- Measure 123 (Adding Value to Products);
- Measure 214 (Agri-environmental Payments); and
- Measure 311 (Diversification into non-agricultural activities).

These four Measures represent 29% of total programme spend (or 45% of SRDP spend excluding LFASS).

Table A.15: Grossed Up Economic Impacts – Sensitivity Analysis by Measure

Measure	Net Jobs to date		GVA to date		Jobs Future		GVA Future		MoE
	Low	High	Low	High	Low	High	Low	High	
112	60	110	£5.7m	£9.3m	40	70	£1.9m	£3.1m	24%
121	4,300	4,600	£118m	£128m	2,700	2,900	£103m	£111m	4%
122	-	-	£0.1m	£0.2m	-	-	-	-	31%
123	2,400	2,900	£71m	£87m	1,100	1,300	£40m	£49m	10%
124	100	200	£1.7m	£3.7m	10	10	£0.1m	£0.2m	37%
125	300	500	£13m	£20m	270	400	£6.1m	£9.6m	22%
212	8,400	11,200	£319m	£423m	-	-	-	-	14%
214	900	1,100	£27m	£32m	-	-	-	-	9%
215	-	-	-	-	-	-	-	-	44%
216	500	1,100	£19m	£42m	-	-	-	-	37%
221 & 223	300	500	£12m	£17m	-	-	-	-	17%
225	500	900	£18m	£32m	-	-	-	-	27%
227	150	300	£5.7m	£10.7m	-	-	-	-	31%
311	240	270	£3.9m	£4.5m	230	260	£3.9m	£4.5m	7%
312	110	140	£1.8m	£2.3m	100	130	£1.2m	£1.5m	12%
313	270	370	£7m	£10m	200	270	£2.2m	£3m	15%
321	180	330	£4.5m	£8.3m	30	50	£0.6m	£1.1m	29%
323	1,200	1,800	£42m	£63m	-	-	-	-	21%
331	-	-	-	-	-	-	-	-	68%

Return on Investment

The value for money assessment is based on the cost per job and return on investment (RoI). The former compares the estimates of Programme impacts against public sector expenditure incurred the total breakdown of costs, **Tables A.16 and A.17** (over).

Table A.16: Cost per Job

	Jobs	Costs	Low	Mid	High
Axis 1	17,100	£196m	£11,000	£11,400	£11,800
Axis 2	8,800	£1.03bn	£109,400	£116,700	£124,000
Axis 3	6,000	£119m	£18,700	£19,900	£21,200
Programme	31,900	£1.34bn	£41,000	£42,100	£43,300

Again, it is important to note the margin of error, and there large degrees of uncertainty outwith Measures 121, 123, 214 and 311.

Table A.17: Cost per Job

	Jobs	Costs	Low	Mid	High
112	140	£3.7m	£7,400	£9,700	£12,000
121	7,200	£1.4m	£20,300	£21,100	£21,900
122	-	£0.01m	£48,000	£70,000	£92,000
123	3,900	£153m	£8,100	£9,000	£9,900
124	160	£0.3m	£6,900	£10,800	£14,800
125	750	£4.5m	£4,700	£6,100	£7,400
212	9,800	£520m	£45,600	£53,000	£60,400
214	1,000	£197m	£177,927	£194,900	£211,800
215	-	£16m	-	-	-
216	800	£63m	£49,600	£78,700	£107,800
221 & 223	400	£206m	£433,700	£520,400	£607,100
225	700	£9m	£9,600	£13,100	£16,700
227	200	£18m	£56,50	£81,600	£106,700
311	500	£25m	£46,500	£50,000	£53,600
312	200	£13m	£47,600	£53,800	£60,100
313	600	£51m	£77,300	£91,100	£10,900
321	300	£14m	£34,300	£48,500	£62,700
323	1,500	£16	£8,600	£10,900	£13,100
331	-	£0.02m	-	-	-

The Programme has generated/safeguarded:

- **overall Programme:** 31,900 total net jobs (to date and future);
- **Axis 1:** 17,100 total net jobs (to date and future);
- **Axis 2:** 8,800 total net jobs (to date and future); and
- **Axis 3:** 6,000 total net jobs (to date and future).

The number of net additional jobs has been converted to GVA by applying a GVA per job figure based on an average sectoral figure:

- **overall Programme** – £1.1bn total net GVA per annum (to date and future);
- **Axis 1** - £657m total net GVA per annum (to date and future);
- **Axis 2** - £317m total net GVA per annum (to date and future);
and
- **Axis 3** - £101m total net GVA per annum (to date and future).

As per guidance the persistence of impacts/benefits was taken to be three years. Therefore, total GVA impacts were multiplied by a factor of three. Further, the net present value (NPV) of the cumulative net additional GVA has been calculated using the HM Treasury recommended 3.5% social time preference discount rate⁷:

- **overall Programme:** discounted GVA over three years - £3.1bn (to date and future);
- **Axis 1:** discounted GVA over three years - £1.9bn (to date and future);

⁷ The Social Time Preference accounts for the value of money discounted over time e.g. if I have £1 today is worth more to me than £1 in one year's time, see HM Treasury Greenbook http://www.hm-treasury.gov.uk/d/green_book_complete.pdf

- **Axis 1:** discounted GVA over three years - £919m (to date and future); and
- **Axis 3:** discounted GVA over three years - £293m (to date and future).

Based on these assumptions, **Table A.18** and **A.19** details the cumulative discounted net GVA based on three-year persistence. The Return Investment is then calculated by dividing the total spend by the cumulative discounted net GVA.

Again, it should be noted that figure outwith Measures 121, 121, 214 and 311 and at the axis and programme level are subject to large degrees of uncertainty.

Table A.18: Return on Investment

	Annual GVA	Three Year Persistence	Return on Investment		
			Low	Mid	High
Axis 1	£657m	£1.9bn	£9.40	£9.70	£10.10
Axis 2	£317m	£919m	£0.80	£0.90	£0.90
Axis 3	£101m	£293m	£2.30	£2.50	£2.60
Programme	£1.1bn	£3.1bn	£2.30	£2.30	£2.40

Table A.19: Return on Investment

	Annual GVA	Three Year Persistence	Return on Investment		
			Low	Mid	High
112	£10m	£29m	£16.20	£21.20	£26.20
121	£232m	£672m	£4.20	£4.40	£4.50
122	£0.2m	£0.5m	£1.10	£1.60	£2.10
123	£123m	£357m	£9.10	£10.20	£11.20
124	£2.8m	£8m	£3.10	£4.90	£6.60
125	£25m	£71m	£12.20	£15.70	£19.20
212	£371m	£1.1bn	£1.80	£2.10	£2.40
214	£30m	£86m	£0.40	£0.40	£0.50
215	-	-	-	-	-
216	£30m	£88m	£0.90	£1.40	£1.90
221 & 223	£15m	£43m	£0.20	£0.20	£0.20
225	£25m	£73m	£5.90	£8.10	£10.30
227	£8m	£24m	£0.90	£1.30	£1.80
311	£8m	£24m	£0.90	£1.00	£1.00
312	£3.4m	£10m	£0.70	£0.80	£0.90
313	£11m	£33m	£0.60	£0.60	£0.70
321	£7m	£21m	£1.10	£1.50	£1.90
323	£52m	£152m	£7.40	£9.30	£11.20
331	-	-	-	-	-

At the overall Programme level, support is estimated to deliver a **ROI of 2.30:1**. This means that for every £1 invested in the Programme, it generates a further £2.30 in the Scottish economy in GVA.