

Written evidence from EEF – the manufacturers' organisation to the Department for Business, Energy and Industrial Strategy call for evidence on

Business Productivity Review

July 2018

About EEF

1. EEF, the manufacturers' organisation, is the representative voice of UK manufacturing, with offices in London, Brussels, every English region and Wales.
2. We directly represent over 5,000 businesses who are members of EEF. Everything we do – from providing essential business support and training to championing manufacturing industry in the UK and the EU – is designed to help British manufacturers compete, innovate and grow.
3. In this submission we provide evidence on the challenges and opportunities for improving productivity growth across UK manufacturing. The key next step is for BEIS to turn the input from this call for evidence into something useful as part of the overall industrial strategy, the consultation stops short on this point but this is an important aspect.
4. Just over 7 months on from the industrial strategy white paper we are still awaiting the independent Industrial Strategy Council or more detailed guidance on sector deals, taking action on these will help to drive forward progress on improving productivity across sectors of the economy.

The UK's productivity challenge - an overview

5. Productivity is an important issue for UK manufacturing and historically the sector has been a strong performer, between 1994 and 2017 manufacturing productivity grew twice as fast (66.1%) as services (31.8%) and the whole economy (31.2%) which helps to explain why average pay in manufacturing is higher than both.
6. In the run up to the financial crisis there was a consistent positive productivity performance across all sub-sectors of manufacturing, however since the crisis there has been significant sub-sector variation year on year. The impact of that is felt when compared internationally, productivity growth ran fast against our competitor countries (notably Germany, Italy and Spain) in the run up to 2009 helping to close the gap on productivity competitiveness levels. However, after growth in the UK flat lined with the gap reopening.
7. What this signifies is that manufacturing was the main driver of productivity growth and can be again, but getting from current productivity growth rates to back on trend will require a more disaggregated look at factors holding back performance.
8. The BEIS Business Productivity Review looks at some important things that can shift the needle, including technology adoption and leadership and management. However it also needs to look at fundamental characteristics of output-ecosystems/supply chains that could be improved and require government support. A firm level approach will miss these bigger opportunities.
9. In UK manufacturing the characteristics that can be improved include scaling up the size of firms across manufacturing sectors, a greater focus on improving productivity beyond the shop floor and more firms deriving their turnover from exports.
10. Our work on how we can get UK manufacturing productivity growth back on trend is ongoing and new analysis will be complete after the close of this consultation¹, we will share this information after close.

¹ Our productivity hub will be updated as new evidence comes to light: www.eef.org.uk/sectorproductivity

Do you agree with our working definition of low-productivity businesses?

11. As the consultation notes, looking at low productivity firms compared to the UK median masks other factors, but these other factors are important in determining the productivity growth potential that a firm has.
12. Figuring out this productivity potential is important before policy solutions are put forward. EEF's research shows some characteristics that may determine this potential include:
 - a. Size, as larger firms may be able to exploit economies of scale
 - b. Sector, as some sectors may have a lower productivity potential due to the nature of products. For example our research shows that the productivity of the food and drink sector is low internationally and is not just a UK phenomenon)
 - c. And linked to sector, supply chain integration, as more integrated supply chains have better visibility of orders and may be able to plan proactively
13. Focusing on the UK median is therefore only useful if further work will be done to disaggregate the importance of size and sector to some firms.

Is there further evidence to compare the UK's productivity distribution of firms to that of other countries?

14. Taking a sub-sector look internationally highlights some useful insights for manufacturing, a similar approach for other sectors may help to show where weaknesses lie. These insights show²:
 - a. Productivity growth for transport equipment and chemicals outperformed internationally since 1995 and continued to grow after the financial crisis. However on productivity levels the transport sector is still behind all three comparator countries (Germany, Italy and Spain), while chemicals has closed the gap and is now only uncompetitive against Germany.
 - b. Pharmaceuticals productivity growth ran in line with international growth but went into reverse after the financial crisis, however on productivity levels the sector is still ahead of our international comparators.
 - c. Food and mechanical equipment productivity growth outperformed strongly internationally since 1995, but has seen subdued growth since the financial crisis. On levels the food and drink sector outperforms all our comparators while mechanical equipment underperforms all three.
15. Taking this sector approach allows a closer look at the factors which drives the distribution of business productivity and as a result the factors that could be affecting productivity, allowing more targeted solutions to be developed.

