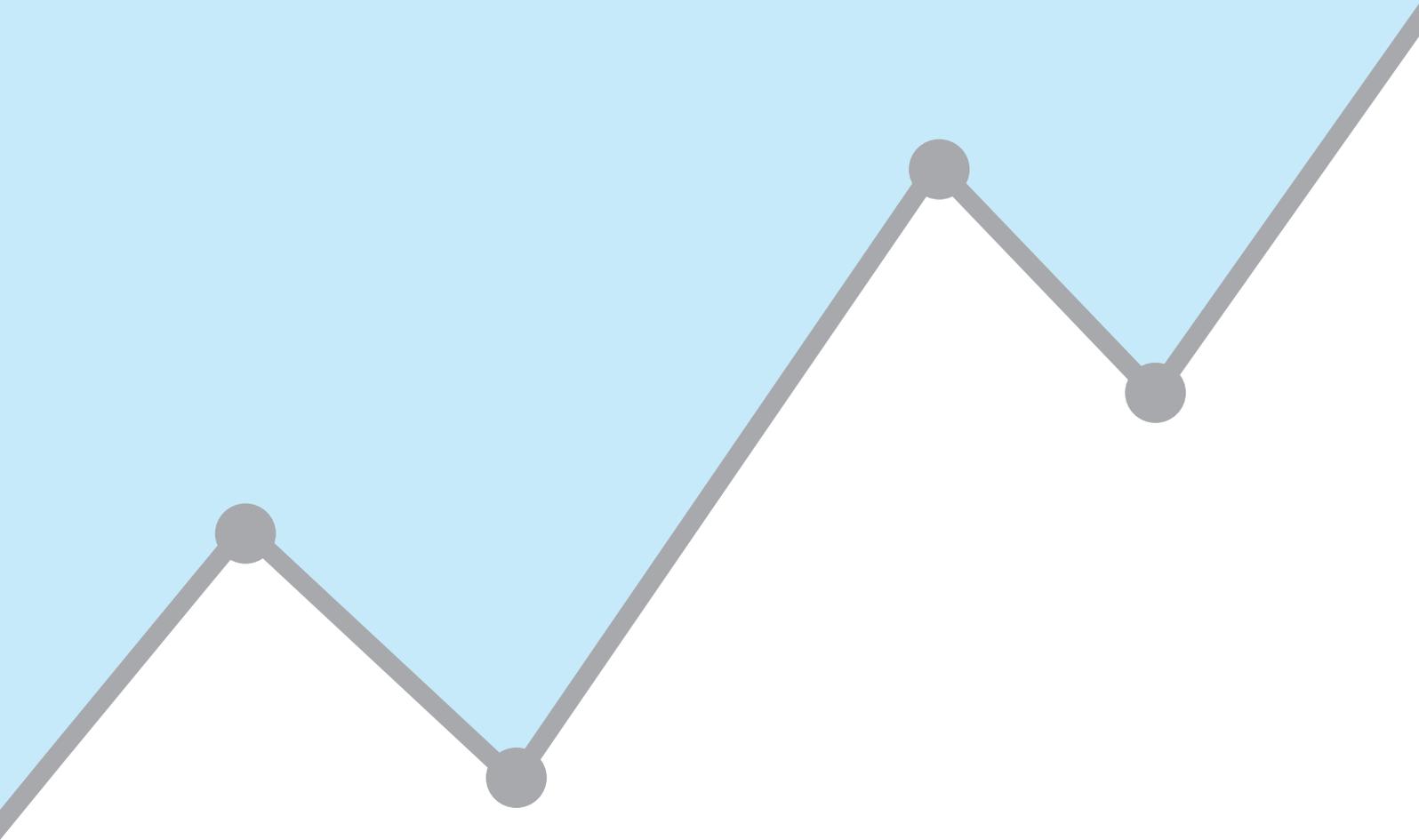


PRODUCTIVITY IN CONSTRUCTION:

CREATING A FRAMEWORK FOR THE INDUSTRY TO THRIVE





Researched and written by Brian Green, construction analyst and commentator.

Follow Brian on Twitter: @brickconomics

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CIOB, 1 Arlington Square, Downshire Way, Bracknell, RG12 1WA, UK
Registered Charity No. (England and Wales) 280795 and (Scotland) SC041725

www.CIOB.org

policy.CIOB.org

Tel: +44 (0) 1344 630700

Email: policy@CIOB.org.uk

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FOREWORD



Why are we, as a nation, so engrossed in productivity at the moment? The so-called ‘productivity puzzle’ is a regular topic of debate, and with good cause: the latest figures, released in April 2016, show the biggest fall in UK productivity since the financial crisis in 2008.

The Government has recognised the risks of poor productivity growth and made improving it a policy priority. As the Chancellor George Osborne stated in the first Budget of the Conservative government in 2015: “...our weak productivity shows we don’t train enough or build enough or invest enough. This we are determined to change”.

The Government’s concern about productivity is two-fold. One, UK productivity growth has stalled for the best part of a decade. And, two, for years the UK has lagged behind other developed nations.

Before arguing the case for productivity growth, it’s sensible to ask why we might need it. The answer is that improving productivity – labour productivity at least – should pave the way for firms to pay higher wages. It should make more people buy goods and services because they get better value for money. And it should reduce waste and see resources used more efficiently.

So what does this mean for the construction industry?

For decades, studies have suggested numerous solutions to improve construction’s productivity, yet the data suggests growth is weak at best. So, from the outset, we didn’t want this report to repeat selectively from those same prescriptions – we needed to take a step back and see the bigger picture.

It’s important to point out that poor productivity growth in construction is not just a UK phenomenon: in developed nations globally we see the same occurrence, which drags down the productivity performance of the wider economy.

So we might reasonably ask if there is anything inherent within construction that means its productivity will never be on a par with other sectors – can we only automate and standardise so far?

We might ask whether construction productivity is being measured in the most accurate way – are we getting the wrong impression from the data?

And we might ask if there are any unexplored barriers holding back progress – there’s a wealth of information on how to boost productivity, so why has growth not materialised?

But this report seeks to highlight the fact that the construction industry should not be viewed in isolation when talking about how to improve productivity.

Construction, and the wider built environment, has a major bearing on how productive we are as a nation.

Better buildings and infrastructure contribute to productivity not just through their primary function or by increasing economic output. By making people happier, safer and healthier, benefits which are often overlooked, the built environment encourages them to be more productive.

And the recommendations from this report reflect this approach, with high priority given to the contextual issues – how we can better measure productivity; how we can demonstrate the wider value of construction; how we can begin to have firms recognise that their current business models may be an obstacle to productivity growth – as opposed to specific proposals.

This report throws up as many questions as it does answer them. But our focus is clear. The CIOB wants to kick-start the debate into productivity not just in terms of the construction industry itself, but how construction benefits productivity in the UK as a whole.

By Paul Nash MSc, FCIQB
Senior Vice-President, CIOB

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EXECUTIVE SUMMARY

Productivity has been a thorn in the side of construction for decades. It may have risen to prominence of late, but it has been a festering problem and a major topic in numerous reports and studies into the industry for at least 50 years.

Despite repeated effort from academics, politicians and industry leaders, the impression in most people's minds, as well as the statistics produced, all suggest construction is little more productive now than it was many years ago.

That such effort has failed to prompt radical change throws up three challenging questions.

Are the statistics and our impressions fooling us?

Is there something intrinsic to construction that its productivity path is inevitable?

Are there fundamental barriers blocking progress?

This report seeks to address these questions. Furthermore, it suggests that we need to take a much broader view of what we are trying to achieve through increasing construction productivity. And, most importantly, it suggests that if we are serious about improving productivity we need to rethink and address fundamentals that motivate people and businesses within the industry.

In essence, the evidence gathered suggests at least partial answers to the three key questions posed above.

Firstly, we may be getting the wrong impression from the statistics. When we hear construction productivity we probably think of the productivity with which buildings are delivered. Wrong. The value of the design, the materials and components, and much of the plant and machinery used on site are not counted. Also, it is questionable how well the measures we see account for improvements in quality or, for that matter, fewer site deaths. With the way the

statistics are structured it is quite possible to reduce the productivity of construction while increasing the productivity with which a building is delivered.

This does not make the statistics pointless. We just need to know what they mean and what they are telling us. And to this end the report argues for better statistics to help guide policy.

Secondly, there does seem to be a case to suggest the productivity path taken by the UK construction sector may well be, to some extent, inevitable. In most advanced nations productivity growth in construction is poor. That this is a global issue suggests that difficulties in improving productivity are likely to lie within the industry rather than in the UK.

This does not mean major improvements cannot be made.

Thirdly, there do seem to be major barriers blocking progress on productivity. The fact that we have known for decades what improves productivity in construction, at least in theory, suggests problems lie deep within the industry that are holding back progress. Our surveys show a wide consensus on many of the policies that should boost construction productivity. Both policy makers and the industry hold similar views to those held for many years. So we have to ask why things appear not to have improved.

It is on those things that block progress where this report suggests most effort is needed to sustainably raise productivity within UK construction. The construction industry, however, does not exist in a bubble. It is a critical part of the wider economy and vital to improving productivity across the UK. This report argues that while it is important to improve productivity within construction, as a nation there is little to be gained from driving up construction productivity if it means compromising the effectiveness of the buildings and infrastructure that are created.

So in seeking to remove barriers holding back productivity growth, a holistic approach is needed that focuses not just on constructing more productively but embraces the wider productivity benefits that flow from creating a better, more fit-for-purpose built environment.

Strides have been made in this direction. But fundamental change is needed to the business environment to prompt not just farsighted firms, but all firms, to adopt this approach. In line with the views expressed by some industry experts, this report argues that new business models are needed – new business models that intrinsically provide incentives to the firms which improve productivity through creating greater value.

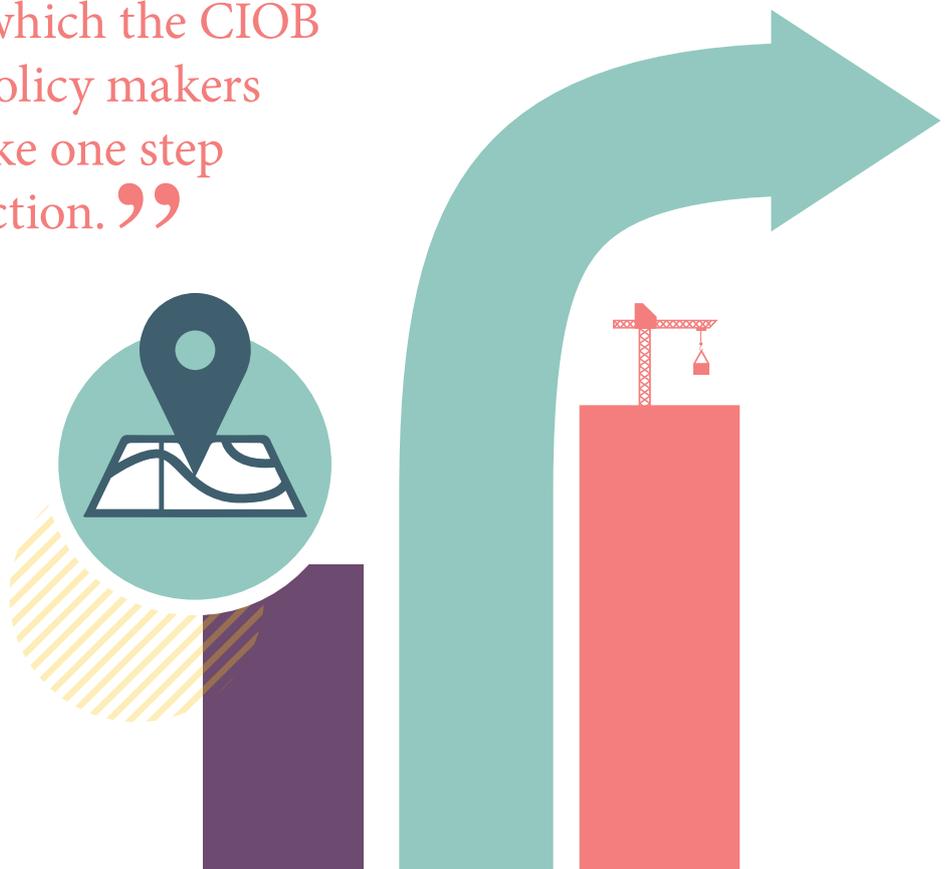
This will require determined effort on the part of policy makers to provide a framework that encourages such a shift in approach within the construction industry.

This report outlines some recommendations which the CIOB believes may help policy makers and the industry take one step further in that direction.

Recommendations

- Better measures of construction to support better measures of construction productivity
- Build more evidence on the wider value of construction
- Communicate better with policy makers
- A presumption in favour of direct commissioning
- Develop new business models and financial models
- Boost training and investment in the construction workforce
- Create construction innovation and excellence hubs
- Improve leadership and behavioural understanding
- Tie public investment to training and job creation

“This report outlines some recommendations which the CIOB believes may help policy makers and the industry take one step further in that direction.”



ISSUES AND POLICY CHALLENGES

The issues surrounding productivity and the challenges facing construction.

KEY POINTS:

- Productivity growth since the Great Recession has been negative, non-existent or sluggish. This has led to the so-called “productivity puzzle”. The Government has recognised this, placing productivity at the heart of its political agenda.
- Productivity in the UK has lagged compared to many other developed nations. To compensate, UK workers are working longer hours to produce equivalent output.
- In an economy reliant on the built environment, construction is central to improving the nation’s productivity. However, construction productivity lags behind that of other industries.
- The challenge facing policy-makers construction is two-fold. The industry must become ever more productive. It must also be exploited appropriately to enhance the productivity of the nation.

In July 2015 when the Chancellor George Osborne unveiled the first Budget of the newly-elected Conservative majority government he placed raising productivity as its core aspiration.

“Britain still spends too much, borrows too much, and our weak productivity shows we don’t train enough or build enough or invest enough. This we are determined to change,” he said¹.

With the Budget he launched the Government’s productivity plan, laying out how it believes the challenges can best be addressed.

