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# Economic Bulletin

## INFRASTRUCTURE CAN BE A BAD INVESTMENT



Image Credit: Birmingham News Room/Creative Commons

- US & UK politicians are calling for more government spending on infrastructure. Philip Hammond should be cautious of this approach at the Autumn Statement.
- UK Government should focus on improving the quality of infrastructure development (particularly by harnessing private investment), not simply allocating more public funds.
- Over-investment in infrastructure can be damaging. 55% of Chinese infrastructure projects are estimated to destroy economic value.
- Nine out of ten large infrastructure projects are over budget. On average, rail projects are 45% over budget.
- Trialling of new Project Bonds could boost private investment. Warrants awarded to the Treasury mean taxpayers benefit from excess profits, avoiding problems with the discredited PFI.
- UK Government should encourage private investment in the areas of broadband, airports, ports, energy industry, roads and social housing.



## INTRODUCTION

Keynes is back, or so it seems. Often justified in terms of being “affordable” in a world where the current cost of government borrowing is extraordinarily low, advocating high levels of infrastructure spending is firmly in fashion. In the US, Donald Trump is proposing to “invest” \$550 billion on building the “roads, highways, bridges, tunnels, airports, and railways of tomorrow”, exactly doubling Hillary Clinton’s pitch in the presidential election to spend \$275 billion in direct spending on infrastructure (plus another \$225 billion in loans). In the UK, the Shadow Chancellor John McDonnell MP has proposed an even more lavish £500 billion infrastructure programme (equivalent to 27% of annual UK GDP, compared to Trump’s planned 3% equivalent of US GDP). Although more modest in scale, the Chancellor, Philip Hammond MP, has also announced his intention for more spending on infrastructure.

But is this race to spend more and more on infrastructure sensible? And would it not be better to focus on the quality of infrastructure spending, as opposed to the quantity?

To ask these questions is not to suggest that today’s UK infrastructure is ideal. Much needs to be done in areas such as, for example, broadband, energy, (some) rail improvements, airport expansion and seaport development. The right questions to ask are how these projects should be prioritised; how they should be funded; and what should be the role of the private sector in bringing sensible projects to fruition.



# 1. THE UK'S INFRASTRUCTURE NEEDS

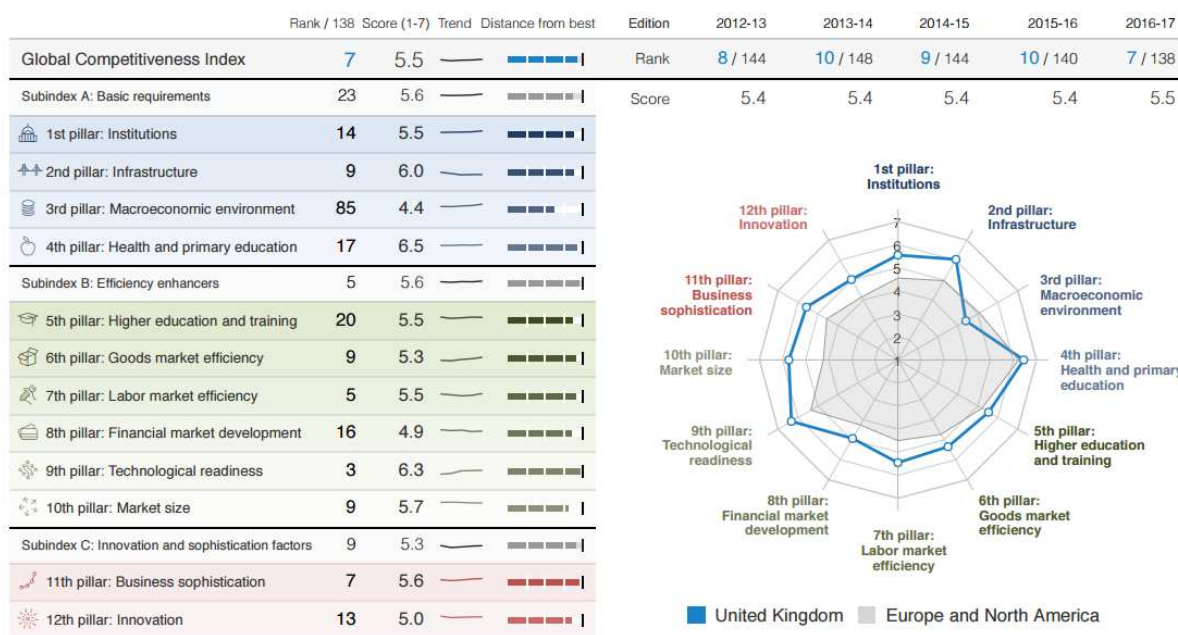
Figure 1: UK Global Competitiveness Index

