

BIS Evaluation Summary and Peer Review

The BIS Expert Peer Review Group for Evaluation reviews all BIS impact evaluation publications, and provides an independent assessment of the methodological quality of the evaluation.

Link to publication: <https://www.gov.uk/government/publications/advanced-manufacturing-supply-chain-initiative-AMSCI-early-study-of-economic-benefits>

| | |
|--|--------------------------------|
| Title: AMSCI Early Additionality Report | |
| Programme evaluated: Advanced Manufacturing Supply Chain Initiative (AMSCI) | |
| Impact Evaluation Score: 2 | Monetisation Score: N/A |

| | |
|--|--|
| Time period covered by policy: 2011 - 2015 | Time period covered by evaluation: 2012-13 |
| Contractor undertaking evaluation: Ipsos MORI Ecorys George Barrett | Peer reviewers: Dr Edward Anderson, School of International Development; and Dr Hasan Bakhshi, NESTA. |
| Type of evaluation: Early Additionality using mainly case studies and survey results | |

Description of policy/programme and rationale for intervention:

AMSCI is a competitive fund to subsidise capital investment, R&D expenditure, and training for industrial projects involving collaboration across supply chains. Its aim is 'to increase manufacturing sector growth potential by addressing market failures to improve the competitiveness of England-based Supply Chains to globally competitive levels'.

The rationale for AMSCI is underpinned by traditional market failures associated with imperfections in financial markets, spill-over effects associated with R&D activity, and difficulties in internalising the full benefits of training. Collaborative supply chain projects may fail to emerge, even where it is in the best interests of parties involved to collaborate, due to problems caused by the threat of free-riding, the incompleteness of contracts, and issues caused by the potential uneven distribution of returns. Public subsidies (as well as the requirements for monitoring) for these types of collaborative project have the potential to address these market failures and strengthen the competitiveness of firms within the supply chain of large manufacturers.

Summary of key evaluation findings:

The majority of AMSCI projects are in the early phases of delivery or have not started. As such, the primary focus of the report is on how far there is evidence that AMSCI has tackled market failures, and exploring the issue of project additionality relative to the judgements made at the appraisal stage.

A strong conclusion on the extent to which AMSCI has successfully tackled the

market failures will not be feasible until a full CBA is possible. However, the evidence gathered does suggest that AMSCI has, at least in part, gone some way to tackling the potential market failures inhibiting collaboration in supply chains, and other difficulties relating to access to finance and the possibility of spill-over benefits.

The early evidence around the effects of AMSCI points towards a positive impact on the probability that projects would be taken forward, relative to the probability in the absence of funding.

Summary of cost-benefit/cost-effectiveness analysis (if applicable):

Not applicable.

Policy response to the evaluation:

Any lessons learned from this early Additionality report will feed into the findings and recommendations from the Impact and Economic Evaluation Scoping report, which will be used to plan a full interim and final evaluation of the scheme around 2018. All available AMSCI funding has now been allocated and a number of recommendations from the Process Evaluation report will be taken into account in any future replacement and other relevant schemes.

Evaluation methodology

Description of methodology:

This report is based on the triangulation of a range of sources of evidence gathered as part of a parallel process evaluation and the scoping of impact and economic evaluation methodologies. Comparisons are made between projects that have received AMSCI funding, and those firms that were unsuccessful, regardless of the status of the proposed project. For the purposes of this analysis all available evidence is used. However, future analysis may be able to more narrowly define a counterfactual group, dependent on the quantity of applicants in future rounds. This range of evidence includes:

- **Case Studies:** As part of the process evaluation, 10 in-depth case studies were undertaken with successful projects, involving depth interviews with lead applicants, partners, and monitoring officers, as well as a review of the secondary information (such as monitoring data) associated with the project. These covered a range of issues surrounding the bids and collected evidence around present status, experience of the AMSCI process and evidence about the non-quantifiable impacts of the programme.
- **Survey results:** A random probability (telephone) survey of 207 AMSCI applicants (split equally between successful and unsuccessful applicants) was undertaken to provide a quantitative perspective on the issues of interest. This included exploring the motivations of firms to apply for AMSCI funding, issues of market failure, and how far the projects involved would have (or did in the case of

unsuccessful bidders) proceed in the absence of AMSCI support. The survey was also used to examine the extent to which clear economic results had been delivered to date.

