

Infrastructure spending and economic growth

- Chancellor Philip Hammond has been urged to increase government infrastructure spending to counteract any economic slowdown (demand management) and to improve the productive potential of the economy (supply-side reform).
- Yet the 'Keynesian' function of infrastructure spending ignores the opportunity cost of such activity. Even if it worked theoretically, timing problems create challenges, whilst cutting spending in 'good times' is resisted.
- Importantly, it's impossible to argue there is a 'demand-deficient' high unemployment scenario in the UK now which requires new economic stimulus.
- Good infrastructure can enhance the productive potential of the economy, but the political decision-making process often leads to bad decisions on spending, whether that is for electoral reasons or inefficiencies driven by a lack of market discipline.
- For example, the 2010 Comprehensive Spending Review cancelled many strategic road schemes with benefit-cost ratios above 3, but pressed ahead with the planned HS2 with a benefit-cost ratio slightly above 1. The costs of the latter HS2 scheme keep getting revised upwards.
- There is little robust evidence of a systematic link between levels of government infrastructure spending and growth. In many ways, the government impedes the private-sector from delivering infrastructure.

The well-rehearsed case for infrastructure spending

Very few economists would argue that good infrastructure does not enhance a country's economic potential. Good transport infrastructure can enhance labour mobility, for example, whilst good energy infrastructure can deliver low-cost power to fuel industry. When it comes to macroeconomic health, however, large numbers of politicians and economists now make the case that a lot more *state-led infrastructure investment* is needed 'to boost growth' (McDonnell 2016, Wren-Lewis 2013).¹

There tend to be two separate arguments for this, which are often conflated but should be analysed distinctly. The first is that infrastructure spending is a useful tool of Keynesian economics. This says that when an economy is in recession or slowing, and unemployment is high, government spending to finance and/or build infrastructure can help alleviate unemployment directly and have a strong multiplier effect on the economy more generally. For this reason, some economists advocated more infrastructure spending upon expectation that Brexit referendum-induced uncertainty would lead to an economic slowdown.

The second is that infrastructure spending can actually enhance the productive potential of the economy – improving its supply-side. This argument says that greater state-financed investment in infrastructure can boost the productive potential of the economy by greasing the wheels of economic activity in future.

These two arguments are often made in conjunction with one another (Skidelsky 2013). But they are really distinct. If one was purely interested in short-term demand management, it does not matter which types of projects are chosen per se – what matters is reducing unemployment directly and putting resources back to work. One would invest quite differently if you had the maximisation of long-run growth as your aim.

Having multiple goals – in this case 'demand management' and 'long-run growth maximisation' - thus creates conflict. As the economist John Cochrane has noted, pure Keynesian theory in essence says that in times of recession, good macro negates what we know about good micro. We might oppose wasteful 'make job' schemes in good times, but in recessions they make perfect sense. Even roads to nowhere and preparing for faked alien invasions are economically worthy.

Infrastructure spending to 'increase demand'

This type of Keynesian analysis is an example of Frédéric Bastiat's problem of "the seen and the unseen," whereby one takes into account the (visible) benefits, but not the (invisible) opportunity costs of a policy. In the case of infrastructure, politicians crow about the shiny new airport employing 5000 people, but they often forget that, absent the taxation involved in financing the project, millions of taxpayers would have been able to spend, save or give away their share to other worthy – and economically beneficial – causes, whether the government resources are financed by taxation or borrowing.

There are lots of implicit assumptions underpinning Keynesian demand-management generally, not least surrounding the interaction with monetary policy, hoarding of cash and sticky prices. For open economies with floating exchange rates and high public debt levels, there is not much evidence that discretionary stimulus has very big effects on GDP (Ilzetzki et al 2010). But even if we accepted using government spending to smooth the business cycle could work in

¹ This can be seen in news stories such as: <http://www.cnn.com/2016/08/23/theresa-may-told-get-building-to-stop-brex-it-slowdown.html>

theory, there are important reasons why we might expect infrastructure spending to be a bad means of achieving Keynesian aims.

We already know through constant revisions to GDP data that it is difficult for governments to forecast downturns and even track the health of the economy over time, especially during and after recessions when economic change tends to be at its most rapid. This is important, because infrastructure projects often have long lead times, due to the nature of the projects but also because of government-imposed constraints such as planning laws and meeting environmental assessments (remember, for example, that a third runway at Heathrow was planned and then scrapped by the new government in 2010 on environmental grounds). This means that in reality there are very few 'shovel ready' infrastructure projects. If the government wanted to boost short-term demand, it is far easier to use tax cuts which can be immediate.

Temporary state investment also creates permanent expectations – meaning even as the economy recovers there is resistance to cutting state capital spending (which should result according to Keynesian analysis). This can be seen in the UK, with much opposition to the subsequent reduction of the short-term boost to capital spending, introduced by the Labour government at the height of the recession, after 2010.

But whilst this is all an interesting theoretical debate, it is largely a moot point for the UK right now anyway. The UK is clearly not suffering from anything like a low unemployment equilibrium. In fact, the employment rate is at a record high (74.5 per cent) and unemployment is historically very low at 4.9 per cent – the lowest level since 2005. Productivity growth, however, has struggled since the financial crisis. Its continual sluggishness suggests that the cause of the overall weak macroeconomic performance cannot be attributed to 'weak demand', but rather supply-side weakness. The policy implications of this would be reform to enhance the productive potential of the economy, rather than 'demand management'.

Infrastructure spending to improve medium-term growth

In this regard, advocates for more infrastructure spending argue for more spending to boost the supply-side. They point to low interest rates at the moment and say that this is an opportune time for the government to invest in roads, rail, energy, housing and ports.