**United Kingdom** 7<sup>th</sup> / 138 Global Competitiveness Index  
2016-2017 edition

**Key Indicators, 2015** Source: International Monetary Fund; World Economic Outlook Database (April 2016)

<b>Population</b> (millions)	65.1	<b>GDP per capita</b> (US\$)	43770.7
<b>GDP</b> (US\$ billions)	2849.3	<b>GDP (PPP) % world GDP</b>	2.36

## Performance overview



Currently the United Kingdom is still one of the most competitive economies in the world, moving up three places to 7th on the back of marginal score improvements. Note that the data were collected before the Brexit vote, so initial repercussions from the vote are not captured by this year's Index. Although the process and the conditions of Brexit are still unknown, it is likely to have a negative impact on the United Kingdom's competitiveness through goods and financial markets as well as market size and, potentially, innovation. Competitiveness of the UK economy has, up to now, rested on

highly efficient goods and labor markets (9th and 5th, respectively); business processes are highly sophisticated (7th) and supported by a high level of digital readiness by both businesses and consumers (3rd). Last year saw a partial recovery in the macroeconomic environment (up 23 to 85th) and an improvement in financial market conditions, although in general scores were mostly stable. Brexit will likely alter the competitiveness situation in the United Kingdom. For a detailed discussion of its potential impacts, see Box 5 in chapter 1.1 of The Global Competitiveness Report 2016-2017.

Source: World Economic Forum

Arguably, the UK is well ahead of many of its OECD competitors, ranking 9<sup>th</sup> out of 138 countries in terms of its infrastructure provision, according to the latest World Economic Forum Global Competitiveness Index.

However, this relatively encouraging index score conceals issues in some specific areas. The UK scores much less well in terms of road, railroad and air transport infrastructure, scoring 27<sup>th</sup>, 19<sup>th</sup> and 18<sup>th</sup> out of 138 respectively. There are also well documented problems associated with broadband provision in the UK. According to the Ookla speedtest, the UK has the 30<sup>th</sup> fastest average internet speed in the world.

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Quantifying the “infrastructure investment gap” is difficult. However, one authoritative estimate has suggested that it is relatively modest at 0.4% of GDP in the UK, or around £7 billion.

## 2. NEED FOR CAUTION ON INFRASTRUCTURE SPENDING

Infrastructure investment can of course help spur economic growth and productivity in certain circumstances. The International Monetary Fund, for example, has said that: “*where needed and where fiscal space is available, fiscal policy in advanced economies should be supportive of short and medium term growth – with a focus on boosting future productive capacity, in particular through infrastructure investment*”.

But this is not to say that infrastructure investment per se is necessarily a boon for economic growth. IMF economist Andrew M Warner has warned: “*When you flip the infrastructure switch, the light doesn’t necessarily turn on. The returns are a long way from being automatic*”.

Over-investment in infrastructure can even end up having a negative impact on the macro economy. This can be seen in China where Professor Deepak Lal has noted that 55% of recent projects in China are judged to be destroying economic value. China spends the highest proportion of GDP on infrastructure in the world, and it is estimated that it will overinvest 3.3% of GDP in infrastructure over the next 15 years (see figure 2).

### Figure 2: Infrastructure gap in China

Economic infrastructure (% of GDP)



Source: McKinsey

Excessive spending on infrastructure programmes can also cause problems in itself, not least in adding to national debt burdens. For example, Professors Kenneth Reinhart and Carmen Rogoff have found that debt to GDP ratios over 90% lead to median economic growth rates falling by 1%. Other studies suggest that the fall could be as high as 2.2%. Furthermore, if the Government uses its current borrowing capacity on unproductive infrastructure projects, it may well have a harder time borrowing in the future for some more urgent need.