The scale of the economic challenge is made clear in the plan, entitled *Fixing the foundations: Creating a more prosperous nation*². Its opening words are: *“Productivity is the challenge of our time. It is what makes nations stronger, and families richer.”*

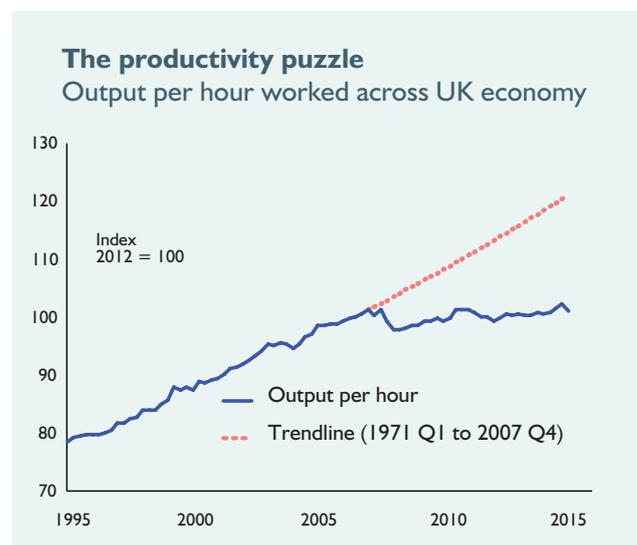
It is very evident from all points raised and recommendations made within the productivity plan that construction has a critical role to play (see pages 32 – 37).

Productivity is permanently regarded as important economically, as Dr Paul Krugman, Nobel laureate economist put it in 1994³: *“Productivity isn’t everything, but in the long run it is almost everything. A country’s ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker.”*

Today it has become a major concern because productivity growth has flagged since the Great Recession. The term “productivity puzzle”⁴ has been bandied about liberally in economic circles for the past few years and has received increasing attention.

At the heart of the puzzle is the fact that following the recession productivity failed to improve, as was the case following previous recessions. The break in productivity growth means that each hour worked is producing somewhere above 15% less than might have been expected if productivity improvement had followed its pre-recessionary path. (chart 1)

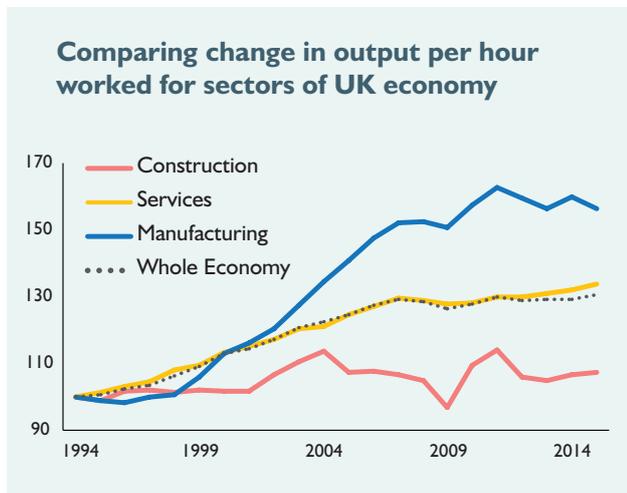
Chart 1



There are a number of elements that are thought to have caused this break with the long-term trend. These range from measurement issues, such as not necessarily accounting for improved quality, to low labour costs meaning that firms have been less inclined to invest. There are of course other partial explanations such as labour hoarding, unsustainable growth pre-recession in key sectors such as financial services, and a relative increase in what could be called “overhead labour” i.e. that needed to run a business irrespective of output. We could add to the list tougher lending conditions that restrict investment or more people working beyond the normal retirement age. Many economists also suggest that so-called “zombie companies”, firms that are surviving which in other recessions might have gone under, are acting as a drag on a more productive allocation of resources.

A further concern is that an increasing proportion of the UK economy is within the services sector, where productivity growth can be slower and where there are pockets of work where it is extremely difficult to improve productivity. This is especially true of services that involve personal care, where pay rates are often low and constantly under pressure (chart 2).

Chart 2



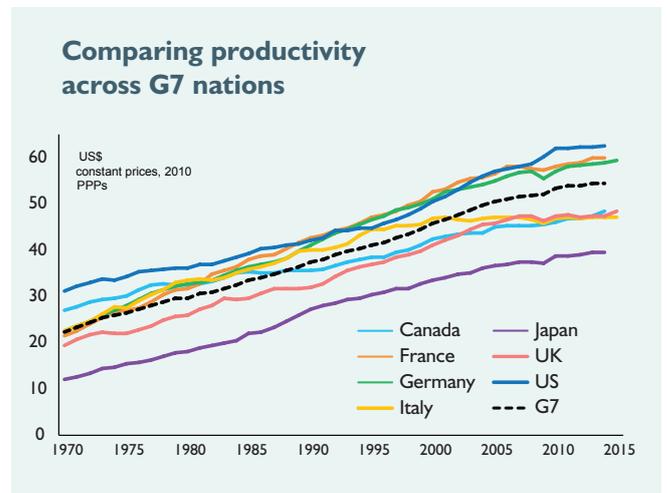
Meanwhile in the financial and services sector there had been significant productivity gains in the run up to the Great Recession and major growth. Not only has this sector’s growth reversed, but the productivity gains have halted. Indeed productivity measured on an output per hour basis has fallen back.

This illustrates how a nation’s shifting demographics, changes in demand for products and services and constant expanding and contracting of its economic activities affect its overall productivity.

It is easy to see the problem of productivity as particular to the UK, or as an effect of the financial crisis and as a threat to the UK’s competitive position within the global economy. However, international data⁵ suggests that the slowdown in productivity growth is global and that it predates the Great Recession. This is particularly true of construction industries in the more economically advanced nations.

That said, using OECD data measuring output per hour in US dollars, adjusted for purchasing power, it appears that the UK has lagged behind many of its main international competitors for decades (chart 3).

Chart 3



In terms of global competitiveness, the UK can, to some degree, compensate for its lack of productivity as measured at an hourly rate if more of its population works (higher employment rates) or if its workers work longer hours. So, comparing some of the countries in chart 3, the UK has a higher employment rate than the US, France and Italy and its workers put in more hours than the Germans.

Indeed the data suggests that while productivity growth eased more in the UK during the recession than in most developed nations, the employment rate tended to hold firmer.

...it appears that the UK has lagged behind many of its main international competitors for decades.

Turning to productivity in construction, charts 4 and 5 suggest that the UK performance in an international context is not unusual. It performs on the measures provided about the same as France and Italy, worse than the US and better than Germany.

Chart 4

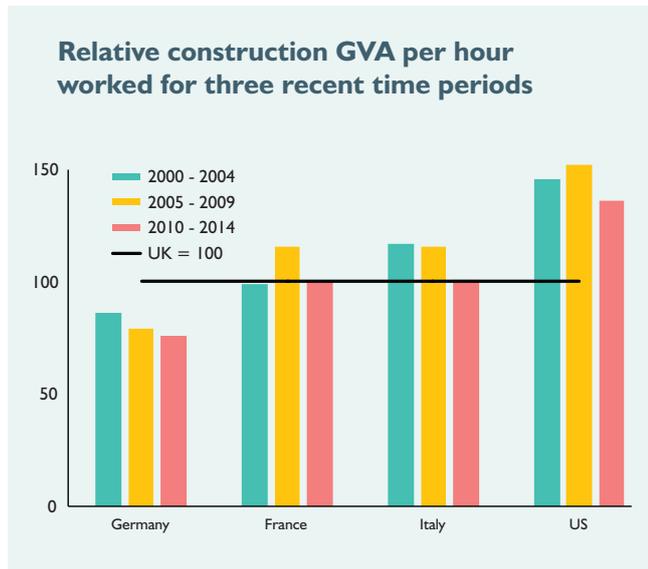
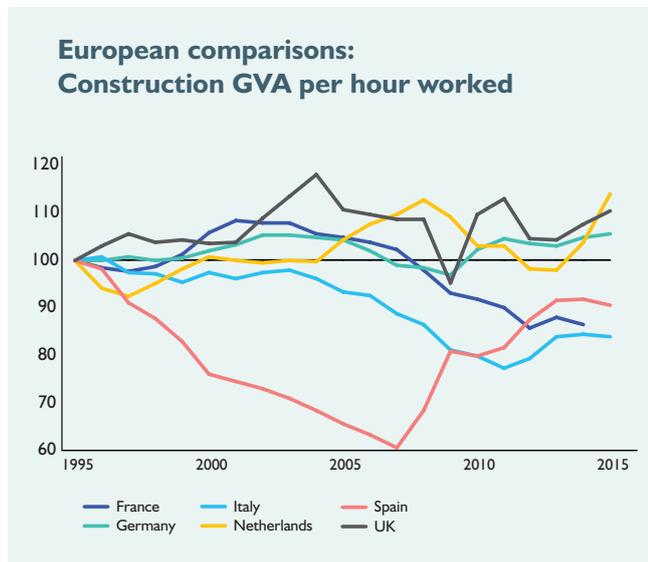


Chart 5



It is then important to note four things. Firstly, UK productivity on the measure of output per hour lags behind most comparable developed nations and it suffered more than most during the recession.

Secondly, productivity growth has eased in recent years in most developed nations and the drive to improve productivity is a global one.

Thirdly, demographic change will have an impact on the ability to improve productivity, as it will influence

the nature of the work we do. For example, an ageing population suggests more emphasis on employment in the care sector.

Fourthly, changes in the mix of activities that we undertake as a nation will influence the aggregate level of productivity. Doing less low-productivity activity and more high-productivity would shift the overall picture.

Two other points are also worth bearing in mind when we look at productivity from a policy perspective. The first is measurement. The complexity of modern economies and issues such as how we value quality improvements to products and services or how we account for externalities (positive or negative economic effects that lie outside the normal measurement of activity, such as environmental improvements or degradation), suggest that we should treat data on productivity with great caution.

The second concerns the constraints we need to place on driving productivity gains. Productivity improvements need to deliver what citizens find desirable or acceptable, while we also need to have a balanced economy which is resilient to economic shocks.

Put simply, in arithmetic terms, it may improve overall productivity to vastly expand the numbers of high-earning financial specialists and their associated consultants, while greatly reducing the numbers of low-paid care workers. Even if that were possible, it may well be unacceptable to the bulk of the population. It may also leave the nation exceptionally exposed to one sector.

Improvements in productivity are likely to work best if they run with the grain of the political consensus and with a view to the long-term sustainability of the economy as a whole.

Furthermore, to raise UK productivity as a whole, it is important to look beyond the productivity of each sector. In an interconnected economy it is critical to examine the effectiveness of a sector and not just its efficiency. So for construction this means looking not just at how efficient and productive it is, but how effective it is at assisting other parts of the economy to function more productively.

The challenge for construction is then two-fold. Firstly to become, as it always should, ever more productive. Secondly construction needs to be channelled appropriately to enhance the productivity of the nation. The latter, it might be argued, is of more significance.

WHAT IS PRODUCTIVITY?

Productivity, how it is measured and how to interpret the data.

KEY POINTS:

- Productivity is the rate of output per unit of input. There are many measures. For this report we will tend to assume output per hours worked.
- Measuring productivity can be exceptionally hard or expensive in construction at a micro level. But measuring at an aggregate, or macro, level can be misleading.
- Statistically, delivering productivity in construction and delivering the built environment more productively can be very different things. For example, it is possible that delivering buildings more productively might reduce measured construction productivity.
- Construction and the built environment have major direct impacts on the productivity within the wider economy. This suggests a holistic approach should be taken when seeking to improve productivity embracing the use of the built environment not simply its production.

Productivity is seen as the root to increasing living standards. But what is it?

In economic terms, as explained in the Office for National Statistics (ONS) Productivity Handbook, it is the rate of output per unit of input.⁶ Creating more output, in terms of quantity and quality, for a given input should result in higher living standards, at least in economic terms.

So basically we can increase productivity in three ways. We can reduce the input or inputs to produce the same output. We can increase the output for a given level of input or inputs. Or thirdly, a bit of both. The latter is the most likely path to seek, particularly in construction.

Reducing inputs, such as energy or materials, is environmentally sound and reducing the labour needed to produce a given value of output can support higher wages.

But, probably more importantly, increasing the useful output of construction using the same inputs boosts the overall economy. And the output construction produces generally boosts the productivity of the rest of the economy, as there are very few economic activities that do not rely on or benefit from some part of the built environment.

However, while the concept may be simple to grasp, in practice measuring and interpreting productivity is fraught.

There is no single simple measure; instead, there is a whole array of ways to measure productivity within the economy. The default measure tends to be labour productivity. This gets the most attention as it intuitively links to pay levels and in turn living standards. This can be measured as output per hour worked, or per job or per worker.

Economists also use multifactor measures of productivity, where inputs are bundled together, such as capital and labour, or capital, labour, energy and materials (KLEMS). This is important to note when looking at how and why productivity can and is improved, not least because firms do not just look at their payroll when deciding on how to make what they make or how to deliver their services. A rise or fall in the relative price of any one factor can lead to substitution. For instance, if labour rates fall, the incentive for firms to invest in labour-saving machinery diminishes.

For the most part, this report will focus on labour productivity. But even this measure can prove to be very slippery and point to wrong conclusions if the context is not properly considered. For instance, if we measure labour output at a sector level and look for comparisons we find output per hour varies exceptionally widely between different sectors and subsectors. Productivity data from the ONS shows output per hour worked in 2012 in agriculture was £11.80 and for construction it was £23.60.

In seeking to increase productivity overall, it is important to look at the whole as well as the parts of a system and to understand how each part interacts with the others.



In chemicals and pharmaceuticals the figure was £73.30, in finance and insurance £56.30, while in real estate it was £230.60. These are only indicative, but show the wide spread that, in part, reflects the labour intensity within each sector.⁷

We might conclude the answers to the nation's labour productivity problem would be solved simply by shutting down labour intensive industries. To some extent this does occur, for example off-shoring call centres and labour intensive elements of manufacturing to lower-wage economies. But there are obvious limits both economically and socially, not least because some jobs with low productivity are essential and cannot be off-shored. Furthermore, jobs would be shed in huge numbers.

In construction repair and maintenance, for instance, work is noticeably more labour intensive than most new build. But it would not necessarily be sensible, holistically, to stop repair and maintenance in favour of new build. Indeed over the years the share of repair and maintenance has increased.

It is important to understand the implications of varying levels of labour intensity within the economy and within sectors and industries. For instance, labour productivity improvements in labour intensive sectors of the economy will have a greater overall effect than in less labour intensive sectors, because labour represents a larger share of the inputs.

Also, if we are looking to raise aggregate labour productivity it is important to see how sectors and subsectors of the economy work together. It may be, for instance, worth increasing inputs to new-build construction work to reduce repair and maintenance needed, through for instance better design. This may well increase the overall labour productivity of construction. In part this links to the notions of whole-life costing.

In seeking to increase productivity overall, it is important to look at the whole as well as the parts of a system and to understand how each part interacts with the others. In construction this is imperative.

When determining the productivity of construction we seek to measure the gross value added (GVA) on site as the output and the labour (hours worked) on site as the input. This does not then capture the materials supply chain or the professionals engaged in planning, financing and design. So it is important to recognise that the value added by construction is not the building, but the process of assembling the building.

