Evidence Review 3

Sports and Culture

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what works centre for
local economic growth

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Contents

01

Preface

This report presents findings from a systematic review of evaluations of the impact of major sporting and cultural events and facilities.

It is the third of a series of reviews that will be produced by the What Works Centre for Local Economic Growth. The What Works Centre is a collaboration between the London School of Economics and Political Science, Centre for Cities and Arup and is funded by the Economic & Social Research Council, The Department for Communities and Local Government and The Department for Business Innovation & Skills.

These 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. To put it another way they ask 'did the policy work' and 'did it represent good value for money'? With this review we are particularly interested in demonstrating that facilities and events can be rigorously evaluated and in drawing out the wider lessons for policy.

Evidence on impact and effectiveness is clearly a crucial input to good policy making. In the case of sports and culture policies, of course, the main aims are not economic. But policymakers often claim economic benefits for these interventions, and so economic impact evaluation is important to do. Other ways of considering the impact of facilities and events (e.g. case studies) provide a valuable complement to impact evaluation, but we deliberately do not focus on these.

However, we see these impact-focused reviews as an essential part of more effective policy making. We often simply do not know the answers to many of the questions that might reasonably be asked when implementing a new policy – not least, does it work? Figuring out what we do know allows us to make better decisions and to start filling the gaps in our knowledge. **This also helps us to have more informed discussions and to improve policy making.**

These reviews therefore represent a first step in improving our understanding of what works for local economic growth. In the months ahead, we will be working with local decision makers and practitioners, using these findings to help them generate better policy.

Henry Overman
Director, What Works Centre for Local Economic Growth

02

Executive Summary

Sports and culture have intrinsic value to people and places as well as promoting health and well-being, cultural enrichment, and prestige and branding. In more recent decades, there has been an increasing tendency for promoters of investment in major sport and cultural events or facilities to claim that undertaking such projects will have demonstrable direct and indirect economic benefits as well.

This report presents findings from a systematic review of evaluations of the **economic** impact of major sporting and cultural events and facilities (hereinafter referred to as 'projects'). It is the third of a series of reviews that will be produced by the What Works Centre for Local Economic Growth.

The review considered over **550** policy evaluations and evidence reviews from the UK and other OECD countries. It found **36** impact evaluations that met the Centre's minimum standards.

> We initially focused the review on evaluations of sporting or cultural events and facilities of any size. However, we found no evaluations of small-scale events that met our minimum standards. Our findings are therefore based upon evaluations of major projects – but we believe they offer useful guidance for policymakers considering projects on any scale. We encourage local policymakers to build evaluation into their projects to contribute to the evidence base.

Overall, the evidence suggests that the measurable economic effects on local economies tend not to have been large and are often zero. Facilities, however, can have a small positive impact on property prices nearby.

This should not overshadow the other real if difficult-to-measure benefits of hosting sport and cultural activities.

Approach

The Centre seeks to establish causal impact – an estimate of the difference that can be expected between the outcome for areas or cities undertaking a project and the average outcome they would have experienced without the project (see Figure 1). Our methodology for producing our reviews is outlined in Figure 2.