## 3. PROBLEMS ASSOCIATED WITH LARGE INFRASTRUCTURE PROJECTS

Those of a conservative disposition may also feel uncomfortable with the idea of large infrastructure projects as they assume a level of knowledge and certainty that is rarely available at the outset of a development. And, in practice, multi-billion pound projects have proven to be fraught with difficulties. McKinsey estimated, for example, that on average rail projects go over budget by 44.7% and their demand is overestimated by 51.4%. And Professor

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Bent Flybjerg of Oxford University has shown that *“nine out of ten such projects have cost overruns; overruns of up to 50% in real terms are common, over 50% are not uncommon... Similarly, benefit shortfalls of 50% are also common and above 50% not uncommon, again with no signs of improvements over time and geography.”*

Why have large projects often historically proven to be extraordinarily bad value for money? Professor Bent Flybjerg has identified the danger of the “Four Sublimes”:

1. The Technological: The excitement engineers and technologists get in pushing the envelope for what is possible in “longest-tallest-fastest” types of projects.
2. The Political: The rapture politicians get from building monuments to themselves and for their causes, and from the visibility this generates with the public and media.
3. The Economic: The delight business people and trade unions get from making lots of money and jobs off megaprojects, including money made for contractors, workers in construction and transportation, consultants, bankers, investors, landowners, lawyers, and developers.
4. The Aesthetic: The pleasure designers and people who love good design get from building and using something very large that is also iconic and beautiful, such as the Golden Gate Bridge.

### **The Hiding Hand Principle**

The Hiding Hand Principle – advocated by Albert Hirschman – is the idea that ignorance about the future obstacles of a given project allows planners to go ahead with the project. Once the project is underway, planners will then creatively overcome any obstacles that arise because it is too late to abandon the project.

This theory is often used as a critique of modern day cost benefit analyses. Vital former infrastructure projects, the argument goes, would not have been built had these cost-benefit analyses been applied at the planning stage of these projects.

Professor Flybjerg has also explained that this is a complacent way of viewing infrastructure programmes. Underestimating costs and overestimating benefits for a given project – which the Hiding Hand Principle in effect advocates – leads to a falsely high benefit-cost ratio. This can lead to projects being started despite being economically unviable and can lead to major opportunity costs by forgoing other projects that would yield greater returns.

## **4. HOW TO PRIORITISE INFRASTRUCTURE**

In an ideal world, all infrastructure projects would be funded entirely by private operators, who would assume all risk in a project and who would seek a financial return by providing a service in a competitive marketplace. However, many infrastructure projects are by their nature inherent monopolies while others generate no direct financial return or may require some government insurance against “tail risk”.

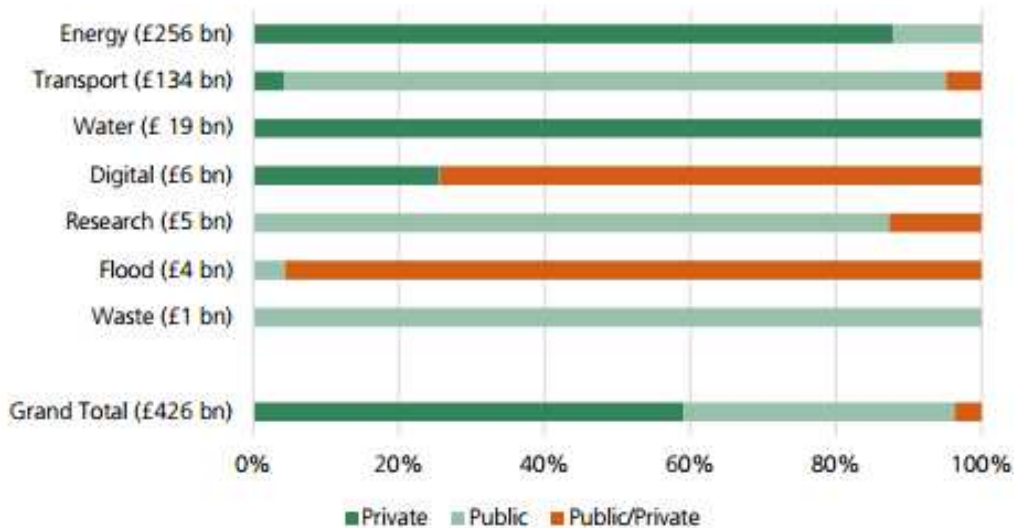
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In addition, according to a note published by Deutsche Bank, even under favourable assumptions the private sector could only provide just 15 to 20% of the projected infrastructure funding shortfall globally. The UK, however, is rather unusual among advanced economies in the extent to which it relies on the private sector to finance and provide infrastructure. The majority of the investment in the pipeline is expected to be financed from the private sector. On the face of it, this appears to be positive. However, there are a number of things to take into consideration.