Off-site manufacture is seen as a way to boost productivity. It certainly can. However, productivity is about adding value and if work moves from the site to the factory the value added is likely to be classed as manufacturing, not construction, in the statistics. The work remaining on site may well end up being the less-skilled and, in economic terms, less-productive.

It is, then, statistically possible to increase the labour productivity in producing or maintaining the built environment while measured labour productivity within construction falls.

The statistics are further clouded by the extreme heterogeneity of construction industry output. Few buildings or structures are replicas of others. Each tends to be a prototype. This means that comparing like-for-like is complex. How, for instance, do we factor in quality or utility improvements over time?

The high degree of heterogeneity and the interrelationships of construction across various industries mean that measures of productivity at an aggregate level can be misleading. However, measuring productivity at a micro level can be difficult and expensive.

Data, both from the UK and across many advanced nations, suggests that construction productivity over recent decades has stalled or fallen. But as many leading academics from around the world will point out, this is intuitively difficult to understand given there have been so many advances in technology, materials and techniques in recent years. They argue that heterogeneity and other factors need to be taken into account, such as the value that comes with the increased complexity of buildings and from strides to improve health and safety. These add value that is not necessarily counted.

This quote comes from a US Bureau of Labour working paper⁸:

“ Measuring productivity growth in construction is especially difficult due to the nature of production in the industry and the limitations of available data. In particular, the price indexes used to deflate output are a major problem because reliable deflators are sparse and the available data suggests productivity has declined for many decades, which is somewhat difficult to believe. ”

Beyond this there is another factor that confounds the issue of productivity in construction. **Land.**

The asset value of a building or structure is in large part determined by its location, which is fixed. This creates interplay between land prices and build costs. Given that the residual land value is the normal method of determining land prices, it is likely that some of any productivity gains made from construction will end up with the seller of the land, rather than in profits for the builder or savings by the occupier. This does not necessarily blunt the drive for productivity gains, but it can alter the pattern of incentives. For instance, a major motivation for house builders to be more productive and drive down costs is to have more financial headroom when bidding to secure land. The selling price of the house is largely predetermined by comparable houses nearby.

A further point of note, as mentioned earlier, is how one sector may help to improve productivity in another. It is clear that sectors such as education, IT, finance, construction, product and equipment manufacture, professional services etc. influence the productivity of other sectors. Therefore in considering how industries might adapt to improve their own productivity, consideration should also be given to how changes might impact on productivity across the economy.

As the OECD emphasised in its *The Future of Productivity* report⁹: “Productivity is about ‘working smarter’, rather than ‘working harder’: it reflects our ability to produce more output by better combining inputs, thanks to new ideas, technological innovations and new business models.”

WHAT INFLUENCES PRODUCTIVITY IN CONSTRUCTION?

Assessing the factors that determine the productivity of the UK construction industry.

KEY POINTS:

- There is a wealth of research into construction productivity with similarities in their assessments over the factors that influence productivity and how it might be improved.
- Most advanced economies have for decades recorded declines, stability or very slow growth in measured labour productivity in construction, suggesting it is a feature of the industry rather than a specific problem to the UK.
- Measuring changes in quality in the built environment or working conditions to obtain like-for-like comparisons over time are difficult and increases the uncertainty over measuring productivity. Changes in productivity may be associated with delivering higher quality or improved working conditions.

Productivity in construction has been a hot topic of research for more than 50 years, in large part because in recent decades measured productivity growth in construction has lagged well behind other industries.

This phenomenon is not isolated to Britain. Many if not most advanced nations have witnessed measured productivity in construction increase sluggishly, remain stable or fall over many decades. Indeed the United States appears to have a significantly worse issue with falling productivity in construction than the UK. OECD figures suggests that in the 10 years leading up to 2007 construction productivity (measured by GVA per hour worked) rose about 4% in the UK, while in the US the comparable measure fell more than 20%.¹⁰

There has been a steady decline in manual and skilled trades in the manufacturing and other productive sectors as they have become more productive and less labour intensive. Meanwhile, UK construction has, if anything, expanded its workforce despite holding a fairly stable share of economic output.

The result is that forecasts from the UK Commission for Employment and Skills (UKCES)¹¹ suggest construction requires about one million new recruits between 2012 and 2022. That is more than half the recruits needed outside the service sector. Good news for construction jobs. Bad news for productivity, because the forecast does not foresee any great rise in construction's share of the economy.

The concern within government and industry over decades is reflected in a stream of reports that directly or indirectly address construction's poor productivity. These reports date back at least to The Simon Committee Report of 1944, which was commissioned during World War II.

What is striking about so many of these reports is less the differences than the similarities, particularly in their diagnoses of the faults of the construction industry. Despite being commissioned at different times to address different immediate political, economic, social or industrial concerns, similar themes recur. While not directly expressed in each report, issues around procurement, prefabrication and standardisation, communication, fragmentation between and within the design and build processes, safety, casual labour and quality tend to be common ground.

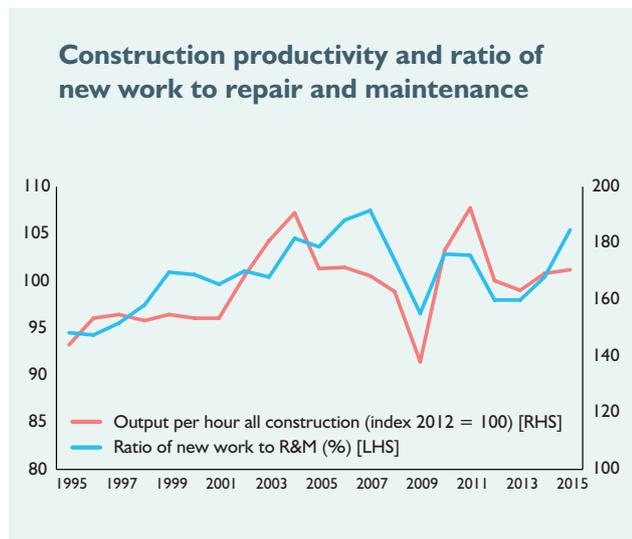
It is also important to recognise that innovation takes place within building design and product manufacturing. This tends to increase the overall productivity in the process of delivering and maintaining the built environment. It also frequently improves the quality of the buildings and infrastructure. But as design and manufacturing add value in offices and factories and not on site they do not necessarily raise productivity on site. Statistically such advances can, in fact, reduce measured construction productivity.

As productivity in construction is such a long-standing issue bothering most advanced nations, there are bright minds across the world looking for solutions. There is vast literature crammed with examples of what works and what does not work and in what circumstances.

There is no simple answer. A vast array of factors influence construction productivity, from macroeconomic management to the design of individual tasks on site, from technical issues associated with design and production to issues of occupational psychology, from organisational structures to financial models, from product regulation to process innovation, from the weather to the site location, from education and training to mechanisation.

The mix of work also influences the measured productivity of construction at a national level. One explanation for the fall in construction productivity during the past recession may be the relatively larger fall in new work compared with repair and maintenance, where proportionately more labour is used for a given amount of output. (chart 6).

Chart 6



Importantly, circumstances matter, because the construction industry, the businesses that supply and operate within it and what is produced and who buys it are diverse. There is no one-size-fits-all solution. Naturally, there are things that will most likely help in all situations, such as good organisation, good communication, trust, planning, certainty and appropriate training. But the specifics will always depend on when and which part of the industry you are looking to improve. They will also depend, particularly in the built environment, where products

last a long time and are subject to slow change, on what has happened in the past. The options, as economists might say, are path dependent.

A recent literature study undertaken by the Construction Industry Training Board (CITB)¹² found more than 70 factors affecting productivity stated in academic studies.

The CITB study also found that the range of productivity between teams doing more or less identical tasks could vary widely. It highlighted an example where the average productivity between two groups of workers varied by more than 50%. The precise reasons may be unclear, but the rewards for finding out what affected these variances could be huge if the improvements are transferable and can be sustained in future.

Further insight into what influences productivity was provided by the Department for Business Innovation & Skills (BIS) Supply Chain Analysis into the Construction Industry which formed part of the Construction Industrial Strategy in 2013.¹³ The supply chain report found that the quality of site management was pivotal to improving productivity. This was particularly true of the ability of the site management to communicate well. It recommended that greater investment be made in developing the quality of site management.

It is easy to envisage the construction industry trapped on a hamster wheel, working hard to make progress with its productivity, yet seemingly making none. This is not the case. Progress has been made. But history suggests there are deep-seated problems holding construction back as it struggles to raise productivity. These are stubborn and there appears to be no silver-bullet solution.

This should not be seen as a counsel of despair. The fact that report after report raises similar issues suggests that we already have a good idea of the weaknesses that need addressing. We broadly know what needs fixing.

If we wish to increase productivity within construction, what appears to be needed is a better understanding of what is holding back more productive ways of constructing, as well as the mechanisms to embed these more effectively within the fabric of the industry.

HOW DOES CONSTRUCTION INFLUENCE UK PRODUCTIVITY?

Assessing how construction and the built environment support growth across the nation.

KEY POINTS:

- Construction can contribute greatly to improved productivity through delivering buildings and infrastructure that are more effective.
- Better buildings and infrastructure contribute to productivity not just through their primary function or through directly contributing to increased economic output. Making people happier, safer and healthier encourages them to be more productive and reduces costs elsewhere.
- Much of the value added by buildings and, especially, infrastructure is lost to the promoter, but gained by the community. Much of the value of the built environment is added over the long term.
- Badly delivered buildings or infrastructure or poorly undertaken construction can reduce productivity within the wider economy through negative externalities, such as clients in possession of a building that does not fit their needs, or infrastructure that works inefficiently.

Central to any successful economy is its effectiveness at gathering resources, combining them in suitable places, communicating with markets and trading. The efficiency with which all this is performed depends greatly on the health and education of the working citizens. In all these activities construction plays a vital role.

Construction creates the infrastructure that allows resources to be moved around. It creates the factories and offices in which value is added. Construction creates the hospitals and schools that support health and education. It has, through both the function and form of what it produces, the capacity to make people feel better at work, at home and in leisure time. Multiple studies have shown happier people are more productive.

The construction industry therefore provides vital ingredients that enhance a nation's productivity.

In evidence given to Parliament in 2012, Professor Henry Overman, then at LSE, stated:

“...the consensus from recent studies is that doubling employment in a city raises average labour productivity by around six percent, although these effects are much more important for some types of economic activity.”

As construction plays the central role in expanding cities to accommodate more people and more commercial activity, on the basis of Professor Overman's statement construction therefore plays a central role in raising productivity.¹⁴

It is, however, not simply in creating larger cities that construction helps boost productivity. The link with labour mobility is well documented and accepted within the Government's Productivity Plan.

Productivity also relies on the physical connections that move people, goods, services, information and energy around.



Labour mobility inevitably depends on people being able to move home. This is not solely a construction issue. Political choices, both nationally and locally, funding and wider economic factors are major influencers on the market. But, largely, a good labour market relies on an adequate provision of affordable homes in the right places. It is, of course, widely accepted that we need more homes.

This is particularly acute in London. According to a London Chamber of Commerce and Industry (LCCI) report released in 2014, one third of firms in the capital believed the lack of affordable housing for their employees to rent or own local to their place of work was affecting both productivity and punctuality.¹⁵

Productivity also relies on the physical connections that move people, goods, services, information and energy around.

In 2008, the CBI estimated the cost of road congestion was between £7 billion to £8 billion and found 90% of the respondents to a survey found “*poor reliability of the road network is having an impact on productivity*”.¹⁶

These are but a few examples of what is well trodden ground. It is accepted that construction is an important tool for improving productivity.

The bigger questions, however, are less concerned with whether construction supports productivity within an economy and more about how we might best use construction to improve the productivity of the nation.

Part of the challenge is inevitably identifying the link between spending and activity in construction with positive benefits and higher productivity elsewhere in society and the economy. The second part is then making the financial link that encourages appropriate construction to occur to make those savings.

A recent illustration of the often hidden opportunities and potential hurdles in linking construction activity to wider benefits can be found in the **Boiler on Prescription trial project, piloted by North East housing association Gentoo Group**. This example has been chosen precisely because it is a less obvious way than roads or railways in which construction influences UK productivity. It also encapsulates the opportunities and challenges in using construction to produce what for some, if not many, may be unexpected positive outcomes.¹⁷

Gentoo had been improving the energy efficiency of its housing stock and, in the process, tested the marketing claims of various technologies and changes they promoted in the behaviour of those living in the homes. As a consequence they discovered what appeared to be a strong link between their housing improvements and an improvement in their tenants’ health and welfare, particularly in more vulnerable people. This led eventually to the housing provider teaming up with the health service and Sunderland Clinical Commissioning Group. The outcome was a trial that showed improvements to energy efficiency in homes lived in by, in this case, people with chronic obstructive pulmonary disease not only reduced energy use and improved comfort, but substantially reduced GP visits and outpatient appointments.

What does this mean for productivity? The precise benefits to productivity are far from easy to quantify because of the variety of ways we measure it and that the effectiveness of the investment, in this case in energy efficiency, will vary from situation to situation.

But it certainly means that health professionals will be more productive in delivering the overall health benefits for the community they serve. And happier, healthier people are more productive.

The trial demonstrates the often unobserved positive link that construction has with wider social benefits and higher economic productivity.

Importantly, the report by Gentoo also makes clear that determination is needed to make those links, both conceptually and financially. It illustrates how the benefits derived from one construction-based intervention flow to other sectors. It underlines the advantages of looking more imaginatively at ways to link those that might benefit from a project to its funding and, in the process, unlock highly-beneficial construction projects that might not otherwise go ahead.

The scheme prompted the government to invest £3 million to fund further pilot schemes in 2015 and 2016 to look in more detail at the potential. It is yet to be seen how far this idea might develop and how much financial support the health service might provide to home improvements.

