

Executive Summary

This report presents findings from a systematic review of evaluations of the local economic impact of broadband. It is the sixth of a series of reviews that will be produced by the What Works Centre for Local Economic Growth.

The review considered more than **1,000** policy evaluations and evidence reviews from the UK and other OECD countries. It found **16** impact evaluations that met the Centre's minimum standards.

This is the smallest evidence base we have encountered to date, although the quality of some of these studies was high.

Overall, of the 16 evaluations reviewed, 14 found that broadband has positive impacts on the local economy. However, effects are likely to vary across types of firms, workers and areas, and may not be large in the aggregate.

Broadband is a 'general purpose technology' that is likely to have social and environmental impacts as well as economic effects. Policymakers may want to take all of these outcomes in to account when developing broadband strategies. However, this report focuses only on local economic impacts.

Four types of broadband projects considered:

1. Private provision
 2. Direct public provision to improve broadband infrastructure
 3. Indirect public provision, such as grants, loans or vouchers to connect users to existing networks
 4. Demonstration projects, where a private company provides fast internet infrastructure and/or service
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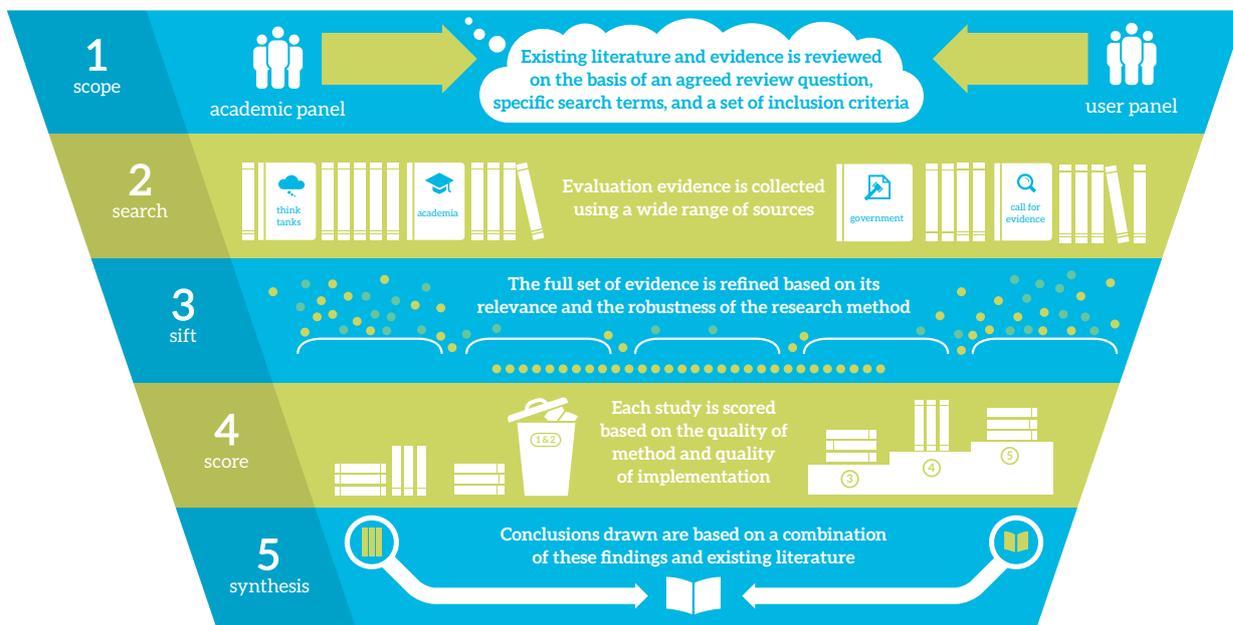
Approach

The Centre seeks to establish causal impact – an estimate of the difference that can be expected between the outcome for areas that have broadband provision and the average outcome they would have experienced without provision (see Figure 1). Our methodology for producing our reviews is outlined in Figure 2. We would like to thank Gabriel Ahlfeldt, Oliver Falck and Ralf Martin for their help in completing this review.

Figure 1: Evaluating impact



Figure 2: Methodology



Findings

This section summarises the detailed findings. We emphasise that many of these findings depend on a small number of studies. They are, however, consistent with other research on the broader impact of ICT.

What the evidence shows

- Extending broadband to an area can affect firm productivity, number of businesses, and local labour market outcomes (such as employment, income and wages).
- These effects are not always positive, are not necessarily large, and may depend on complementary investments by firms (for example, training workers, or reorganizing sales strategy or supply chains to take advantage of faster internet connections).
- Effects can vary across different types of industries and workers with service industries and skilled workers possibly benefiting more than manufacturing industries and unskilled workers.
- The economic effects of broadband tend to be larger in urban areas (or close to urban areas) than in rural areas.