- **Statistical analysis:** The survey findings were combined with monitoring information to undertake exploratory statistical analysis to examine how far it would be feasible to identify a causal effect of AMSCI funding on the probability that projects went forward.
- **Data-linking:** Records of successful and unsuccessful applicants have been linked to the datasets held within the ONS Virtual Microdata Laboratory by Aston Business School, with the intention of examining how far it is feasible to isolate a causal effect of AMSCI on employment, turnover and productivity at this early stage of delivery.

Does the evaluation review the published policy objectives?

Yes – the evaluation provides an early assessment of the published policy objective.

At what level are the main intended outputs and/or outcomes expected to occur? (What is the unit of analysis? For example: universities, businesses, individuals or nationally)

Businesses

Has sufficient time lapsed for the initial/full benefits to be estimated?

No – this is an early assessment, and more time is needed for the full benefits to materialise and be estimated.

Peer review

Comments on the appropriateness of data and outcomes:

Edward Anderson:

The data used in the report to assess additionality is reasonable and appropriate. Results from telephone interviews of 101 successful applicants and 109 unsuccessful applicants are reported clearly and accurately. The regression analysis is also carried out well and reported clearly.

Hasan Bakhshi:

Figure 2.2, which shows that over 90% of projects are not expected to complete by 2018 or 2019, illustrates that the report is correct to focus on:

1. *How the projects supported compare with those intended in AMSCI's business cases?*

2. Whether there is any evidence of AMSCI's near-term project additionality?

Comments on internal validity:

Edward Anderson:

The assessment is carried out partly on the basis of participating firms' own assessment of the additionality, via the detailed case studies and the qualitative telephone surveys. These self-reported estimates of additionality have relatively low internal validity, but the report is clearly aware of this and discusses the limitations of such estimates on page 33.

The report also uses Regression Discontinuity Design to test for a causal impact of AMSCI funding on the probability that a project take-up. This is a more robust empirical approach with higher internal validity. Although the results from this approach are inconclusive, this is a reflection of the small sample size.

Hasan Bakhshi:

As the report explains, the early stage nature of the AMSCI precludes a more rigorous statistical analysis of project and output additionality. However, it would have been good to have seen in the report more explicit commentary on whether data collection was in train to permit more rigorous analysis at a later date (and if there were gaps, what actions would be undertaken to address these).

Given the importance of the qualitative element of the work for the report's conclusions it would have been useful to have seen more methodological detail.

Comments on external validity:

Edward Anderson:

External validity is quite high, since the estimates of additionality are obtained directly from the firms who had applied to participate in the AMSCI programme.

Hasan Bakhshi:

The report's conclusions are appropriately qualified given the uncertainties, nonetheless it's worth reflecting whether more can be done in such evaluations to establish the external validity of conclusions drawn from a small number of cases.

Comments on the quality of inferences and establishing causation:

Edward Anderson:

The report argues that the deadweight/additionality figure of between 50 and 55 per cent used in the BIS value for money appraisal is supported by the results from the case studies and telephone surveys. This seems a fair and reasonable conclusion.

The report also makes a valid point about the need for "more stringent tests of

financial constraints at the appraisal (or due diligence) stage” (p.40), since a 50% figure deadweight figure does seem high. There does therefore appear to be a need to think of ways in which the amount of deadweight might be reduced for programmes of this nature. The report also contains some early analysis of the potential impacts of AMSCI funding on key outcomes, including GVA, but goes on to argue that it is too early to assess impacts of this sort. This also seems fair and reasonable.