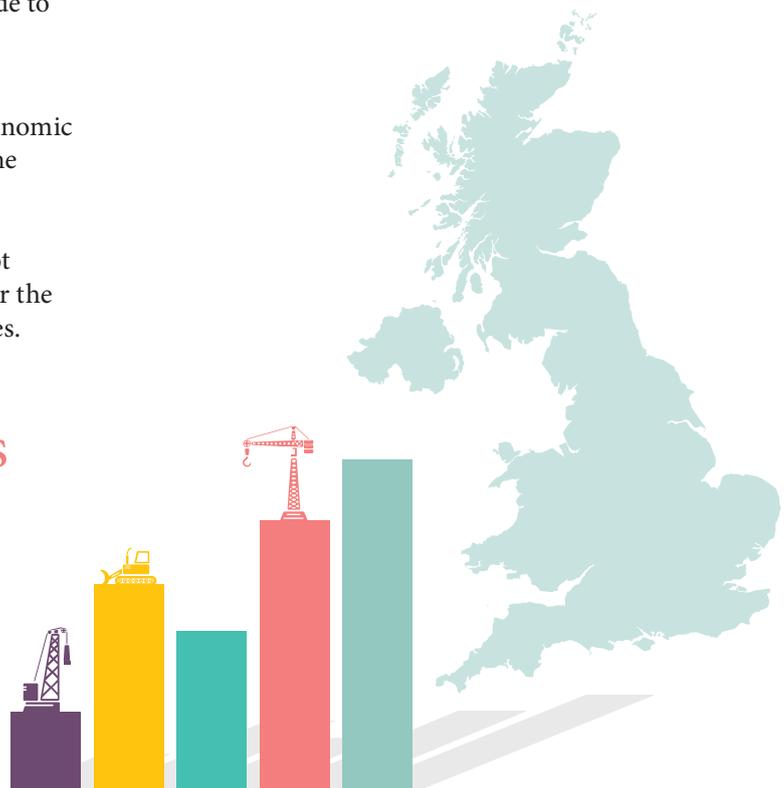
Nevertheless it highlights the potential for construction activity to have far wider socio-economic benefits than those immediately observed and the potential to tie funding to support such activity. Furthermore, if it proves a long-term successful approach, it is clear that its achievements will not have been down to the normal workings of either the market or traditional public spending approaches.

Good construction has an enormous role to play in improving UK productivity.

There are of course steps being taken to create and use more innovative financial models that can potentially better link funding of all manner of projects, not just construction, to what are often widely-dispersed social and economic benefits. Two examples of innovation might be social impact bonds and tax increment financing (TIF). What we can safely assume is that there is huge scope for cost-effective projects that would enhance the productivity of the UK.

The problems in getting these projects off the ground are not simply financial, or in recognising and fairly distributing the value, or in capturing the positive externalities construction generates. Politics inevitably plays a part. People naturally resist buildings or infrastructure that they see as harming their enjoyment or their lives. The 'NIMBY' is often dismissed, but they have a voice and it should be heard. For the nation and for construction it is essential that better ways are found to deal with real and imagined fears.

Good construction has an enormous role to play in improving UK productivity. But delivering value is not simply about delivering good buildings and infrastructure. How people *feel* about those buildings and infrastructure is an important element in how we value our built environment. It can and should be part of the package of value construction delivers.



SURVEYING PRIORITIES IN POLICY

Exploring the views of policy makers, professionals, experts and influencers on their priorities to improve productivity within and through construction.

Background to the research and methodology

There is a wealth of research into productivity within construction spanning many decades from across the globe, produced by academia, industry and government. Most has tended to focus on the effects of economic and regulatory policy, technical, organisational and behavioural factors. These factors are numerous and the interplay between them is complex.

A central function of the CIOB is to provide information and guidance to help shape policy that works for its members, the industry and the public at large and to act as a bridge between those in the industry and those making policy.

Much of the report is descriptive, drawing from data and established work, intended to provide understanding. The notion that the CIOB with one report could conjure up a solution to the long-running challenges of productivity in construction is fanciful.

However, prior research raises questions and some appeared to be unanswered.

- What priorities would those working within the industry give to the array of options available to improve productivity within or through construction?
- What are the views of policy makers, namely MPs?
- What are the views of experts and influencers?
- How much consensus is there within the industry on what policies might be most fruitful?
- How does the industry view align or differ from that held by those creating policy within government, namely MPs?

Answers to such questions could provide insight and context in formulating and communicating future policy. So, to support the report, two relatively small and interlinked pieces of research were undertaken to throw some light on these questions.

The core aim of this research was to establish the priorities within groups. This would provide an assessment of where there might be consensus or differences over the potential effectiveness of policies aimed at improving productivity both within construction and the wider economy through construction as an enabler.

Given the resources available, to provide any meaningful results rather brutal assumptions and simplifications were necessary. Productivity is a complex subject, so it is likely that this research may attract criticism over bias in selection of the policies presented or lack of comprehensiveness. This was understood at the outset. The intention was to seek and provide guidance, not gospel.

Various policy options were simplified and reduced to broad themes that would be understood by both MPs and industry and easily analysed. Comparisons between the two groups should also bear in mind the differences in audience type, weighting used, knowledge of the construction sector and number of responses to the two surveys.

These broad themes emerged from desk research and discussions with economists in the field. They are far from comprehensive and, as suggested above, caution should be taken, particularly as the examples provided to illustrate each broad policy area will have influenced respondents' interpretation.



Productivity is a complex subject, so it is likely that this research may attract criticism over bias in selection of the policies presented or lack of comprehensiveness.

Respondents were asked to indicate their preferences on the following two questions:

- The following questions will focus on the productivity of the UK workforce, and the construction industry in the UK. The following factors can all influence productivity within the construction sector. Which of these broad areas, if any, do you think the UK construction sector should focus on improving the most?
- Construction can contribute to overall UK productivity, for example by improving and modernising infrastructure. Which of the following policy areas, if any, do you think would be most effective in enabling the construction industry to raise overall UK productivity?

These were supplemented with a third question:

- Which of the following policies, if any, do you think would have the greatest positive impact on the productivity of the UK construction sector?

Having emphasised the potential shortfalls of this research, as a first step in this direction, we believe it provides useful insights and some enlightening results that should be a helpful addition in policy formulation.

To provide a counterpoint to the survey findings a selection of experts and influencers in the field were invited to provide their thoughts in response to similar questions.

CIOB commissioned a survey of MPs to gain insight into their understanding and views of productivity in the construction industry. ComRes interviewed 150 MPs online and by self-completion paper questionnaire between 25 February and 6 April 2016. Data were weighted by party and region to be representative of the House of Commons¹.

Full data tables for the MP polling are available on the ComRes website at www.comres.co.uk

An industry facing survey, with identical questions, was undertaken by the CIOB using an online survey, with a total of 481 responses. The industry

survey was supported by other organisations; CIOB would like to thank Barbour ABI, the Construction Equipment Association (CEA), the Construction Products Association (CPA), Plantworx, the Royal Institute of British Architects (RIBA) and the Royal Institution of Chartered Surveyors (RICS). While the survey was distributed by multiple organisations, the sample is inevitably heavily weighted towards CIOB membership. A breakdown of the demographics from the industry polling, as well as full details on the questions asked, is available at Appendix 1.

What the research might be telling us

The following observations are made after examining the responses from the surveys in light of the comments and views expressed by the experts and influencers. MPs and the industry were researched as part of two separate surveys, and comparisons should be made based on this assumption.

As mentioned above, the survey was not designed to seek potential solutions to raising productivity or even necessarily to provide signposts to policy in specific directions. It was designed to support understanding by getting a feel for how the industry might see the issue in policy terms and how policy makers immediately view potential solutions.

HIGHLIGHTS:

- There appears to be significant consensus between the industry and MPs on the broad policy areas that are seen as priority areas for the construction sector to focus on improving the most. Both groups ranked *people* issues as top, with *the economy* and *innovation* making up the top three most supported of the eight broad policy areas listed.

¹ With a sample size of 150 MPs, the margin of error on results at a 95% confidence level is ± 7.02 . Differences of less than this should be treated as indicative.

- There was far less enthusiasm seen within either survey for issues that might be regarded as more industry specific. So, *industry structure* featured very low, along both MPs and industry.
- One large difference was in attitudes to *investment* from within the industry itself. It had significantly more support from MPs than the industry.
- There was strong correlation in the views of MPs and industry respondents over what policies might make construction more effective in delivering productivity gains to the UK overall. Most likely to be in the top-three most effective policies for both MPs and the industry respondents were *the economy, policy certainty and planning*, with the industry very strong on *policy certainty*.
- Policy areas such as *research, regulation and new financial models* came low in both surveys as ways to make construction more effective in boosting wider economic productivity.
- In terms of specific policies, both the industry and MPs overall see *committing to boost investment in a recession* and for the *National Infrastructure Commission* as the top policies that would have a positive impact on the productivity of the UK construction sector. The MPs' overall score on the former was heavily influenced by its preference among Labour MPs.
- The views of the experts and influencers offer a stark counterpoint to those expressed by both MPs and the industry. Their comments do not stand in direct contradiction of the survey findings, but suggest that solutions lie deep within the structure of the industry and its relationships within the economy as a whole.

Observations

The surveys of MPs and industry respondents show there is a broadly common view of which policy areas are likely to be prioritised and prove most beneficial in improving productivity within construction, and improving productivity within the wider economy through construction.

The policy priorities suggested by the surveys are in large part similar to those presented in many industry reports over decades. Higher priority in the surveys was, perhaps not surprisingly, given to policies focused on *people, the economy and innovation*.

However, the comments provided by the experts and influencers suggest that embedding improvements in productivity, particularly within construction, is likely to be far from straightforward.

The expert view appears to suggest that ultimately the effectiveness of introducing any specific policies will be limited without fundamental change in the context within which construction operates and how the output of construction is viewed.

In other words, it is more about assessing its usefulness rather than simply how effectively or efficiently we build it.

This is in stark contrast to selecting and grafting on, or imposing on the industry, policies aimed specifically at lifting productivity. Finding or developing ideas to improve productivity within construction or through construction does not seem to be that difficult. Implementing them and making them stick seems to be a far greater challenge.

It is worth noting here that assessing what works and what does not is far from simple, particularly at an aggregate industry level. Measuring productivity and changes in productivity in construction is highly problematic. Given that construction is defined as just one element in the total production of the built environment clearly does not help perception, understanding or measurement. It leads to false assumptions and contradictions within policy.

One theme that runs through most, if not all, of the submissions from experts is that progress on productivity requires a deeper understanding of the motives and purpose that drives the construction process. There is also the need to take on a more holistic view of the built environment when assessing productivity, rather than focusing on one narrow area.

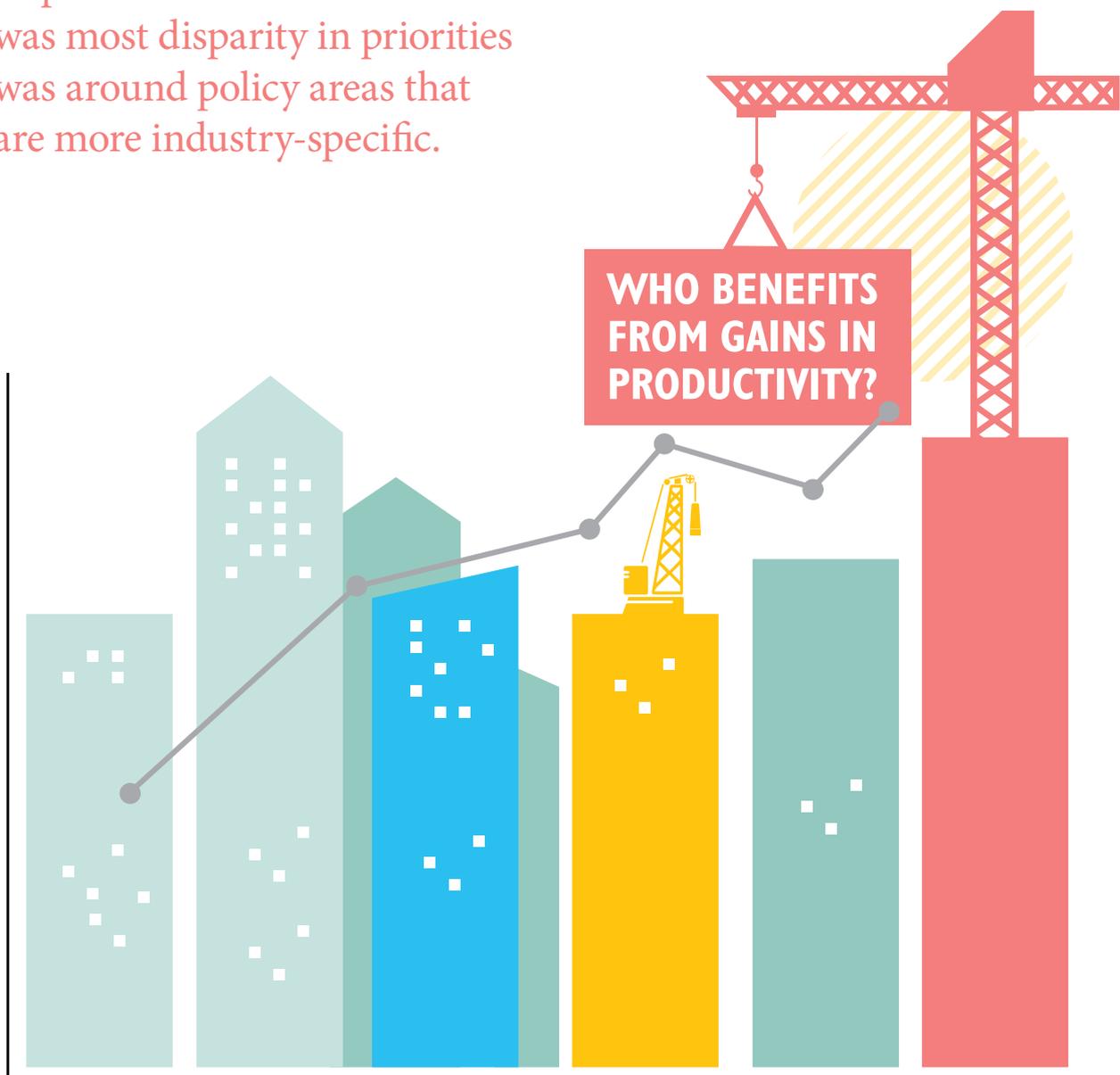
So, one question is extremely pertinent: who benefits from gains in productivity?

One might also ask naively, if improvements to productivity were in the interests of all those within the industry, surely we would see improvement?

The suggestion inherent in many of the expert comments is that radical change needs to be made in the business models adopted by the industry and how the industry is structured. That clearly presents a very tough challenge and may mean looking at policy areas that currently seem less obvious to the industry and policy makers, such as the *industry structure, organisation, research and new financial models*.

MPs gave far less emphasis, say, to *organisation* than the industry respondents. This suggests a lack of understanding among MPs of industry specifics. This is understandable and needs to be acknowledged when communicating policy options.

One important message from comparing the survey results from MPs and from industry respondents is that where there was most disparity in priorities was around policy areas that are more industry-specific.