In the provision of public goods (which markets would under-provide) and on projects where the rate of return is higher than that delivered on private sector projects, well-targeted infrastructure undertaken according to disciplined cost-benefit analysis can enhance our economic well-being. But given a low interest rate environment makes investment in both the public and private sector more cost effective, the real question here is whether infrastructure is better delivered by the public or private sector. Are there vast numbers of worthy projects which simply cannot be delivered by the private sector (market failures)? And does the political process lend itself to making better long-term decisions on infrastructure than markets, such that the marginal rate of return exceeds the opportunity cost of allocating the same resources elsewhere, including to output-stimulating tax cuts?

Historical examples of private sector delivery of large infrastructure projects suggest the 'market failure' arguments for public investment in infrastructure need not hold. Virtually all of the UK's rail network was privately built and operated for more than 100 years before its nationalisation following World War II. Even now, there is no reason in principle why the private sector cannot build roads and railways. Road owners can and do charge tolls to those using them, whilst railway owners can buy up the land around their tracks and thus capitalise on the appreciation in land values following the development of a rail line. The biggest barrier to private sector delivery of infrastructure seems to be government, in the form of planning restrictions, government monopolies in the road system, and environmental restrictions.

What about the argument that the government is simply better placed to undertake projects? Despite the idea taking hold that the government is well-placed to plan for the long-term in delivering infrastructure that will enhance economic growth, there are strong reasons for expecting the political process to perform badly in selecting and delivering projects to achieve that objective.

On project selection, the political system often prioritises spending on infrastructure in areas for electoral advantage or for regeneration purposes rather than with growth maximisation in mind (see for example the Humber Bridge, and plans for High Speed 3 already). The clearest example of this was perhaps during the general election campaign, when the Conservatives announced £12 million of spending on high-speed rail in the South Thanet constituency (where UKIP leader Nigel Farage was running).

There are also extensive examples of investment in forms of infrastructure which might retard economic potential given the opportunity costs. In the UK, expensive prestige projects, such as HS2, for example, get chosen over smaller road projects with much higher benefit-cost ratios. The 2010 Comprehensive Spending Review deferred, cancelled or placed under review strategic road schemes with average benefit-cost ratios of 6.8, 3.2 and 4.2 respectively. These were much higher than the estimated benefit-cost ratio of 1.2 for HS2.

For other non-economic reasons, such as reducing carbon emissions, the government has meanwhile supported infrastructure investment in expensive forms of energy production (both renewables, and more recently the proposed

Hinkley Point nuclear power station). These show clearly that the government does not always have growth maximisation in mind.

This problem is exacerbated because government-financed investment is not bound by market disciplines. Private investment is judged through expectations of net profits against the cost of building and maintaining. Public infrastructure has to assess effectiveness by comparing broader measures of returns and spillovers using cost-benefit analysis. But even when these begin to look more unfavourable, the political capital expended in pushing for a project tends to mean a greater willingness to continue with ventures with extraordinarily high opportunity costs. This is what matters, not the oft-cited cost borrowing rates on new government debt.

That many of these problems may arise with state-financing seems to be supported by the mixed evidence on the effectiveness of government infrastructure spending on enhancing long-term economic growth. Capital spending can of course enhance measured GDP, but assessing its long-term impact requires an assessment against forgone private sector projects and taking into consideration the effects of the long-term tax required to finance it.

Whilst some cross-country evidence suggests small but significant positive impacts of infrastructure investment (Calderón 2011), lots of these types of studies are open to methodological difficulties (Glaeser 2016). Some country examples suggest that perhaps for many of the reasons cited above large amounts of infrastructure spending are neither a necessary nor sufficient condition for healthy growth. The US, which ranks worse than the UK on the quality of its infrastructure, almost always grows more robustly. Japan spent rafts of public money on big projects, and ended up with bridges to nowhere. Whilst it is ranked highly in terms of quality of its infrastructure by the World Economic Forum, the country is arguably less dynamic after spending \$6.3 trillion on construction projects (Glaeser 2016). Spain, likewise, was left with empty airports following its infrastructure drive. Meanwhile a recent assessment of a host of major projects in China showed a great deal of infrastructure investment there was plagued by cost overruns and overestimated benefits, meaning that 55 per cent of the projects had a benefit-to-cost ratio below 1, i.e. they led to a net loss in economic value (Ansar et al 2016).

There are also technological reasons why the benefits of large infrastructure projects are likely to be lower these days, extensively outlined in Glaeser (2016). But one reason he outlines in particular is pertinent to the UK – that delivery of infrastructure generally tends to be slower and more costly due to extensive government regulations, such as land use planning laws, environmental commitments, direct government monopoly decisions (e.g. on airport capacity) and restrictions on transport infrastructure funded through user charging. This is particularly acute within the energy industry where green energy rules prevent the construction of coal-fired power stations and inflate the cost of gas-powered stations too.

CONCLUSION

There is little evidence that fiscal stimulus works for countries with the UK's characteristics and no evidence that the UK is currently in need of a discretionary economic stimulus. Even if it were, playing around with infrastructure investment spending is likely to be a clunky way to manage demand. In principle, good state-led infrastructure investment could enhance the productive potential of the economy, and would be justified in areas where the market failed to provide or where the marginal return was higher to state activity than could be achieved were the resources invested in the private sector. This is a high hurdle, however, particularly when one reviews the examples of types of projects chosen in the UK. In fact, there are many reasons to expect the political process to be worse than markets at delivering infrastructure, which perhaps explains why the link between state investment levels and growth is so mixed. In fact, in the UK it is often the state that prevents significant private sector investment in power stations, airports and roads.

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