- In many cases, private investors receive government guarantees that do not require them to take on significant risk. For example, over half of planned investment in UK infrastructure will be in the area of energy (see Figure 3) – most of which is “private investment” in renewables that requires large and compulsory consumer subsidies. While private sector investors’ risk is limited in these incidences, the renewable energy generators are offered a guaranteed strike price for the power they produce.
- There are fewer privately financed projects being successfully structured and closed now compared to before the financial crisis due to the abandonment of Public Private Partnerships, according to the British Bankers’ Association.
- There will inevitably be certain circumstances where particular infrastructure projects will need government support. In almost all ‘mega projects’ an Act of Parliament or a National Policy Statement is required to give a project the go ahead.

**Figure 3: Planned investment in the UK by source of finance (2016 onwards)**



Source: House of Commons Library

## 5. WHAT CRITERIA SHOULD BE USED TO PRIORITISE INFRASTRUCTURE?

Those projects which are entirely financed by the private sector, and which will operate in a competitive market, should in principle be treated positively by the Government whose

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responsibility should be limited to ensuring the right regulatory environment. This would include projects such as:

- **The Third Runway:** The great majority of funding for the expansion of Heathrow airport will come from the private sector. Furthermore, private investors will take on a substantial amount of risk. The commercial risk of an underused new runway, for example, would in theory lie with the private investors rather than government.
- **The roll out of high speed broadband:** There is mounting evidence that BT Openreach should be referred to the Competition and Markets Authority to see whether competition can be boosted in the broadband industry (See *Break BT's Monopoly on Broadband*).
- **The shale gas industry:** Shale requires no public subsidy and all risk lies with the private sector. This highlights the need for planning impediments to the shale industry to be removed.
- **The development of the hinterland around UK ports:** proposals to create Free Zones around UK ports would require no public investment, with the development risk and return being borne by the UK port sector.
- **The use of private sector expertise and finance to build new social housing:** the Government should explore new solutions to affordable housing development such as that put forward by Simple Space. Entirely funded by the private sector, this aims to deliver housing developments that incorporate 50% genuinely affordable housing for rent on any Council owned Brownfield sites whilst also creating new Private Rented Sector portfolios and significant new income streams for the Council.

Private sector involvement is not a guarantee of success, of course. But it does mean that the cost of failure is borne by private investors, not taxpayers. And in addition, the risk of failure is reduced as private investors will not be so vulnerable to the Four Sublimes identified above. In addition, as Professor Flyvbjerg has stated: *"Banks typically bring in their own advisers to do independent forecasts, due diligence, and risk assessments, which are important steps in the right direction...And why is this healthier? Because it undermines trust in the misleading forecasts often produced by project promoters."*

### ***The benefit of ensuring some level of external involvement***

In some cases, public finance or a government guarantee of some kind is of course needed. This does not necessarily mean that such projects cannot be run as efficiently as those entirely financed and developed by the private sector, as shown by the success of Crossrail. Its funding of £14.8 billion comes from a variety of public bodies, including Transport for London, the Greater London Authority and the Department for Transport. There are also contributions from various private sources, including the City of London Corporation and Canary Wharf. Expected to open on time and on budget, this project could improve the UK's reputation for delivering major infrastructure projects.

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The key here is that the wide range of different stakeholders, including representatives from the private sector, can challenge and dilute any early over-optimistic assumptions.