POLICY PRIORITIES: MPs VIEWS ON PRODUCTIVITY

HIGHLIGHTS:

- MPs are most likely to rank *people* issues as the top priority area to focus on for improving construction productivity and seven in ten (69%) rank this in their top three priorities. Many also ranked *innovation* (53%) and *the economy* (47%) as top three priority areas. The least likely to be ranked as top three priorities among MPs were the broad areas of *industry structure* (9%) and *organisation* (17%).
- There are differences by party in MPs' top three preferences. Comparatively, Labour MPs tend to favour *people* (83%) and *investment* (52%) policy areas much more than Conservatives (59% and 36% respectively), while their Conservative counterparts lean much more heavily towards *the economy* (55%) and *regulation* (38%) than Labour (40% and 12% respectively).
- For policy areas that are seen to be effective in enabling the construction industry to raise productivity economy wide, MPs are most likely to rank *policy certainty* (51%), *the economy* (55%) and *the planning process* (42%) in their top three policy areas for effectiveness. Least ranked in the top three of the choices were *research* (17%), *financing models and regulation* (24% for both).
- When looking at the split in top three preferences between parties, Conservative MPs are much more likely than Labour counterparts to see *regulation* (38% v 9%) and *planning* (53% v 28%) as effective. Labour MPs tend to place more emphasis on the perceived effectiveness of *investment* (54% v 24%) and *public procurement* (52% v 21%).
- When asked to prioritise their top three from a list of specific policies in order of the positive impact they would have on the productivity of the UK construction sector, MPs overall are most likely to rank, firstly, *a commitment to boost public investment in private sector construction during a recession* (50%) and, secondly, *establishing the National Infrastructure Commission (NIC) to focus on long-term planning* of major projects (49%) in their top three. The NIC has strong cross-party support, with a third (33%) of MPs of both main parties ranking this first as the policy that would have the most positive impact on UK construction.
- Looking at policies where there are big differences between the two major parties, Labour MPs are far more likely to rank *a commitment to boost public investment during a recession* in their top three (67% v 33%), while Conservative MPs are more likely to rank in their top three *reforming land taxation to encourage more efficient use of land* (49% v 29%).

Observations

The survey illustrates the different approaches taken by the main parties. These tend to follow seemingly predictable patterns in line with the parties' general thrust in overall policy. So, it should be no surprise that Conservative MPs tended to focus more on changes to regulation (one assumes cutting regulatory burdens) than Labour and that Labour look more to *people* issues and *investment*.

These distinctions are important and reinforce the case for understanding where sympathies lie and where consensus exists when seeking to shape and deliver effective policies. Taking into account the differences, there is still a high degree of consensus across the parties.

More interestingly, the consensus tends to form around themes common across all sectors and notions that are generally accepted in discussion on productivity – training, the economy, innovation etc. MPs are far less likely to select areas that might be described as more industry specific, such as *organisation* or *industry structure*. This may be genuinely based on knowledge of the sector and the likely implications. However it may well be lack of understanding or confidence.

One intriguing result was the relatively high level of support among Conservatives for land tax reform. Interpreting this is problematic. The survey has limitations, the prompts provide potential bias and there is no indication in the response as to whether such reforms would be seen as cost neutral, cost negative or cost positive to Government. It may be that some respondents make assumptions on reducing tax on land, rather cost-neutral reformation. It may be that there is a genuine desire to reform what many see as an inhibitive tax regime.

Figure 1: MPs by party: priorities for construction to focus on to raise productivity (%)

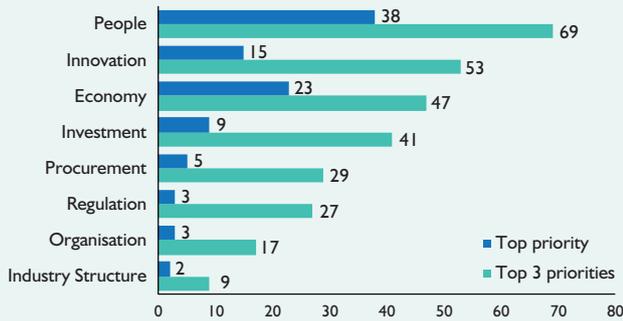
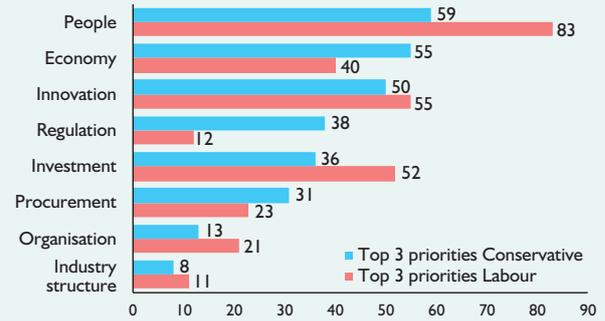


Figure 2: MPs by party: priorities for construction to focus on to raise productivity (%)



Q1. Which of these broad areas, if any, do you think the UK construction sector should focus on improving the most? Please rank your responses in order of priority, where 1 = the highest priority and 8 = the lowest priority. Base: All MPs (n=150); All MPs Conservative (n=61), All MPs Labour n=66).

Figure 3: MPs priorities for policy effectiveness in enabling construction to boost UK productivity (%)

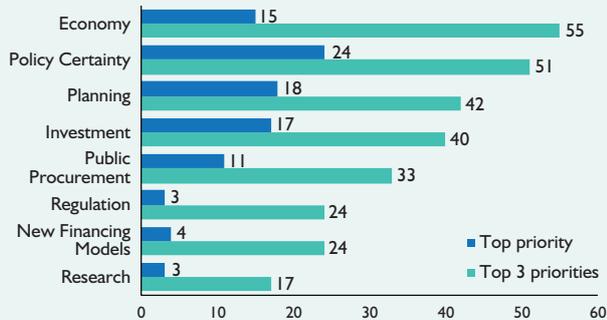
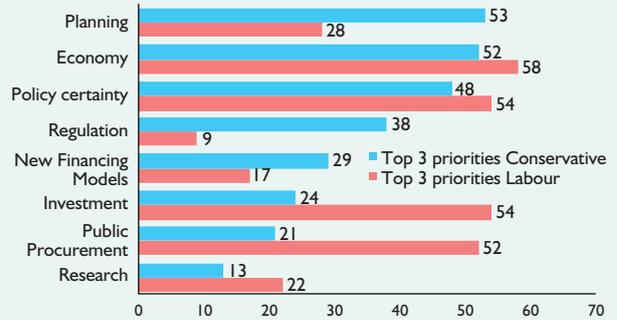
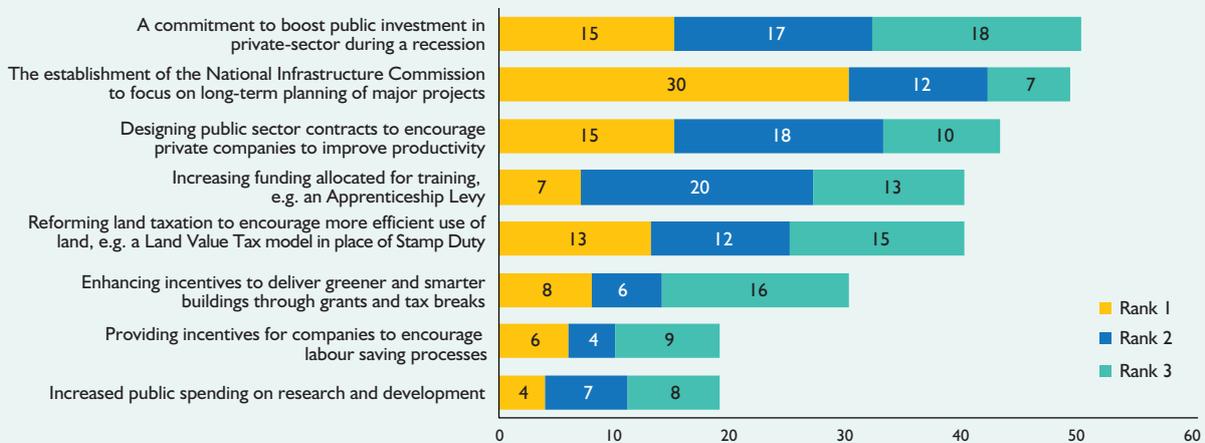


Figure 4: MPs by party: priorities for policy effectiveness in enabling construction to boost UK productivity (%)



Q2. Which of the following policy areas, if any, do you think would be most effective in enabling the construction industry to raise overall UK productivity? Please rank your responses in order of effectiveness, where 1 = the most effective and 8 = the least effective. Base: All MPs (n=150); All MPs Conservative (n=61), All MPs Labour (n=66).

Figure 5: MPs ranking of the positive impact of various policy options to boost UK construction productivity (%)



Q3. Which of the following policies, if any, do you think would have the greatest positive impact on the productivity of the UK construction sector? Please select and rank the three policies you think would have the most positive impact, where 1 = the most positive impact, 2 = the second most positive impact, and 3 = the third most positive impact. Base: All MPs (n=150).

POLICY PRIORITIES: INDUSTRY VIEWS ON PRODUCTIVITY

HIGHLIGHTS:

- More than half of industry respondents ranked either *people* issues (29%) or *the economy* (26%) as their priority area to focus on for improving construction productivity (question 1). Almost two thirds ranked *people* (64%) and more than half ranked *the economy* (55%) in their top three. Least likely to be ranked as a top three priority were the broad areas of *industry structure* (20%) and *investment* (19%).
- There were differences in the answers when comparing respondents demographically, however few were statistically significant. The most obvious was the different emphasis between those in London and those not. Notably there appeared to be greater emphasis on *people* (65% v 55%) and *the economy* (58% v 43%) outside London and greater emphasis by London respondents on *procurement* (43% v 30%). Some may be reflective of different markets, but may also be due to a different balance in roles (the sample was not weighted).
- Although not statistically significantly, there were hints of differences in views between those working on site and in the office. Those who are primarily office-based lean more heavily towards *innovation*, *the economy* and *regulation* than average, whereas those working on site tended to place greater emphasis on *people*, *industry structure* and *procurement*.
- For policy areas that might enable the construction industry to raise productivity economy-wide, the industry clearly ranks policy certainty as the single top priority (32%) with *the economy* (53%) second ahead of *planning* (47%) when looking at areas that rated within the top three. Interestingly, *investment* featured fourth for its value in helping construction improve UK productivity, compared with bottom in relation to improving construction's productivity. *Research*, *public procurement*, *financing models* and *regulation* were
- When asked to prioritise their top three from a list of specific policies in order of the positive impact they would have on the productivity of the UK construction sector, the respondents were most likely to rank, firstly, *a commitment to boost public investment during a recession* (52%), secondly, *establishing the National Infrastructure Commission (NIC) to focus on long-term planning* (50%) and thirdly *increasing funding for training* (48%) in their top three priorities.
- Ranked lowest among the selection of policies were *research and development and incentives for labour saving processes* (both 23%).

Observations

Investment is regarded as critical to improved labour productivity. The survey, however, threw up a curious finding. Comparing responses to different questions, when asked to choose policy areas to improve productivity within the industry, investment ranked bottom. However, investment ranked fourth in a similar list of choices in relation to raising productivity within the wider economy.

The high ranking of boosting *investment during a recession* does suggest that the attractiveness of *investment* is greater when it appears to be into the industry rather than by the industry.

A further point of note is how highly industry respondents ranked *organisation*. It ranked above *procurement and regulation*. Given the breadth of policy options possible within each broad category it is not easy to ascertain which aspect of *organisation* is meant, but it seems reasonable to assume that the industry has a view from within of it being inadequately organised.

When interpreting it must be considered that these responses may include expressions of frustration along with any thought-through view of what may impact specifically on productivity. That is to say, barriers to getting on with the job rather than ways to make the industry smarter and more productive.

Figure 6: Industry priorities for construction to focus on to raise productivity (%)'

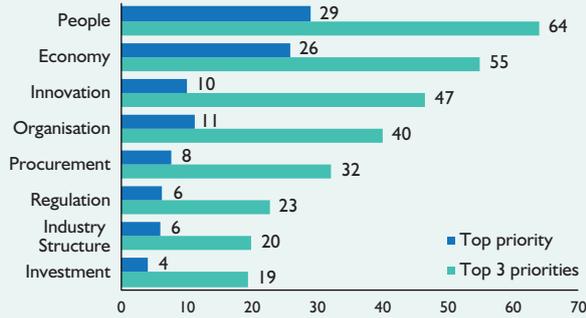
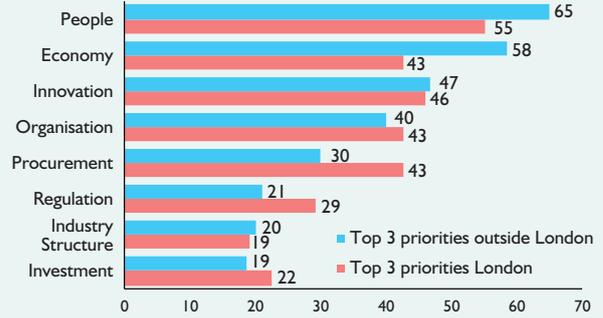


Figure 7: London v rest: priorities for construction to focus on to raise productivity (%)



Q1. Which of these broad areas, if any, do you think the UK construction sector should focus on improving the most? Please rank your responses in order of priority, where 1 = the highest priority and 8 = the lowest priority. Base: All respondents (n=481); All London (n=89).

