

Apprentice cost-benefit analysis

Summary of Key Issues



Summit SKILLS

The Sector Skills Council
for Building Services Engineering

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This document is a summary of the research report Apprentice cost-benefit analysis for the building services engineering sector published by SummitSkills in May 2009.

For the comprehensive detail and background on the issues outlined in this summary, please view the full report.

Overview

The full apprentice cost-benefit analysis and report was created as a result of the Sector Skills Agreement (SSA) for building services engineering. At the Assessment of Current Provision stage of the SSA, employers stated to SummitSkills they wanted to see clear evidence of the benefits of employing apprentices, to use as a selling tool when encouraging businesses to consider recruitment options.

It is accepted that the hourly rate for apprentices is lower than that for fully qualified craft operatives. Therefore the report is based on this premise: if apprentices are utilised properly to do certain tasks that an employer would normally pay a fully qualified craftsman to carry out, significant cost savings can be made.

Methodology

Using industry recognised standards of the Standard Method of Measurement Edition Seven (SMM7), Spon's mechanical and electrical handbook for major works and Spon's mechanical and electrical minor works pricing handbooks, cost savings that can be accrued through the effective use of apprentices are calculated.

In order to estimate potential savings, two models are explored:

Major works

- The first model initially sets out a price for a traditional gang on a major works project, to assess an overall labour cost for the team.
- SummitSkills then reconfigures the standard gangs to incorporate apprentices and demonstrates the lower overall workforce cost this leads to.
- Using this model, costs have been developed for a twelve-man mechanical gang, eight-man ductwork gang and eleven-man electrical gang.

Minor works

- The major limitation to the major works model is that it is related to large scale work rather than the domestic/small industrial market. Therefore, the minor works model can be used by smaller companies.
- It is based on SMM7 Bill of Quantities descriptors and shows how time and cost savings can be made through using an apprentice working with a craftsman, rather than the craftsman doing the whole job independently.
- Using this model, costs were developed for three scenarios – an electrical upgrade on a four bedroom six person house; a central heating installation in a two storey house and the fitting of a domestic bathroom suite.
- A fourth smaller costing exercise was carried out based on a supermarket refrigeration installation. Further work is needed to breakdown this work further by SMM7 descriptor.

Major works savings summary

Using the first model, SummitSkills calculated potential savings on major works gangs that incorporated apprentices alongside craftsmen. These estimates incorporate both the costs of sending an apprentice to college for 29 days per year and a Government grant that is currently available to cover course fees:

Type of gang	Inclusive man-hour rate without apprentices	Inclusive man-hour rate with apprentices	Saving
Twelve-man mechanical	£26.06	£23.41	10%
Eight-man ductwork	£30.41	£26.31	13.48%
Eleven-man electrical	£25.40	£21.38	15.83%

On a £1,000,000 labour contract this would produce savings of £100,000, £134,800 and £158,300 respectively.

Minor works savings summary

Two cost savings have been produced from this work:

- One relates to the actual cost saving gained by using an apprentice and a craftsman on each work item, rather than the craftsman working independently.
- The second is what SummitSkills describes as the displacement saving, whereby the craftsman's time is freed up, making the whole contract progress quicker or providing time to spend on another contract.

The savings for each scenario are as follows:

Type of contract	Saving on contract through using an apprentice	Additional displacement saving – time saved for the craftsman...	...which equates to:
Electrical: typical upgrade of four bedroom house	£117.65	30 hours 13 minutes	£359.57
Heating and ventilation: central heating installation for two storey house	£106.39	31 hours 25 minutes	£387.77
Plumbing: fitting a domestic bathroom suite	£79.89	15 hours	£189.44

For the sample refrigeration installation, the estimated cost saving was £1,692 through using one apprentice on a sixteen week contract.

Because the minor works model lists and costs each SMM7 work descriptor item by item, rather than presenting an all inclusive hourly rate, neither the costs of sending the apprentice to FE college or the benefit of the Government grant are included in these calculations.

Savings at each stage of apprentice training

- A further table in the full report provides a model through which employers can calculate job savings work item-by-item, depending on the stage at which the apprentice is and their rate of pay.
- Using the plumbing work scenario as an example, SummitSkills mapped out the costs of using apprentices at different grades to do the work, compared to a fully qualified craftsman rate. This expands on the previous section where only first year apprentice rates were used.
- When comparing the SPONS craftsman rate with the various apprentice rates for the same task it can be seen that, regardless of the apprentice level, savings can be made by using an apprentice.

Apprentice competence measurement model

- The use of SMM7 descriptors for minor works provides a common format through which competence can be related directly to work produced on site.
- This presents the possibility of developing a competence model for employers to measure apprentice performance against their work.
- In the full report, SummitSkills has indicated how this could work, using a standard bathroom suite project as an example.
- The development of a competence model such as this would enable an employer to monitor apprentice progress against a defined standard and plan work accordingly.
- This concept is in development however; as nearly every contract is different, some allowance has to be made when judging competence to take into account any special circumstances around each contract.

Conclusion

- For both models developed in this report it has been demonstrated that cost savings can be made through incorporating apprentices into a workforce – whether it be a small team or a larger gang.
- The major works model shows clearly that across various industries within the BSE sector, in the example gang creations, significant labour cost savings can be achieved with minimal changes to the overall skill levels of the gang.
- For the minor works model it can be seen that correctly-managed apprentices, even allowing for learning time on each element of work, provide a cost-effective solution to reducing labour costs and can bring a BSE company significant savings.

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