### ***The danger of mega-projects entirely controlled by government***

Where there are no such range of external interests involved – as in the case of HS2 – a more sceptical approach is needed. The previous Coalition Government acknowledged that private sector involvement in the financing of HS2 would be minimal, saying that “third party contributions could only deliver a small percentage of the core costs for HS2”. This is disappointing in light of the Shaw report, which highlighted that – for rail projects more generally – options for involving private sector finance should be explored.

The estimated costs of HS2 have increased dramatically since 2010, according to the House of Commons Library. The Conservative Party estimated that the cost would come in at £20 billion in before the 2010 election. By January 2012, the estimate had increased to £32.4 billion. The following year, the overall projected cost rose to £42.6 billion (in 2011 prices). In November 2015, the total cost was estimated to be £50.1 billion in 2011 prices. External forecasts suggest that the burden for taxpayers could end up even higher than this, with the Institute of Economic Affairs suggesting the cost may rise to £80 billion.

In 2015, the House of Lords Economic Affairs stated that the Government had not made a convincing case for HS2, concluding that the project does not make an adequate case for the Government’s objectives of increasing rail capacity or rebalancing the economy. It also concluded that overcrowding on Britain’s railways appears to be caused by commuter traffic, not long distance traffic, which undermines the case for HS2.

Although recently given the go-ahead by Government, it is not too late to scrap or revise the project – given that it has not yet reached Committee Stage in the House of Lords yet.

### **CONCLUSION**

As Jesse Norman MP noted in the CPS publication After PFI, the Private Finance Initiative for projects such as the construction of hospitals has been one of the costliest experiments in public policy making. This type of public-private partnership has left huge costs for taxpayers, leaving the UK with £200 billion of public debt.

But if PFI is (rightly) discredited, and yet if private sector investment is likely to improve the development of major projects, what can be done?

### **A New Financing Model for Infrastructure**

The number of privately financed infrastructure projects has fallen since the Government’s abandonment of the PFI model. The Government is reported to be now looking at creating infrastructure bonds, to be issued by a quango called Infrastructure and Projects Authority. While details are sketchy at this point, it seems these will be public sector debt and hence added to the national debt.

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An alternative, but internationally tested, method of encouraging private sector finance into infrastructure would be Project Bonds. Using the well-developed capital market expertise in the City of London, Project Bonds could offer an opportunity for institutional investors to participate in specific infrastructure projects through listed, tradable securities, thereby bringing private investment and skills into new projects. Although probably requiring a higher yield compared to the current cost of government borrowing, they could lead to significant improvements in the quality and efficiency of infrastructure projects for the following reasons:

- Each project would need to demonstrate that it has a robust business case, thereby limiting the temptations of the Four Sublimes.
- Being privately financed, the projects would be off the government balance sheet, holding down debt to GDP ratios.
- Projects would be able to attract new sources of financing, bypassing the need to get in the queue with the Treasury.
- Independently financed projects would be free from Whitehall interference.

The degree of risk taken by the private sector for Project Bonds would, of course, vary on a case by case basis (but the Government should do all it can to minimise its share of risk). But to avoid private investors receiving excess profits, the Treasury could receive equity warrants that would enable it to share in the profits if the project is refinanced after construction. This should go some way to reassuring taxpayers that problems with the PFI would not happen again.

Finally, it would be relatively simple to trial the concept of Project Bonds, both to test investor appetite and their effectiveness in improving infrastructure quality

#### **Other Areas to Improve Infrastructure Quality**

Along with the promotion of this new form of financing for infrastructure, the Government can also do more to encourage privately financed infrastructure projects. This includes:

- easing the development of airport capacity.
- removing constraints on the shale gas industry.
- facilitating Free Ports.
- exploring the potential of innovative new privately financed social housing schemes.
- examining whether BT Openreach should be referred to the Competition and Markets Authority over competition in the broadband industry.



At the same time, there should also be a far more sceptical approach to infrastructure projects that have very limited private sector involvement. This particularly applies to the proposed High Speed 2 project (it would of course be interesting to see whether there were any institutional appetite for Project Bonds for this project). It is not too late to scrap HS2 – given that it has not yet reached Committee Stage in the House of Lords.

Daniel Mahoney, Tim Knox and George Trefgarne  
**Centre for Policy Studies**

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