Figure 8: Industry priorities for policy effectiveness in enabling construction to boost UK productivity (%)

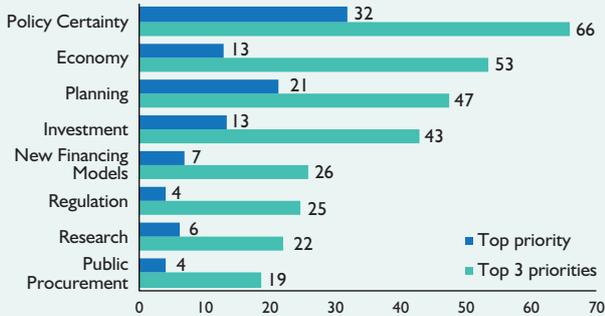
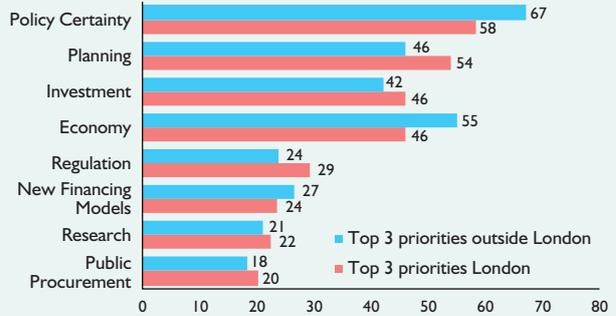
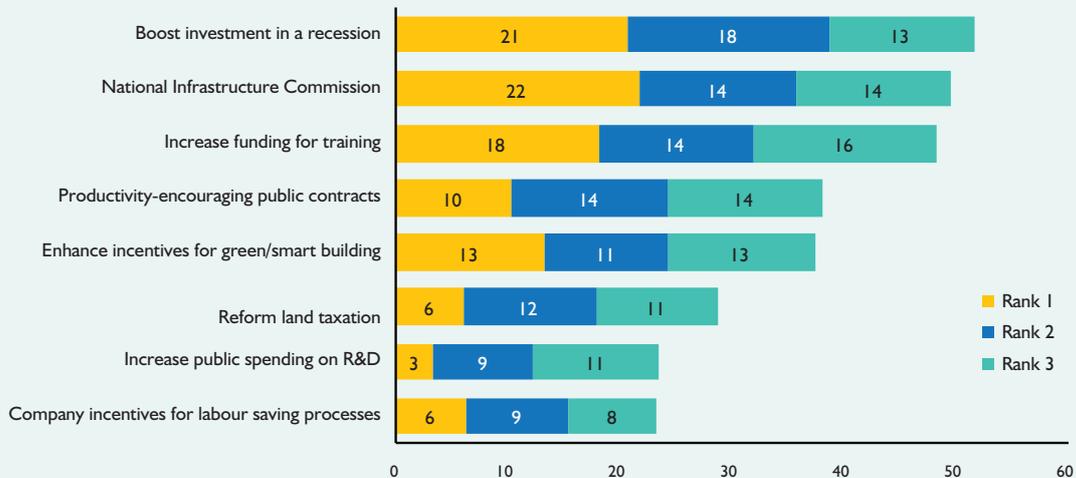


Figure 9: London v rest: priorities for policy effectiveness in enabling construction to boost UK productivity (%)



Q2. Which of the following policy areas, if any, do you think would be most effective in enabling the construction industry to raise overall UK productivity? Please rank your responses in order of effectiveness, where 1 = the most effective and 8 = the least effective. Base: All respondents (n=481); All London (n=89).

Figure 10: Industry's ranking of the positive impact of various policy options to boost UK construction productivity (%)



Q3. Which of the following policies, if any, do you think would have the greatest positive impact on the productivity of the UK construction sector? Please select and rank the three policies you think would have the most positive impact, where 1 = the most positive impact, 2 = the second most positive impact, and 3 = the third most positive impact. Base: All respondents (n=481).

COMPARING MPs AND INDUSTRY SURVEY RESPONSES

HIGHLIGHTS:

- There was a high degree of consensus between the views expressed by MPs and those expressed by the industry respondents over the broad policy priorities for the UK construction sector to focus on improving the most. For both MPs and industry respondents people issues were most likely to be selected as the top and within the top three most impactful policy areas to improve industry productivity.
- MPs however were far less likely to prioritise issues that appear to require more detailed industry knowledge, such as *organisation*, *industry structure* and *regulation*.
- MPs do appear to see *investment* and *innovation* as far more important than the industry for improving construction productivity. (Note: part of this difference will be arithmetic due to MPs being less likely to prioritise more industry-specific policy areas.)
- In terms of policies that will enable construction to assist in boosting UK productivity again there is a high level of consensus between MPs and the industry respondents, with *policy certainty* the most likely to be the top priority for both MPs and the industry.
- However, MPs were most likely to rank the economy with their top three priorities, whereas *policy certainty* remained the most popular top three priority amongst industry respondents. There is a clear sign that *policy certainty* is seen as more important within the industry than among MPs.
- Other areas of difference include *public procurement* where MPs appear more favourable than industry respondents and *planning* where the industry sees policy to be more likely to impact on construction's effectiveness in delivering productivity gains to the wider UK economy.
- When looking at specific policy types the consensus was strong, with *boosting investment in a recession* and the *National Infrastructure Commission* both ranking highly and *increased public spending on R&D* lowly.
- The main areas of difference appear to be more industry support for incentives on green/smart building and more enthusiasm for increased funding for training. Conversely the industry ranked land taxation reform much lower than MPs.

Observations

Overall comparing MPs and industry responses suggest high level of correlation in views. But one immediate observation is that while *policy certainty* seems to matter to both MPs and the industry it matters more to the industry. To a lesser degree, this is also true of *planning*.

Where differences lie tends to be around policies that may require more industry-specific knowledge. So MPs show significantly less immediate enthusiasm than industry for policy areas such as *industry structure*, *organisation* and *regulation*. The gap is most evident in responses to question 1, where 41% of industry respondents placed *organisation* within their top 3 priorities, the fourth most popular on that measure. Just 17% of MPs ranked it in the top 3 and on that measure it was the least favoured but one policy.

It is worth noting that some of the alignment between the preferences of the industry and those of MPs as a group is often a result of a balance between particular party tendencies. While there are consensus views on some policy areas, MPs from different parties place different emphasis on policy areas. This is evident in the Conservative MPs seeing more merit in prioritising *the economy* and *regulation* as ways to improve construction productivity, whereas Labour MPs would be more likely to favour people issues and investment based policies.

Figure 11: MPs v industry top priority for construction to focus on to raise productivity (%)

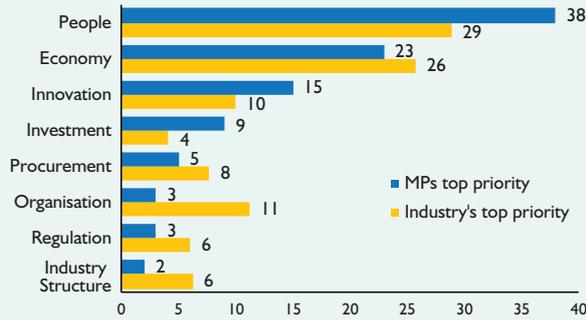


Figure 12: MPs v industry top 3 priorities for construction to focus on to raise productivity (%)

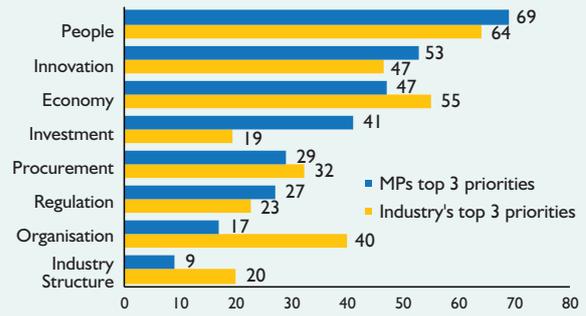


Figure 13: MPs v industry top priority for policy effectiveness in enabling construction to boost UK productivity (%)

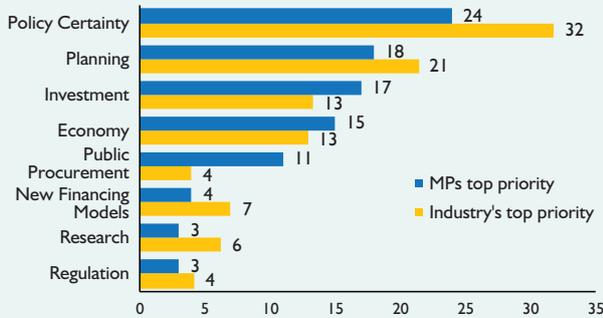


Figure 14: MPs v industry top 3 priorities for policy effectiveness in enabling construction to boost UK productivity (%)

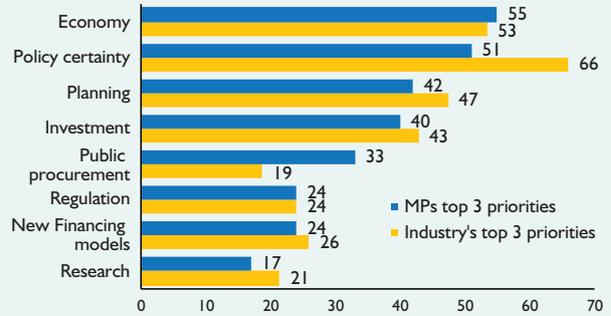
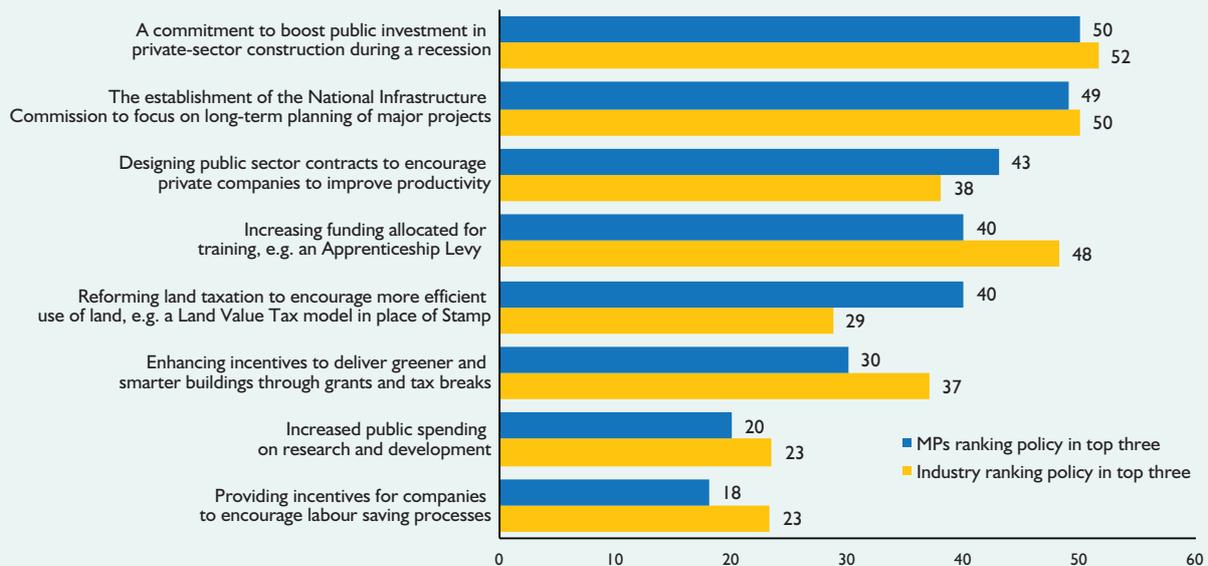


Figure 15: MPs v industry's ranking of the positive impact of various policy options to boost UK construction productivity (%)



WHAT THE EXPERTS AND INFLUENCERS SAY

Experts and influencers gave their views on productivity and how it can be improved both in construction and the wider economy.

Prof Jim Meikle, Professor in the Economics of the Construction Sector, The Bartlett School of Construction & Project Management at University College London (UCL)

“At the industry level, construction productivity improvement is an answer looking for a question. Why do we want it? Who wants it? How will we know when we’ve got it? When we can answer these questions, we may see a way ahead.”

Dr Stephen Gruneberg, Industrial Economist and Reader at the University of Westminster

“In the ideal or theoretical world the link between wages and productivity is that the higher the wages, the greater is productivity, assuming all else remains the same. This is because managers are forced to find ways of improving productivity by investing in more plant and machinery, new technology and new methods of working in order to remain competitive in spite of paying higher wages than their competitors.

In the real world there is no political will to improve productivity. Otherwise, quality training and qualifications would be properly administered and individuals would value their qualifications. Unfortunately training is not and individuals do not. Also, to ensure skills are taken seriously, there needs to be a system of rules and regulations that support those with qualifications and the firms that employ them. Instead, firms compete on price and the market dictates that the lowest tender wins. Legislation and insurance terms could be used to raise standards and productivity.”

Lee Bryer, Research and Development Operations Manager at the Construction Industry Training Board (CITB)

“Our research tells us that productivity increases come when firms invest in technology and skills. Typically, low skills bring low productivity. Direct employment, where employees are upskilled regularly, is one of the best ways to achieve this.

While recruitment and contracting decisions should not be made at the expense of competitiveness, improving skill levels in the sector requires a long-term and sustainable approach to recruitment and training. Our industry would be better served through a direct employment model, which would increase skills in construction and foster a culture of lifelong learning.”

Dr Noble Francis, Economics Director at Construction Products Association (CPA) & Visiting Professor at the University of Westminster

“We’ve seen many reports and reviews over the last couple of decades looking at productivity in construction, but they tend to be reductive, looking for a panacea such as off-site manufacturing. Construction is a derived demand, which is highly cyclical and the business models within the industry through the supply chain have been established to deal with the volatile nature of activity in the sector. Any solution that is looking to substantially improve the construction process in terms of quality, value and efficiency will necessarily need to involve a change in the business model to enable firms throughout the supply chain the ability to invest in skills, capital and new technologies.”

Alasdair Reisner, Chief Executive at the Civil Engineering Contractors Association (CECA)

“Everyone is currently chasing their tails trying to find the solution to the productivity puzzle, both in construction and the wider economy. Yet, if we are being honest with ourselves, we know where the answers are for our industry. Every day we see duplication of effort, underinvestment in innovation, and the time spent jumping through procurement and regulatory hoops that create little value. The problem is not one of knowing what we can do to improve productivity, but knowing how the industry can change its whole business model to one that allows these improvements to occur.”

Tony Giddings, formerly Partner at Argent LLP

“The delivery and procurement process for construction in the UK is far too long and wasteful. Clients and their advisors too often adopt onerous tendering processes which costs the industry a huge amount of money and wastes time - both for the projects and the consultants and contractors who have to submit detailed bids. The industry could be far better served by creating collaborative forms of contract and by clients and end-users negotiating to form their design and delivery teams for their projects rather than adopting costly and lengthy tendering processes.”

Don Ward, Chief Executive at Constructing Excellence

“Construction should first and foremost be measured by the outcomes it generates for the wider economy and quality of life. It is a means to an end.

The cost of construction - and maintenance - of a facility, whether a building or a piece of transport or energy infrastructure, is dwarfed by the effect that well-designed, well-built and well-maintained facilities have on the productivity of the rest of the economy. Good school buildings enable good education, good hospitals enable good healthcare, good offices or factories and transport enable productive businesses, and good housing, energy and transport greatly enhance quality of life or ‘wellbeing’.

Put the other way, bad buildings or roads seriously damage productivity in the rest of the economy.

Once we are clear about how an investment in construction delivers this value, we can focus on what most people would probably think of as ‘productivity’ – delivering as efficiently as possible, lower £/m² through ‘right-first-time’ lean techniques, no accidents or defects, less waste and environmental impact, more local jobs and increased social value. Compared with today’s average, this probably means more resource deployed in up-front planning and design and more off-site manufacturing, and consequently less resource for on-site installation.”

Andy von Bradsky, Chairman at The Housing Forum and Former Chairman of PRP Architects

“Greater alignment of budgets, funding streams and programmes for transport infrastructure, housing, health, education and other local infrastructure, particularly at local authority and county levels, would make a contribution to greater productivity and more

efficient use of resources. Thinking holistically and avoiding a siloed approach is one of the challenges facing government and local authorities in a time of continuing austerity. This is particularly pertinent to large scale regeneration projects where cross departmental assets are involved.”