What do you think are the most important firm-level factors that impact productivity? Would you add any further characteristics of high productivity businesses?

16. In addition to the list of options outlined, our analysis of manufacturing sub-sectors suggests the following additional characteristics which can help to explain high productivity compared internationally within manufacturing:
 - a. Size – with larger companies being able to exploit economies of scale, vertical integration opportunities and with it higher levels of productivity. Our analysis shows sectors with a higher share of larger firms tend to outperform internationally.

² More detail is available in EEF's report, *Unpacking the Puzzle: getting UK manufacturing productivity growth back on trend*, May 2018, www.eef.org.uk/sectorproductivity

- b. Source of revenues – more UK manufacturing sectors undertake ancillary services as part of business operations compared to international counterparts. This means that a manufacturing business, may not be doing just manufacturing. A focus on boosting productivity will be needed in each part of the business.
- c. Export intensity – Export intensive firms are more likely to report higher productivity growth. This link partly reflects the fact that competitiveness and efficiency are central to success in global markets.

Is there further evidence on the links between management practices and productivity? If so, which management practices have the biggest impact on productivity?

- 17. Management practices are a key factor to increase productivity. However it is not always easy to measure good practices and the established debate relies on survey insights than 'hard' official statistics.
- 18. In our Unpacking the Puzzle productivity report, we used data from the recent ONS study (Management and Expectation Survey 2016) and from the Bloom and Van Reenan study of 2006. Both these reports show the importance of good management practices for boosting productivity and also point out the important differences amongst British businesses and sectors in terms of use of management practices.
- 19. Management practices are a key factor to help improve productivity, our recent survey³ showed that manufacturers understand that poor management is a problem and a constraint on improving productivity. The chart below shows responses to "My productivity would be even better if..." [select all that apply]



- 20. As we can see the second option is about middle managers not taking enough responsibility for productivity improvement. There is also a difference in terms of size, the result for companies between 1-100 employees is 50% (their top choice across all the options) whereas it is 34% for businesses with 250 employees or more.
- 21. Another question was an agree/disagree statement about board satisfaction with productivity levels. The balance (agree minus disagree) of answers to "Our board is satisfied with our company's productivity performance" was slightly positive (7%). However when the answer is broken-down, 54% of large companies agreed whereas small and

³ May 2018, full publication will come in our final report in September 2018.

medium sized firms registered more “disagrees” (the balances were respectively -9% and -7%).

22. This dissatisfaction could be related to the fact that middle managers are not well trained for a managerial position and they are promoted more on a technical basis rather than on a managerial one. We are currently sending our members a new survey about management practices and will follow up once our results are in.
23. We also think that good managerial practices are related to internal productivity measurement. We acknowledge that manufacturers may measure productivity differently from national statistics, however any kind of measurement is still important to understand businesses’ weaknesses and strengths.



24. The spider-graph above shows that around 60% of manufacturer’s measure productivity across the entire business or in production. This appears to be a poor result hinting that some manufacturers may not give enough attention to productivity improvement.
25. However, considering that modern manufacturing is not just about production, we asked if productivity is measured in other departments, in service areas the balance of manufacturers measuring productivity is low and also lower than the proportion of those saying that they have productivity targets or action plans for improving productivity.
26. This is an area for improvement, as 8% of UK manufacturing output is not related to manufacturing products but to providing services around it – improving productivity in these areas could generate positive returns. The figures are even bigger in several subsectors where core production represents only two-thirds of total output. As our analysis showed, sectors such as mechanical equipment and electronics have a core output production of just 66% in 2015.