Figure 1: Evaluating impact

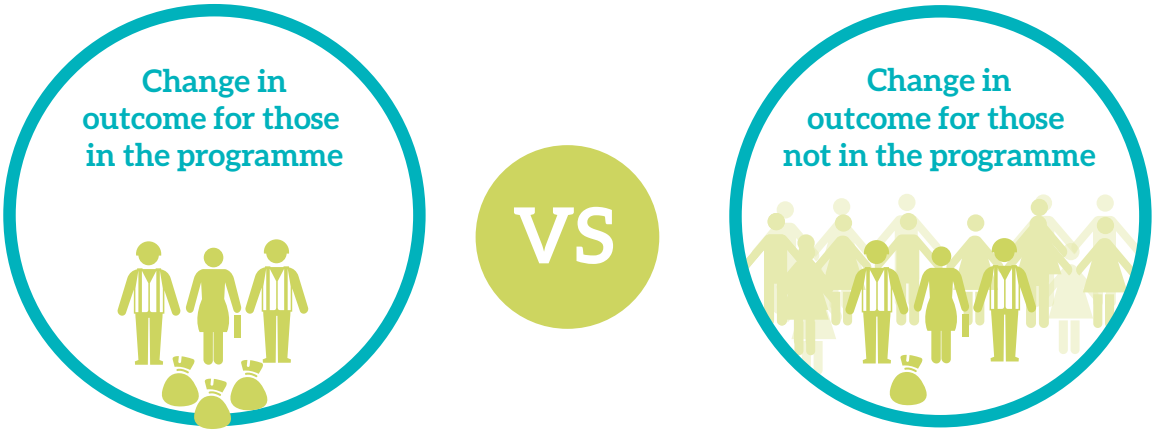
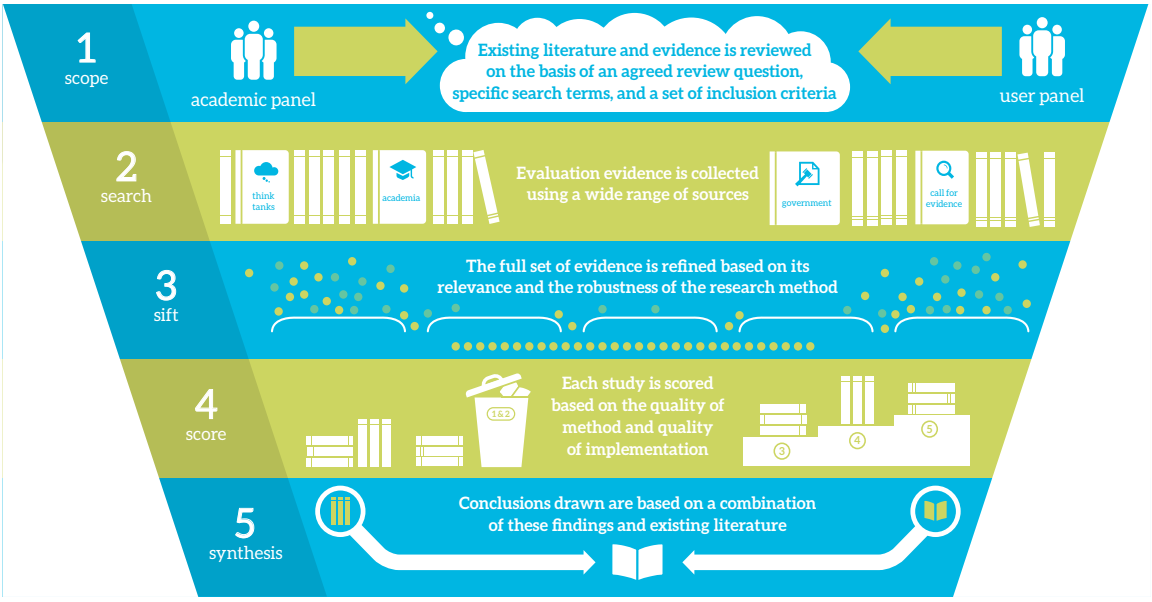


Figure 2: Methodology



Findings

What the evidence shows

- The overall measurable effects of projects on a local economy tend not to be large and are more often zero. Any wage and income effects are usually small and limited to the immediate locality or particular types of workers.
- Facilities are likely to have a positive impact on very local property prices. Policymakers should consider the distributional effects of these property market changes (who are the likely winners and losers).
- Projects may have been associated with increased trade imports and exports, including tourism, although these effects may be short lived (and are only considered in a small number of studies).