Simon Rawlinson, Head of Strategic Research and Insight at Arcadis UK

“Increasing productivity is construction’s great puzzle. It’s not that we don’t know how to do it – off-site construction for example – it’s often that we aren’t clear what each part of the industry has to do to create the conditions for success. Smart thinking about what blocks progress could be as important as the great ideas to improve productivity – particularly in fragmented industry segments such as housebuilding. In segments such as infrastructure where clients and the supply chain have a long-term aligned relationship, there is a much greater chance of progress. With major infrastructure and housing investment ramping up in the UK now is definitely the time to address construction’s productivity problem.”

Observations

The views provided by the experts and influencers who responded are both eclectic and challenging. They have, however, an underlying suggestion: progress on productivity depends less on specific policies and more on a deeper understanding of motives and purpose and a more holistic view of our objectives in seeking to raise productivity.

Jim Meikle suggests that we are unlikely to make progress unless we understand why we need productivity, who benefits and whether we can more appropriately measure any progress in raising productivity. That is fundamental and it is certainly true that measures of construction and construction productivity can be very misleading.

Both Noble Francis and Alasdair Reisner point to the need for new business models within the industry that can provide a context in which firms see reason to take the much-recognised actions to raise productivity. Tony Giddings may not use the same phrase, but in calling for more collaborative working he is, in effect, challenging the existing business models operating within the industry. However, as the polling indicates, an understanding about the underlying issues associated with the business model in construction is often limited and unchallenged.

This will require much greater dialogue between academia, industry figures and policy makers before the necessary cultural and business changes can be implemented.

Don Ward explicitly suggests that we need to better recognise the purpose of productivity more holistically in relationship to the final outcomes within the wider economy. His initial focus may be on long-term benefits to clients and users, but the socio-economic benefits associated with Gentoo Group's Boilers on Prescription scheme, suggest we can look far wider. The need to think holistically is made by Andy Von Bradsky. He sees a powerful case for much greater alignment of budgets and funding streams between sectors, particularly in regeneration.

This need for greater alignment of interest is also highlighted by Simon Rawlinson, who points to the greater potential within infrastructure projects for productivity gains as opposed to house building, where he sees fragmentation as a major obstacle. And this fragmentation and related structural problems within the industry is challenged in other comments. If we are to improve skills and invest in the technologies that raise productivity, Lee Bryer sees benefit in increasing direct employment, relying less on sub-contracting. Meanwhile Stephen Gruneberg believes rules and regulations are needed to support qualifications and to support the firms that employ the qualified. And he makes an even more fundamental point. A long-term benefit of (labour) productivity is that, in theory, it should raise people's earnings and living standards for a given amount of time working.

These views can be seen as a call for a fundamental change in the context within which construction (its people and firms) operates and how it is viewed – assessing its usefulness rather than how we build it.

So, if the emphasis is on squeezing down wages and this approach is successful, firms have less incentive to invest in the technological and managerial advances that promote higher productivity.

In many ways this echoes the position of the OECD that suggests productivity is about working smarter rather than working harder.

These views can be seen as a call for a fundamental change in the context within which construction (its people and firms) operates and how it is viewed – assessing its usefulness rather than how we build it.

This is in contrast to any approach which might be seen as simply imposing on the industry fashionable or eye-catching generic policies aimed at lifting productivity.

Furthermore, in contrast to the stated policy preferences of MPs and industry respondents, the policy areas that might unlock such radical changes seem more likely to be achieved through the broad policy area of *industry structure, organisation, regulation, research, new financial models and procurement*.

This does not mean that *the economy, innovation, investment, people issues and policy certainty* are secondary. It suggests instead that, for these to succeed, the structures and business models within which people and firms operate play a vital role that may be less obvious.



CONSTRUCTION: CENTRAL TO THE PRODUCTIVITY CHALLENGE

Why is construction so important in the challenge to raise productivity?

KEY POINTS:

- Construction creates the built environment within which each citizen works, rests and plays. It has a profound impact on how people undertake their work, as well as their health and wellbeing. Creating buildings that are effective is therefore essential to raising productivity.
- Construction creates the vast majority of the infrastructure that is essential for trade and commerce. It underpins the productivity of most industries.
- Raising productivity within construction paves the way for increasing earnings and attracting more skilled and talented people, improving the industry's reputation and enhancing its potential to export services and knowhow to overseas markets.
- As nations develop they tend to spend more on repairing, maintaining and adapting the existing built environment. This work tends to be more labour intensive. This presents both a challenge and a growing opportunity to find ways to work smarter and increase labour productivity.

Observations

The built environment that construction delivers influences every aspect of the lives of every person that engages with the modern world. It influences their health, education, effectiveness at work, their travel to work and how they spend their leisure time.

It impacts not just on the quality of life but the effectiveness of the economy. In other words, its productivity.

Using the Government's 15-point productivity plan as a framework, the following pages illustrate in brief form how, point by point, construction acts as an agent of change to improve productivity within the wider economy, how it might improve its own internal productivity, as well as highlighting the opportunities and challenges in delivering improvement.

Too often construction and the construction industry are taken for granted. It is seen for what it is, rather than what it can do.

The key points provided are far from exhaustive, but they illustrate clearly how central construction is to delivering a high-productivity, high-quality economy with better opportunities and a better quality of life.

THE 15-POINT PLAN

Construction as agent of change

1) An even more competitive tax system, bringing business and investment to Britain

Better value and more certain delivery of construction would support inward investment.

2) Rewards for saving and long-term investment

The built environment is recognised as an ideal vehicle for savings and long-term investment. Better value and more certainty would support greater investment.

3) A highly skilled workforce, with employers in the driving seat

Construction creates the built environment which allows skills to flourish, not only in education but within the workplace. Better buildings can unlock greater value.

4) World-leading universities, open to all who can benefit

Expanding numbers in UK universities requires buildings and infrastructure. Better value, future-proofed construction that is adaptable to changing demands would enhance opportunities for expansion.

5) A modern transport system, with a secure future

A healthy construction sector is essential to delivering better transport. Developing and delivering more effective solutions would lead to greater investment.

Construction as object of change	Opportunities	Challenges
<p>More inward investment would generate greater demand for construction, potentially providing funding to invest in people, processes etc.</p>	<p>More work. Greater opportunity to work with international clients, opening up opportunities overseas.</p>	<p>Need to demonstrate competitive edge over overseas competitors in delivering the right buildings in the right places.</p>
<p>More long-term investment could boost certainty of workloads and strengthen the case for investing in people, processes etc.</p>	<p>More work. Incentives to create greater certainty and sustainability of funding for infrastructure. Potential to create innovative funding mechanisms.</p>	<p>Need to demonstrate good value and a higher degree of certainty to attract more long-term investors and develop financial engineering skills.</p>
<p>Skills crises within construction are regular occurrences. The need to invest in its people is well recognised. This would increase productivity and make construction a more attractive career.</p>	<p>Raising the bar on skills has the potential to create a virtuous circle of increasing productivity, increasing wages, raising the industry's reputation and attracting more talent to the industry.</p>	<p>Construction has very high levels of volatility and uncertainty in workloads. Its businesses are fragmented and its workforce highly mobile. These create disincentives to train.</p>
<p>Expanding universities means more construction work. It should also boost the built environment knowledge base within UK universities, which in turn should raise productivity.</p>	<p>Crafting the UK into the pre-eminent global knowledge hub for construction and the built environment.</p>	<p>Finding attractive cost-effective ways to expand and provide flexibility within university estates, as well as provide for potentially radical shifts in how education is delivered.</p>
<p>An improved transport system would mean more construction work. It would also boost productivity as the industry is a major user itself of transport infrastructure.</p>	<p>Wide opportunities, including blending physical infrastructure with smart technologies as well as developing innovative financing models.</p>	<p>Creating a clear forward schedule of work that encourages investment and the development of a sufficient and effective resource base.</p>

THE 15-POINT PLAN

Construction as agent of change

6) Reliable and low-carbon energy, at a price we can afford

Construction is an essential agent in promoting reliable energy and a low-carbon economy as a deliverer of buildings and infrastructure, including power generation.

7) World-class digital infrastructure in every part of the UK

Construction is crucial to creating the physical infrastructure that digital infrastructure relies on e.g. 4G and superfast broadband.

8) High-quality science and innovation, spreading fast

Construction creates physical environments and networks that support the spread of science and innovation. It is also critical in fusing innovation within the built environment.

9) Planning freedoms and more houses to buy

The construction industry is of course central to the development of more homes.

10) A higher pay, lower welfare society

Construction offers a major route into work those preferring manual based work. It also has huge potential to provide opportunities to elevate individuals into professional roles e.g. construction management.

Construction as object of change	Opportunities	Challenges
<p>Targets and incentives to promote a low-carbon economy will focus greatly on construction, to create a more productive industry and more efficient buildings and infrastructure.</p>	<p>Building knowledge and capacity to deliver low-carbon solutions at home will increase opportunities to export high-value services and knowhow abroad.</p>	<p>Creating a culture within the UK of developing low-carbon technologies and having a sufficient and effective resource base to deliver it.</p>
<p>Improved digital infrastructure would provide all UK firms, construction included, with competitive improvement. This is amplified for construction as BIM and Digital Built Britain is steadily adopted.</p>	<p>Expanding UK digital infrastructure potentially propels the move towards smarter cities, enhancing understanding and knowledge for UK firms. This would provide a platform to export expertise.</p>	<p>Creating a regulatory, financial and public procurement framework that provides incentives to expand the UK digital infrastructure.</p>
<p>Ideas of smart cities, innovative materials and green buildings encapsulate the deep relationship construction has with high-end science. Construction changes as science and innovation advance.</p>	<p>As one of the most advanced economies in the world, the UK has the opportunity to be at the forefront of the development of advanced building techniques.</p>	<p>Instilling a culture of change and a willingness to innovate and take risks will be essential if UK construction is to establish itself firmly in the vanguard.</p>
<p>Changes to the planning regime or shifts in the tenure of homes built impact on the demand for construction and the approach taken by construction firms.</p>	<p>Given that houses are among the most homogeneous products produced by the industry, there is scope to develop new products and processes that increase productivity.</p>	<p>Constant shifts in the political imperatives and strategic objectives undermine long-term investment in developing new products and processes, as well as the resource base.</p>
<p>Creating a higher pay society in the UK will increase the incentive within construction to raise productivity.</p>	<p>Raising the level of skills from labourers to senior management, generates greater opportunities to raise pay and help create a virtuous circle of rising productivity and pay.</p>	<p>The industry needs to create a culture where the value added from improved productivity is invested in higher skills and, in turn, higher earnings.</p>

THE 15-POINT PLAN

Construction as agent of change

11) More people with a chance to work and progress

Construction is a major employer, particularly for those preferring manual based work. It has particular potential for late developers and those with talents often ignored to find work and progress.

12) Financial services that lead the world in investing for growth

Not only does construction build the establishments within which financial services firms operate, but it also creates assets for growth in which financial services invest.

13) Open and competitive markets with the minimum of regulation

The UK construction market is seen as competitive and is attractive for investment given the effective regulatory framework.

14) A trading nation, open to international investment

UK construction firms have a long history of working with overseas firms in the UK and abroad. Additionally the established UK “rule of law” provides comfort to international firms looking to invest.

15) Resurgent cities, a rebalanced economy and a thriving Northern Powerhouse

Rejuvenating cities and their infrastructure requires repurposing the built environment to meet future needs. The construction industry will be central to this aim.

Construction as object of change	Opportunities	Challenges
<p>Expanding employment within the economy as a whole will increase the demand for construction. In turn this will create more job opportunities and openings for progression.</p>	<p>Construction offers huge opportunities to progress for many talented people who may be denied advancement within other occupations. This industry attribute can be extended and developed.</p>	<p>Ensuring excellent access and incentives to attract suitable talent from all backgrounds to enter the industry, as well as develop and progress.</p>
<p>Expanding financial services will generate more demand for construction. Financial services are also critical in developing financing models that unlock construction projects.</p>	<p>New mechanisms to capture a high proportion of the wider value of construction. This should in turn increase the demand for built assets.</p>	<p>Improving understanding between financial services and construction firms to produce a more complementary and sustainable approach to developing the built environment.</p>
<p>The scale of investment in construction inevitably means that the competitive and regulatory framework within which the industry operates is under constant review.</p>	<p>Creating new routes to procurement and contractual relationships that embrace competition but balance this with the complex realities determining effectiveness and efficiency.</p>	<p>Frequent changes to procurement, contractual relationships and regulation can hamper long-term progress, with fear of change dissuading firms from adopting optimal solutions.</p>
<p>Ownership of the UK construction industry is already multi-national. This brings investment, overseas knowledge and best practice to the UK.</p>	<p>Create in the UK the pre-eminent global knowledge hub for construction and the built environment.</p>	<p>Balancing the benefits of inward investment with real or perceived political and economic risks.</p>
<p>Investment in rejuvenating cities will create more work for UK construction. It will also create more understanding of best practices which will be exportable across the developed world.</p>	<p>Developing innovative ways to repurpose built environments in major cities has huge potential in developed countries seeking to adapt their cities to address effects of rapid economic change.</p>	<p>Policy makers creating and holding to long-term vision.</p>

POLICY OPTIONS, CONSIDERATIONS AND CONSEQUENCES

Observations on the challenge of designing and selecting suitable policy to advance productivity and avoid unintended consequences.

KEY POINTS:

- There is a need to measure more effectively the productivity of the whole process of delivering the built environment and its impact on wider UK productivity.
- Financial and business models, alongside investment, appear not to be seen within the industry as critical to improving productivity. This may require focused incentives to encourage fundamental change in processes and practices.
- Construction needs to be seen not just as a low-productivity problem, but as a solution, supporting a high-productivity UK.
- Good communication and understanding of the wider impact of construction productivity needs to be at the heart of policy making.

When looking for one simple way to raise labour productivity, the answer would probably be to stop doing low-productivity work. Just such a policy has been increasingly adopted by numerous firms in the more advanced economies over decades, as they off-shore routine work to low-wage countries.

There are clearly limits to this approach and it does have side effects. For construction, though, this is not really an option. Broadly, construction, as defined for economic purposes, is something that happens on a site at a location.

That does not mean that large parts of its supply chain cannot be off-shored, such as materials production, design and back office work. The notion that construction is location-specific is important in any discussion on productivity, because the value of its products are in large part determined by location and consequently by land. How the value of locations and the value of the built environment in those locations interplay is of great importance. One consequence of the link between the built environment and location is that, unlike most products, the value of the built environment tends to rise with age as it makes the location more desirable.