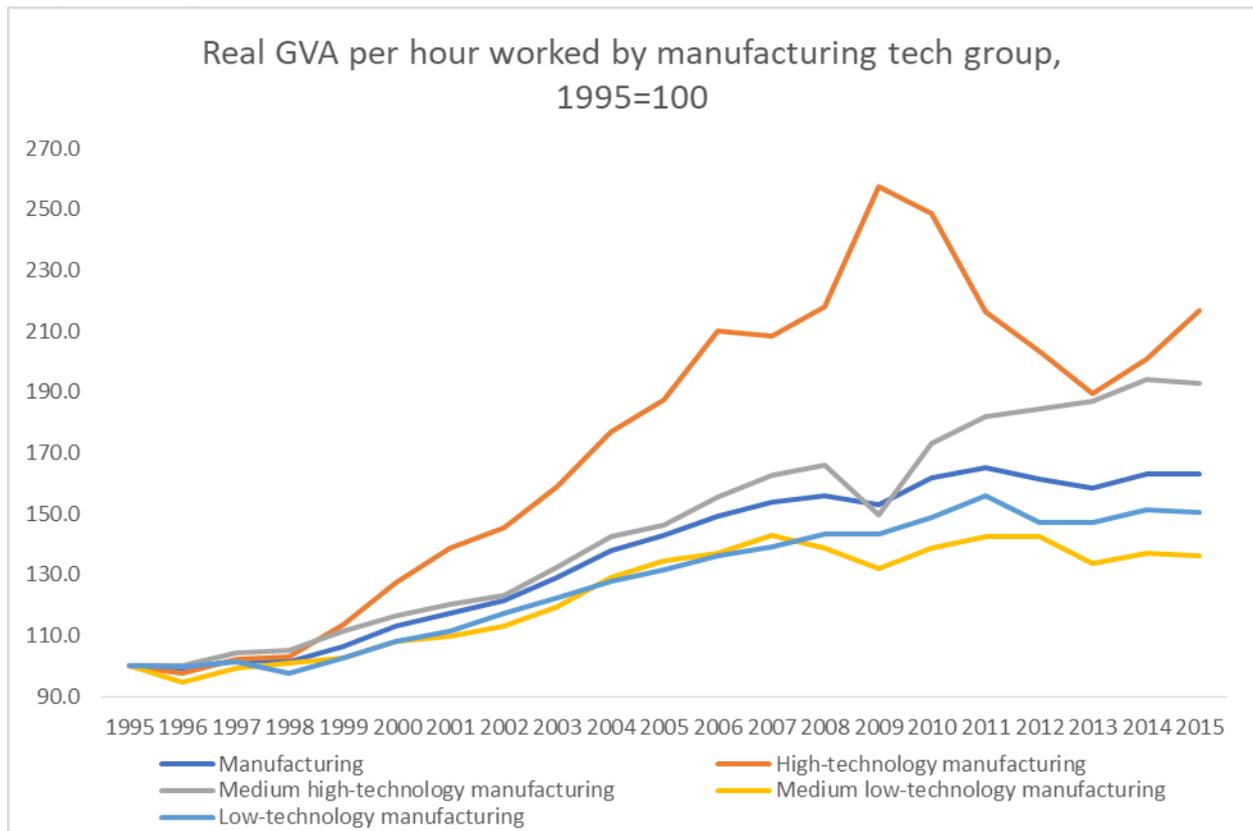
What are the main reasons for businesses adopting or not adopting management best practice? What actions by the public or private sector would be most effective to facilitate effective adoption and embedding of management practice?

27. Looking back at the graph about “My productivity would be even better if...” the third choice from bottom was “We could find people who understand our business to help us improve productivity”. This option was chosen just by 24% of respondents and it appears not to have big differentiations between small and large companies. Suggesting companies are able to find someone to help them.

28. Programmes such as “Be the Business” have good potential to deliver on improving management performance. “Be the Business” appears to be on the right track to share good practices and provide good tools for businesses and it would be detrimental to stop it and create something new.

Is there further evidence to demonstrate the link between technology or innovation adoption and a business’ productivity growth?

29. At the sector level there is some evidence. Data from Eurostat show that high-tech sectors experienced a better productivity growth in the last 20 years and have higher level of productivity.



30. The graph above shows that productivity in the high and medium high-tech sector (based on Eurostat methodology which uses R&D spending to create tech groups) has performed much better than low and medium low categories.