Hasan Bakhshi:

Evaluating AMSCI at such an early stage in project lifecycles is clearly challenging. It should be possible to draw strong conclusions about whether the scheme has awarded projects that are consistent with the scheme’s intended objectives. Indicative conclusions can be drawn on AMSCI’s near term project additionality. But next to nothing can be said at this stage about the scheme’s output additionality.

Other comments:

Edward Anderson:

The fact that few respondents suggested that they sought AMSCI funding because the project would not otherwise generate sufficiently high returns on investment (p.24) is an interesting finding in my view. It seems to suggest that the most relevant market failures are the ‘traditional’ ones relating to credit markets and access to finance. The other sorts of market failures discussed in the report would, in my view, be expected to lower the return to investment below firms’ threshold levels, even though the ‘social’ return to such investments could still be very high (thus justifying the subsidy).

Hasan Bakhshi:

At this early stage in the evaluation, where full CBA/cost effectiveness is not possible, the mixed use of survey, linked data and case study evidence is appropriate. I’m satisfied that the report’s authors went some way to address my concerns on the first draft.

Cost-effectiveness and cost-benefit summary

Justification for monetisation score:

Not applicable.

Sensitivity analysis/key assumptions:

None

Description and size of key monetised costs:

- Total grant and loan commitment of £175.6m, as at August 2014

Other key non-monetised costs:

- Administration costs of running AMSCI

Description and size of key monetised benefits:

Other key non-monetised benefits:

- Additional Employment
- Additional Gross Valued Added
- Improvements in productivity
- Reductions in output prices
- Strengthen competitiveness of manufacturing supply chains relative to non-domestic suppliers
- Reduce the dependency of Primes on inputs produced by overseas suppliers
- Support domestic firms to increase their export sales
- Reduced CO2 emissions
- R&D spill-over benefits

Robustness of monetised costs and benefits:

Peer Review

Evaluation peer review comments on comprehensiveness, clarity, robustness and best practice of cost benefit/cost effectiveness analysis:

Not applicable

Note on Impact Evaluation and Monetisation Scores

Impact Evaluation Score

Impact scale follows the guidance on 'Quality on Impact Evaluation'¹, published as supplementary guidance to the Magenta Book. The scale is based largely on the Maryland Scientific Method Scale used by academics and researchers to assess the strength of an evaluation approach. The higher the score potentially the more capable the evaluations are to demonstrate that the outcome observed is due to or caused by the intervention.

- Score 5: Random allocation of treatment and control group or a robust counterfactual using a quasi-experimental approach, using actual outcome data on a treatment and a comparison group before and after the intervention.
- Score 4: Quasi-experimental approach where the counterfactual has some weaknesses, but it is as good as can be, given the policy design or data availability issues, using actual outcome data on a treatment and a comparison group before and after the intervention.
- Score 3: Predicted (modelled) versus actual, predictions are based on actual baseline data.
- Score 2: Actual (i.e. not self-assessed or self-reported) before and after. (Higher levels on this scale also require actual data not based on self-reporting.)
- Score 1: No baseline data (or only self-assessed/self-reported data).

Monetisation Score

The higher the score the more information the evaluation contains in terms of analysing the cost of the intervention and the additional benefits to the economy.

- Score 5: Input, output, outcome data additional Benefit Cost Ratio (BCR), NPV set aside some other not monetised impact measures, fuller cost benefit analysis or cost effectiveness analysis that compares the costs of alternative ways of producing the same or similar outputs
- Score 4: Input, output, outcome data, calculation of additional Benefit Cost Ratio, Net Present Value
- Score 3: Input, output, outcome data calculation of Gross BCR not additional or not clear if additional
- Score 2: Gross BCR not available, as either input or output data are not available
- Score 1: No monetisation at all

¹ Quality in policy impact evaluation, HMT, Dec 2012

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/190984/Magenta_Book_quality_in_policy_impact_evaluation_QPIE_.pdf