Furthermore, it is important to pay close heed to what outcomes are actually sought and to be clear on definitions. Raising the measured productivity

of construction does not necessarily translate into creating the built environment more productively. Constructing something more productively does not necessarily mean producing a built environment that contributes positively to the overall productivity of the nation.

Trade-offs may be necessary to achieve the most desirable outcome. In order to create the most productive built environment, the best option may mean accepting some reduction in productivity in its creation.

This does not mean that raising productivity within construction is not important. It is. But the above observations suggest that, in forming policy, holistic approaches are required that look at the bigger picture, while encouraging ways to do the things we need to do more productively. The example given of doctors prescribing boiler installations or replacements suggests that such holistic thinking is possible.

Construction needs to be seen not just as a low-productivity problem, but as a solution, supporting a high-productivity UK.

An intriguing point raised by the surveys was that MPs appeared, not surprisingly, to shy away from areas where their understanding might reasonably be thought to be low.

Productivity is a complex issue, even when narrowed as in this report to focus mainly on labour productivity. The factors likely to influence labour productivity in construction or, indeed, its ability to support higher productivity elsewhere are multifaceted and not always obvious. It will not be solely policies designed to improve construction productivity that will have an impact. Policies on health, education, transport, immigration and housing are, to name a few, influencers of productivity.

However, there are difficulties in seeking to assess policies relating to productivity within construction or the built environment. There are difficulties too in seeking to assess the impact of the built environment on productivity in the wider economy. The data are not fit for purpose. They can easily lead to misunderstandings as implied above. Fundamentally, the separation of key elements of the wider construction industry between contractors, professionals and suppliers of plant and machinery into three broad industry sectors confuses measurement.

If we cannot measure the effects of policy with confidence, we are less likely to deliver assertive, effective policy.

Communication and understanding also play a vital role in developing policy. An intriguing point raised by the surveys was that MPs appeared, not surprisingly, to shy away from areas where their understanding might reasonably be thought to be low. This suggests if the full armoury of policies is to be considered from which to select the most appropriate weapon, then they need to be well informed on the pertinent aspects and indeed any weaknesses of the construction industry. The alternative is that they rely on a caricatured view of the industry, or unfairly rule out potentially helpful policy.

The industry too needs good information, communication and understanding if it is to effect change on productivity. Investment is seen as a cornerstone in building improved productivity. Indeed, the survey suggested that this is widely appreciated within the industry in relation to external investment into construction to support wider economic productivity. However, when asked to assess the effectiveness of eight broad policy areas for raising productivity within construction, the industry respondents ranked investment in areas such as plant and machinery last.

A powerful point made or implied by many of the experts who contributed views was that more attention needs to be paid to the fabric of the construction industry, its structure, how it is organised and the business and financial models used to deliver profit within firms and from projects. These have a profound impact on shaping how firms behave. Any policy on productivity needs to take account of how business models might create motives and behaviours within and between firms that lead to increased fragmentation and low-productivity approaches to construction.

Ultimately, a vast range of potential policies across a wide range of policy areas will impact on construction productivity, even if they are not intended to. If the industry is serious about improving productivity it needs to be vigilant in assessing what implications policies might have in that light. Where the effects may be significant, positive or negative, this should be communicated clearly to policy makers.



RECOMMENDATIONS

Construction and productivity are both topics that are highly interlinked with a wide range of other topics. This report could have repeated numerous recommendations made in the past which impact on productivity. But the list needed to be narrowed.

In relation to construction itself, the emphasis of the report has been less directly on the question of what can be done to promote productivity and more on why measured productivity appears to be poor. The recommendations reflect this approach, with a high priority given to contextual issues as opposed to specifically directed proposals. That other important recommendations have been omitted is not to suggest they are less important than the recommendations given.

The CIOB does support greater incentives for innovation and the increased use of appropriate technology in construction. It supports greater

collaboration. It supports change to regulations and planning rules that deliver better outcomes. It supports efforts for greater policy certainty. It supports more effective processes in public procurement. It certainly supports the National Infrastructure Commission, which received significant backing from both industry and MPs.

The CIOB would also repeat three previous recommendations made in the Real Face of Construction report published in 2014. These are worth repeating in brief here, as they are highly relevant to the improvement of productivity in both construction and the wider economy.

PREVIOUS RECOMMENDATIONS

Create construction innovation and excellence hubs

This recommendation called for the Government to promote, through incentives, 'clusters' of construction-related businesses in key regions, each to act as a hub for excellence. They would be akin to specialist business parks with a remit to create greater links between businesses delivering goods and services for the built environment. These would be encouraged to forge deeper ties with universities and colleges which will, in turn, enhance the skills-base of the sector.

Improve leadership and behavioural understanding

Much emphasis in construction thinking and policy making focuses on the processes. This recommendation called for greater emphasis into the behavioural aspects of construction where relatively little work has been undertaken.

Tie public investment to training and job creation

The construction industry is exceptionally flexible and will find labour and resources as it requires them. It is essential that this process is both efficient and in the best interests of the nation and local communities, especially where public funds are being invested. The CIOB considers that any public investment made should be geared to the long-term aim of developing skilled young people who will be retained by the industry.

NEW RECOMMENDATIONS

Better measures of construction to support better measures of construction productivity

This report has highlighted deficiencies in how both construction and its productivity are measured. Construction, as defined statistically, covers just part of the process of delivering the built environment. This can lead to misunderstanding and consequently poor policy. Furthermore, if you cannot robustly measure progress, it is difficult to measure the impact of policy.

A more complete and consistent set of data measuring the entire delivery and maintenance of the built environment would provide significantly better understanding of how construction in its entirety delivers value. It would better capture the impact of the industry as a whole and enable more informed and holistic policy making.

The CIOB recommends that satellite accounts¹⁸, similar to those that have been produced for tourism, are compiled by the ONS for the delivery and maintenance of the built environment. These would capture inputs from the construction-related professions, materials suppliers, plant and machinery suppliers, as well as other related sectors. This will not be an easy task and support would be needed from Government, the industry, its information providers, academia and the ONS itself.

Build more evidence on the wider value of construction

Many benefits and indeed costs of investment in the built environment are not fully researched or understood. While numerous economic and social externalities are accounted for, particularly in public investment projects, many remain unseen or ignored. Certainly much of the value generated by improvement to the built environment is not captured by the promoters. Projects often go ahead only if they make financial sense to the promoter and not on the basis of the total net value they create over their lifetime.

The understanding gained from looking in more depth and more broadly at the impact of buildings and infrastructure and the value generated, or indeed the costs borne, would shine a light on potential opportunities to unlock value that otherwise would be missed.

The CIOB believes this suggests, in the first instance, greater use of post-occupancy evaluation of buildings and infrastructure. And CIOB recommends that, where possible, the assessments should examine not just the performance of the building or infrastructure itself across a wide range of measures, but the wider benefits and costs generated by its construction and occupation. This would provide a far greater understanding and a portfolio of information on what works.

CIOB also believes further research is needed that examines the value generated by construction and the built environment. This research should be wide ranging and encompass the interplay of the built environment with land. This would mean embracing issues of land values, spatial planning and land and property taxation and how they operate to encourage or discourage beneficial development, particularly in the light of the results from the survey of MPs.

Communicate better with policy makers

The comparison between the survey results in this report from MPs and industry respondents showed that MPs shied away from issues which required deeper understanding of the industry. This is to be expected. Policy makers are unlikely to support that which they do not understand. When framing policy in regards to productivity, the industry needs to appreciate the desires and expectations of MPs and other policy makers and understand the limits to their knowledge.

continued on next page

Furthermore, the survey illustrated the differences, sometimes surprising, between the political parties. Policy advocates for the industry need to be alert to these differences.

A presumption in favour of direct commissioning

There was strong support for the public sector investing in construction during a recession. The volatility and boom-and-bust nature of construction is a major inhibitor to innovation and capital investment. Deep recessions lead to heavy losses of talent, skills and knowledge which are not easily replaced. It constrains productivity growth and makes construction firms far more cautious over investment.

The idea of counter-cyclical public investment in construction is popular and came across as so in the surveys. But it presents issues, not least that when recession hits, public sector borrowing rises. In the face of rapidly rising government spending and debt, the temptation is therefore to cut capital spending.

CIOB encourages the public sector to be institutionally inclined towards direct commissioning of built environment assets when slumps occur in the private sector, with an eye more to the net assets of the nation than to the overall debt, especially as well-chosen built assets are likely to increase in value over time. Such a policy would also preserve human capital and reduce the costs of training thrust upon the industry as it seeks to recover from recession.

Develop new business models and financial models

The majority of business models adopted by individual firms seeking to operate in delivering the built environment today are, to a great extent, appropriate for the current political, economic, social and technological climate. But are they in the long-term interest of the industry and wider economy?

There is increasing concern that they are not, as expressed by experts and influencers in this report. Increasingly the business models used are seen as inhibitors to progress on productivity, the adoption of more productive methods of delivering the built environment and sustainability of the firms themselves.

CIOB believes there is a growing need for greater understanding of the impact of the financial and business models used to deliver the built environment. This should address two linked aspects. Firstly, how business and financial models influence what is built. And secondly, how business models influence how the built environment is delivered.

Boost training and investment in the construction workforce

Education, training and the enhancement of people in construction is central to the role of the CIOB. The polling clearly revealed it to be among the highest priorities for improving construction productivity in the eyes of both MPs and industry.

More effort is therefore needed to build the human capital required to meet the demands both today and in the future. High quality skilled trades, managers and professionals working across the industry are currently in short supply, a situation that will become more acute due to the rising age profile of the construction workforce. Simply maintaining the existing level of skills will not satisfy demand.

CIOB believes that, in order to improve productivity both within the industry and the wider economy, it is essential to invest more heavily in attracting new entrants to the industry as well as improving the skills of the existing workforce. Management professionals in construction have a higher degree of influence over productivity through their role in overseeing the workforce, logistics, programme of works etc. meaning that investing in management professionals has greater potential to improve construction's productivity and, in doing so, reduces the impact on the industry of the current skills shortfall.

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APPENDIX I: SURVEY QUESTIONS TO MPS AND INDUSTRY

The following questions will focus on the productivity of the UK workforce, and the construction industry in the UK.

Q1. Many factors can influence productivity within the construction sector. Which of the following broad areas, if any, do you think the UK construction sector should focus on improving the most?

Please rank your responses in order of priority, where 1 = the highest priority and 8 = the lowest priority.
[RANDOMISED OPTIONS]

- a) **Innovation** e.g. improving both structures and processes used in the industry
- b) **Investment** e.g. spending more on labour-saving plant and machinery
- c) **Organisation** e.g. improvements to management processes
- d) **Procurement** e.g. improving procurement processes in the supply chain
- e) **People** e.g. improvements in training, wages and culture
- f) **Regulation** e.g. better regulation to incentivise productivity or reduce burdens
- g) **Economy** e.g. making construction less 'boom and bust'
- h) **Industry structure** e.g. Reducing the number of different firms involved in the design and building process

Q2. Construction can contribute to overall UK productivity, for example by improving and modernising infrastructure.

Which of the following policy areas, if any, do you think would be most effective in enabling the construction industry to raise overall UK productivity?

Please rank your responses in order of effectiveness, where 1 = the most effective and 8 = the least effective.
[RANDOMISED OPTIONS]

- a) **Policy certainty** e.g. A long-term policy framework for investment in construction
- b) **Economy** e.g. Adjust public spending and incentives for investment to reduce unpredictability in construction demand
- c) **Public procurement** e.g. Using public procurement to incentivise innovation
- d) **Planning** e.g. A more effective and efficient planning process
- e) **Regulation** e.g. A more effective and efficient regulatory framework
- f) **Investment** e.g. Raising government spending and incentives for private investment in construction
- g) **Research** e.g. Greater funding for research into how construction can help to create productive 'Smart Cities'
- h) **New financing models** e.g. Models to create a greater return on investment on construction projects

Q3. Which of the following policies, if any, do you think would have the greatest positive impact on the productivity of the UK construction sector?

Please select and rank the three policies you think would have the most positive impact, where 1 = the most positive impact, 2 = the second most positive impact, and 3 = the third most positive impact. [RANDOMISED OPTIONS]

- a) The establishment of the National Infrastructure Commission to focus on long-term planning of major projects
- b) A commitment to boost public investment in private-sector construction during a recession
- c) Designing public sector contracts to encourage private companies to improve productivity
- d) Enhancing incentives to deliver greener and smarter buildings through grants and tax breaks
- e) Reforming land taxation to encourage more efficient use of land, e.g. a Land Value Tax model in place of Stamp Duty
- f) Increased public spending on research and development
- g) Increasing funding allocated for training, e.g. an Apprenticeship Levy
- h) Providing incentives for companies to encourage labour saving processes

APPENDIX 2: DEMOGRAPHIC DATA FOR SURVEY OF INDUSTRY RESPONDENTS

Q1 Which sector best describes the one you work in?

Infrastructure/Utilities/Civil engineering	66	13.72%
Commercial/Industrial building	147	30.56%
Residential building	96	19.96%
Repair, maintenance, facilities management	73	15.18%
Educational/Research establishment	31	6.44%
Other, please specify	68	14.14%
Total	481	

Q2 How would you describe the size of your business?

Small	130	27.03%
Medium	146	30.35%
Large	205	42.62%
Total	481	

Q3 What best describes the job level you are working at?

Clerical/Administrative	1	0.21%
Skilled manual	4	0.83%
Consultant	67	13.93%
Director/Senior Management	227	47.19%
Educationalist	11	2.29%
Middle/Junior Management	142	29.52%
Retired	12	2.49%
Supervisory	10	2.08%
Other, please specify	7	1.46%
Total	481	

Q4 What best describes the business you work for?

Developer	27	5.61%
House builder	20	4.16%
Main contractor	183	38.05%
Sub/specialist contractor	43	8.94%
Architect	10	2.08%
Engineering design consultancy	14	2.91%
Cost consultancy	22	4.57%
Materials manufacturing or supply	13	2.70%
Construction client business	41	8.52%
Educational/Training/Research	20	4.16%
Other, please specify*	88	18.30%
Total	481	

APPENDIX 2: CONTINUED

Q5 Which best describes the location where you primarily work?

Site	126	26.20%
Office	309	64.24%
Factory/Warehouse	4	0.83%
Educational/Training/Research establishment	14	2.91%
Other, please specify	28	5.82%
Total	481	

Q6 Age

24 or under	6	1.25%
25-44	135	28.07%
45-64	296	61.54%
65-74	37	7.69%
75+	7	1.46%
Total	481	





The Chartered Institute of Building,
1 Arlington Square,
Downshire Way,
Bracknell,
RG12 1WA, UK
Tel: +44 (0) 1344 630700

Registered Charity No. (England and Wales) 280795
and (Scotland) SC04172
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