31. The drop in productivity after the financial crisis in the top category is related to pharmaceuticals which has seen a sharp fall in productivity after a spectacular rise in the years before.

GVA (£) per hour worked by manufacturing tech groups in 2015	
Manufacturing	35.9
High-technology manufacturing	69.0
Medium high-technology manufacturing	41.4
Medium low-technology manufacturing	30.7
Low-technology manufacturing	30.8

32. In absolute terms, 2015 productivity in the high tech category was almost double compared to the manufacturing average. Medium-high is also above the average whereas the two

low tech categories have a similar and low level of productivity per hour. A similar trend can also be found in other European economies such as Germany, Italy or Spain.

What are the main reasons for businesses adopting or not adopting new to firm technologies?

33. Manufacturing is undergoing a transformation to the fourth industrial revolution (4IR) where the adoption of digital technologies could substantially boost productivity. The benefits of 4IR technology adoption for manufacturing will be widespread, with smarter supply chains, smarter production and smarter products. Process innovation could gear up manufacturers for this transformation and EEF's Innovation Monitor⁴ shows that companies are increasingly focussed on process innovation as a way to boost productivity and competitiveness.
34. Process innovation achieves much more than just managing costs. For more than two-thirds of our survey respondents it improved labour productivity, the flexibility and the profitability of their business. Supply chain benefits are also significant, as more than half of companies cited better customer relationships and improved lead times as key outcomes.
35. Looking at the current picture however, manufacturers' investment in process improvement is not necessarily directed at innovations associated with the highest productivity benefits and/or at the cutting-edge of production techniques. Although two-thirds of manufacturers said they introduced process innovations in the past three years, only 45% of companies introduced ICT to improve processes and less than one in ten introduced ICT to improve delivery and logistics.
36. Because new technologies are not being diffused quickly and widely enough across manufacturing supply chains, productivity gains are highly concentrated among some firms that are close to the global technology frontier. This has led to a growing productivity gap in recent years according to the OECD.
37. Our survey highlighted a number of barriers to this innovation that could be undermining the pace of adopting cutting-edge processes and introducing new technologies these barriers can be linked to capability (or skills), certainty and cost.
38. Although firms have the appropriate set of skills within the business, there is no incentive for them to dedicate time to process innovation. In our report on the Fourth Industrial Revolution⁵, four in five manufacturers say they need new staff and management skills before adopting 4IR technologies.
39. Uncertainty is also seen as a major barrier and is inherent to any type of innovation activity. Innovation is a resource intensive activity, and firms must choose where to focus their efforts. In some cases that will mean that companies adopt a cautious approach to certain aspects of innovation and investment. One in three companies said they underestimated what process innovation would involve, while more than a quarter said they were uncertain about the outcomes.
40. Our work on the fourth industrial revolution and its associated technologies has shown that awareness and capabilities represent a greater challenge for companies embarking on the 4IR journey. Companies are hesitant about what the adoption of new ICT could bring and the return on investment.
41. All investment decisions – involving both tangible and intangible assets – require companies to resolve issues around financing, balancing short-term need with long-term returns and effective utilisation of skills and capabilities within the business. Process innovation is more likely to be funded internally, and a 28% of our survey respondents said

⁴ EEF, Process Innovation: Bringing manufacturers to the frontier (2017)

⁵ EEF, The 4th Industrial Revolution (4IR): A primer for manufacturers (2016)

they lacked the required resources within the business to implement new processes. By contrast, lack of external finance was less of an issue.

42. The UK's long tail of not-very-productive companies requires more resources to be allocated to process innovation in order to enhance the adoption of new technologies and modern manufacturing techniques. The UK has a competitive, cutting-edge science base as well as world-leading infrastructure through the Catapult network to support commercialisation efforts. This landscape needs to be complemented by support for the diffusion of technologies that could significantly boost productivity at the firm and sector level.
43. Given the benefits in terms of firm productivity and supply chain efficiency that the adoption of modern manufacturing techniques could bring, policy support is an imperative to correct the market failures associated with process innovation and to help spur the benefits of the 4th industrial revolution.