Where there is a lack of evidence

- Most studies look at the effect of broadband provision. Only two studies **compare broadband adoption with provision**. It is hard to generalize conclusions from these two studies but they do suggest that the effects of adoption and provision may differ.
- Only two studies look at the **effects on profits and sales** – one shows a positive effect (for US farms), but the other shows zero effect (for firms in East Yorkshire).
- Only one study looks at the effects on **property prices** - showing a positive effect on domestic property prices.
- We have surprisingly little evaluation evidence of broadband's impact on **working patterns** – one study finds that broadband positively affects female labour force participation; another study, however, finds no net effects on working at home, telecommuting or operating a home-based business.
- We only found three high quality evaluations of specific **broadband policies** (voucher schemes, direct public provision or public/private partnerships).
- **Costs** are rarely addressed in the studies reviewed. Only one paper attempts a cost-benefit analysis.
- We have no studies that evaluate the kind of **SME-targetted voucher scheme** currently running in the UK.
- It would be very useful to know more about the relative effects of **indirect v direct provision** (ie, voucher schemes for services v direct investment infrastructure). The UK is funding both approaches at the moment.
- There is a lack of evidence in **other areas of internet technology** such as the effect of wi-fi networks, and fast mobile internet. Future evaluations in this area would greatly improve the evidence base.

How to use these reviews

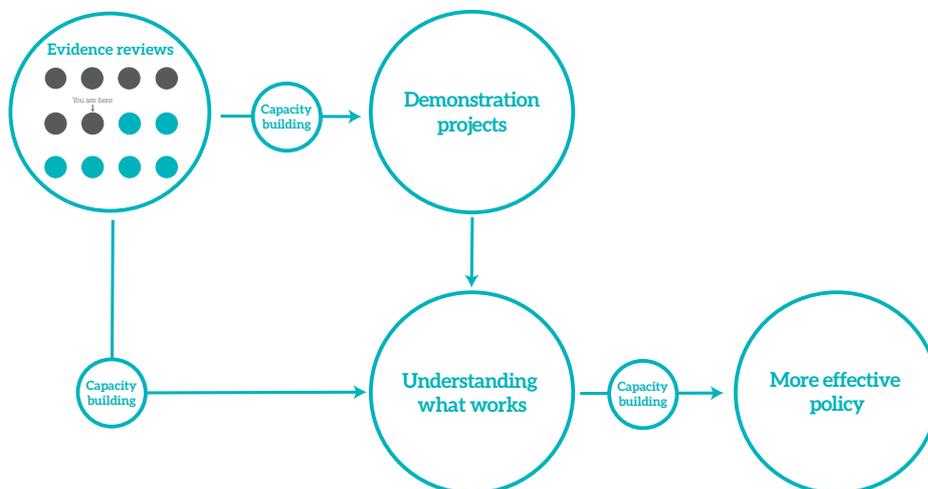
The evidence review highlights a number of factors for policy makers to be aware of when considering broadband policy:

- Broadband, like many ICTs, is a ‘disruptive’ technology that creates winners and losers, and has spillover effects across local boundaries. It is not a silver bullet for local economic development;
- There is evidence that broadband has positive local economic impacts, but some of these may be due to in-migration. Existing households may not be the biggest beneficiaries;
- Broadband seems to benefit skilled workers more than low- or un-skilled workers;
- The effects of adoption and provision may differ. More work needs to be done to understand whether and how to encourage adoption and productive business use.
- Rural areas may need to subsidise broadband provision but the economic benefits of doing so will not be as large as for urban areas.

To determine policy priorities

The Centre’s reviews consider a specific type of evidence – impact evaluation – that seeks to understand the causal effect of policy interventions and to establish their cost-effectiveness. In the longer term, the Centre will produce a range of evidence reviews that will help local decision makers decide the broad policy areas on which to spend limited resources. Figure 3 illustrates how the reviews relate to the other work streams of the Centre.

Figure 3: What Works Centre work programme



Helping to fill the evidence gaps

As should be clear from this review, there are many things that we do not know about the local economic impact of broadband.

If achieving local economic impact is an important part of the case for broadband provision, then there need to be more evaluations that explicitly explore these impacts. Central and local policymakers – and private sector partners – should:

- Look to make greater use of treatment and comparison groups; and to use the rollout of new, fast broadband infrastructure to help generate these groups. Existing local experiments such as YorkCORE and Google Fiber in the US are useful examples to draw on;

- Focus on evaluating take-up and use of broadband, rather than simply availability and access; in particular linking together broadband take-up with wider business advice and support;
- Consider evaluating programmes that target firms, e.g. SMEs, that might need additional assistance to use broadband to the full;
- Attempt to clearly separate out impacts on firms and the business community from impacts on local labour markets and households.

To work with the Centre

The Centre's longer term objectives are to ensure that robust evidence is embedded in the development of policy, that these policies are effectively evaluated and that feedback is used to improve them. To achieve these objectives we want to:

- work with local decision makers to improve evaluation standards so that we can learn more about what policies work, where
- set up a series of 'demonstration projects' to show how effective evaluation can work in practice.

Interested policymakers please get in touch.

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