Where there is a lack of evidence

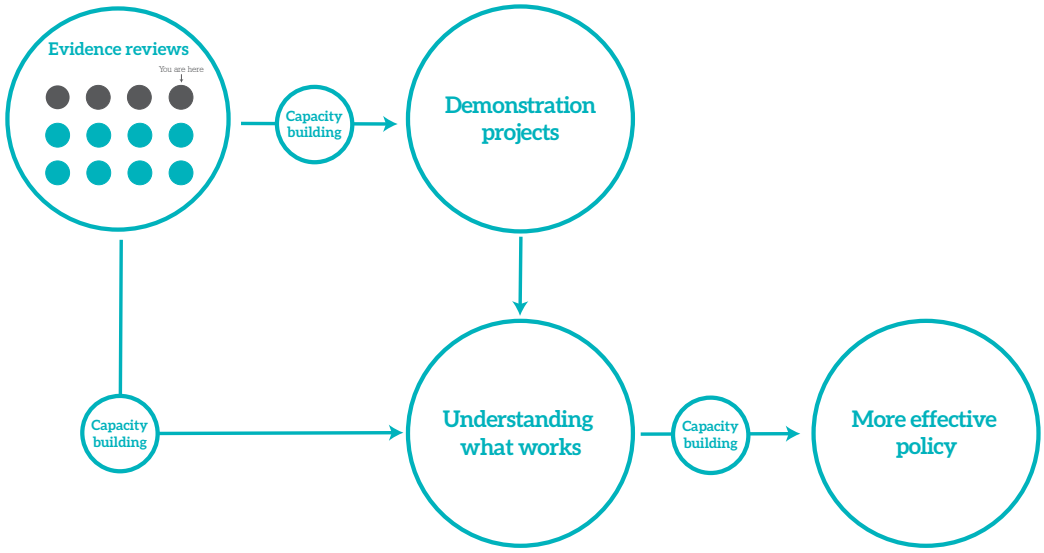
- We found no impact evaluations that considered visitor numbers. Far more should be done to assess the extent to which projects lead to net increases in visitor numbers for the area as a whole. Visitor numbers for the project alone and surveys of attendees may not provide strong evidence on the impact of projects on net visitor numbers.
- There was a paucity of evidence regarding cultural projects overall. This is an issue for understanding the likely impact of such projects and also leaves a gap in our ability to compare the economic effects of sport projects and cultural projects.
- We found no robust evidence on the economic impacts of smaller projects (such as arts centres or small-scale festivals) – although based on what we found for large projects, we can assume that the economic impact of such projects would be even smaller.
- We found no robust evidence for the impact of recurring sport and cultural events, such as annual festivals or tournaments.

How to use these reviews

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



To inform the design of programmes

The evidence review sets out a number of 'Best Bets' – based on the best available impact evaluations. In particular it identifies what kind of effects events and facilities might have on the local economy, as well as whether these effects differ by the type of project.

However, the 'Best Bets' do not address the specifics of 'what works where' or 'what will work for a particular locality'. Detailed local knowledge and context remain crucial.

'Best Bets' also raise a note of caution for policymakers if they decide to undertake a project on the basis of anticipated effects that have not generally materialised elsewhere.

Almost all of the evaluations that we found to be rigorous are focused on projects at the grand end of the scale. However, we are confident that there are lessons for everyone facing this type of spending decision from the evidence we have looked at regarding these very large projects.

For example:

- Facilities may be more likely to produce economic benefits than events, probably due to the longevity of their impact.
- Indirect employment effects are unlikely to be large, and focus should be on the direct employment effects generated by an event or facility. Reflecting this, time and expense can be saved by forgoing complex multiplier-based appraisal systems in lieu of solid 'narrow' evaluations.
- As the benefits of new facilities tend to be very localised and related to property prices and regeneration, they should be part of a broader strategy rather than seen as stand-alone projects. They should not be relied upon as the major component of a job creation strategy.
- Considered together the findings raise interesting questions about who should pay for sport and cultural events and facilities in any given locality.

To Fill the Evidence Gaps

As should be clear from this review, there are many things that we do not know about the impact of sport and cultural projects. Most of the evidence is focused at the very large end of the scale, and on professional sport franchises.

There needs to be more experimentation in measuring the economic impact of smaller projects. In particular, evaluations should make greater use of suitable comparison groups when looking at both wider economic impacts and the overall impact on visitor numbers. At a minimum, some larger scale impact evaluation studies could provide us with some idea on the extent to which techniques that are currently widely applied (such as user surveys) actually identify net policy impacts.

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 polices 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.

03

Introduction

In recent decades a great deal of attention has been paid to cities' sport and cultural offerings. The prestige of hosting an international sporting event or building an architecturally stunning art gallery is naturally attractive to city leaders. Great public spectacles like the 2012 Olympics are often hugely popular – at the time.

On the other hand, the cost and delivery challenges for such mega-events and major facilities often make these projects complex, expensive and controversial.[1] For example, London 2012's budget famously doubled from the initial bid.[2]

A variety of economic and social gains are claimed by proponents of sports and culture. For example, The British Olympic Association's evidence to Parliament supporting London's 2012 Olympics set out a huge range of potential benefits:

> "… a feel good factor across the nation as a whole; increased elite sporting performance, grassroots participation and facilities; the reduction of youth crime; the promotion of education; a new culture of volunteerism [sic]; social inclusion; regeneration in the form of new housing and better transport infrastructure; employment (with about 9,000 new jobs, of which 3,000 would be in the local economy); tourism and the convention industry; UK investment and exports; and all British cities through the preparation and training camps for overseas teams as well as the football and sailing competitions."[3]

Some of these claims (such as the 'feel good factor') are beyond the advisory remit of the What Works Centre for Local Economic Growth. We have, however, been able to find evidence to address some of the more tangible claims made for major sporting and cultural interventions, such as for job creation and for regeneration. Such 'legacy' arguments are frequently an important part of the case for such events and facilities.