How important are the seven identified 'best practice' technologies (identified in paragraph 5.14) to enhancing productivity at the firm-level, and which offers the greatest return? Are there other technologies which offer greater potential?

44. Whilst we have no comment on the specific technologies identified, it is important that these technologies are linked to business objectives and outcomes, and are used to enhance and fulfil these aims, rather than just being about technology for technology's sake.
45. It must also be noted that these digital technologies and software are only as good as the digital connections to a business premise. Digital infrastructure is a fundamental part of modern digital manufacturing. For manufacturers the issue is about more reliable internet connections which can only be delivered by shifting networks to full-fibre.
46. The target for full-fibre internet connectivity of 15 million premises by 2025 and full national coverage by 2033 is a good start but we must learn lessons from the previous superfast broadband target (getting 95% of premises within access of download speeds of 24Mbps). With this target, while over a 90% rollout of superfast broadband has been met, the premises still missing out are skewed towards businesses. A separate target for businesses must be set out to avoid the mistakes of the past. Beyond this, Ministers need to take charge and ensure the Business Connectivity Forum delivers tangible progress on full-fibre rollout to businesses as a priority.

What actions by the public or private sector would be most effective in driving effective adoption of new to firm technologies?

47. There are a number of actions that can be taken to drive up the adoption of new to firm technologies, split across the areas of capability, certainty and costs:
 - a. Management skills – Companies must make complementary investments in management and leadership to maximise technology benefits. The role of leaders will be critical in effective deployment of technology, broader workforce engagement, driving a culture towards innovation in a firm and ensuring there is a senior manager or director tasked with the responsibility for developing and implementing new technology solutions.
 - b. Apprenticeships – The apprenticeship levy can offer opportunities for upskilling and retraining of existing employees, as well as bringing young people into the sector. Frameworks must keep pace with industry requirements and offer flexibility to manufacturers.
 - c. Peer to peer examples – Companies benefit from networking opportunities to learn about the full potential of new technologies, how it can help their business and

reduce uncertainties about returns. Supply chain engagement and facilitated collaboration could start to address this.

- d. Tax environment – Government needs to ensure that the UK tax system reflects technological change especially given the pace of change taking place in new technologies.
- e. External finance providers – Getting the product portfolio right for companies near the frontier of technical developments should also be a priority for finance providers.

The UK market for business support and advice services

- 48. Ultimately business support should be about filling an information gap, particularly where information asymmetries exist. Non-specialist support should rest on the foundations of providing either information, signposting to specialist support, or delivering general business growth advice.
- 49. More specialist support, e.g. sector or technology focused, can help sectors to achieve their productivity potential. In this area support should be stable, focused on outcomes, have specialist advisors and not just be a one off intervention.
- 50. Manufacturers often cite the example of the Manufacturing Advisory Service which supported the sector in adopting lean manufacturing principles in particular by addressing information asymmetry between the provider market and the manufacturing community. Those who undertook interventions cite the stability of support, local availability of advisors and their manufacturing knowledge and the project (rather than one-off) approach to delivery
- 51. While non-specialist support may be cheaper to run, specialist support – particularly those targeted at sectors with the greatest potential to improve productivity, will need to be more intensive but these can deliver greater returns over the long-term than ephemeral types of support. Ultimately if deciding on 'bang for buck' it depends on what is being measured – too often the focus is on number of businesses engaged (an input metric), or the number of jobs created as the result of an intervention (an output metric) (which may be suitable for non-specialist support) rather than number of businesses who achieved the desired outcome.

Summary

- 52. As we've set out across this response, while there is an opportunity to increase productivity in the long-tail a more focused approach on sectors and businesses that have well established potential to increase productivity will deliver a more guaranteed return.
- 53. An overt focus on the long-tail, without filtering to identify those with the potential for productivity growth, is akin to taking a punt on what could work. Focusing instead on sectors such as manufacturing (and even then sub-sectors) which have a proven track record to drive productivity growth and have a clear potential to improve performance when viewed internationally, can deliver more for the UK economy than a scatter gun approach on firms which have no proven capacity to improve productivity.

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