1 Maennig, W. and A. Zimbalist, Eds. (2012). International Handbook On The Economics Of Mega Sporting Events. Cheltenham, Edward Elgar.
2 Nathan, M. and T. Kornblatt (2007). Paying for 2012: The Olympic Budget and Legacy. Briefing Paper 2. London, Centre for Cities.
3 House of Commons Culture, Media and Sport Committee, printed 21st January 2003.

Many local decision makers will be faced with a campaign to host a special event or open a crowd-drawing facility during their career. Although it may not be of the scale of the Olympics, the World Cup or the Sydney Opera House, organising a music festival, building a new museum or an arts centre can be expensive and disruptive to 'business as usual'. In economic terms, what can a locality reasonably expect to see in return for the investment?

Almost all of the evaluations that we found to be rigorous are focused on projects at the grand end of the scale. Unfortunately, there is very little robust impact evaluation information about the impact of smaller events and facilities on their host economies – we found a large number of studies but almost none passed our quality thresholds.

However, we are confident that there are lessons for everyone facing this type of spending decision from the evidence we have looked at regarding very large projects. Their size means that impact should be easier to identify. Also, in many cases substantial resources have been committed to rigorous impact evaluation before, during, and after the event. We also believe that local and national policymakers can learn valuable lessons about *how* to evaluate the economic impacts of sports and culture from the studies we review here.

04

Impact evaluation

Governments around the world increasingly have strong systems to monitor policy inputs (such as spending on events and facilities) and outputs (such as the total number of visitors to a project). However, they are less good at identifying policy *outcomes* (such as the wider effect of a new football stadium or gallery on local employment, or the *net* increase in visitors to the city who wouldn't otherwise have come). In particular, many government-sponsored evaluations that look at outcomes do not use credible strategies to assess the **causal impact** of such events or facilities (henceforth, we refer to these as 'projects').

By causal impact, the evaluation literature means an estimate of the difference that can be expected between the outcome for areas or cities undertaking a project (in this case, hosting an event or building a facility) and the average outcome they would have experienced without the project. Pinning down causality is a crucially important part of impact evaluation. **Estimates of the benefits of a project are of limited use to policymakers unless those benefits can be attributed, with a reasonable degree of certainty, to that project.**

The credibility with which evaluations establish causality is the criterion on which this review assesses the literature.

Using Counterfactuals

Establishing causality requires the construction of a valid counterfactual – i.e. what would have happened to an area (or part of an area) if it had not hosted the event or built the facility. That outcome is fundamentally unobservable, so researchers spend a great deal of time trying to rebuild it. The way in which this counterfactual is (re)constructed is the key element of impact evaluation design.

A standard approach is to create a counterfactual group of similar places not undertaking the kind of project being evaluated. Changes in outcomes can then be compared between the 'treatment group' (locations affected by the event/facility) and the 'control group' (locations not affected). As we discuss below, in the case of major sporting or cultural investments, such treatment and control groups are not easy to identify.

A key issue in creating the counterfactual group is dealing with the 'selection into treatment' problem. Selection into treatment occurs when locations hosting an event or building a facility differ from those who do not do so.

An example of this problem for cultural and sports projects would be when a struggling city decides to host an event to boost the local economy. If this happens, estimates of policy impact may be biased downwards because we incorrectly attribute worse city outcomes to the project, rather than to the fact that the economy is struggling.

Selection problems may also lead to upward bias. For example, richer, more successful cities may host more events and such cities may be more likely to grow or succeed independent of any events they host. These factors are often unobservable to researchers.

So the challenge for good programme evaluation is to deal with these issues, and to demonstrate that the control group is plausible. If the construction of plausible counterfactuals is central to good policy evaluation, then the crucial question becomes: **how do we design counterfactuals?** Box 1 provides some examples.

Box 1: Impact evaluation techniques

One way to identify causal impacts of a project is to randomly assign participants to treatment and control groups. For researchers, such **Randomised Control Trials** (RCTs) are often considered the 'gold standard' of evaluation. Properly implemented, randomisation ensures that treatment and control groups are comparable both in terms of observed and unobserved attributes, thus identifying the causal impact of the project. However, **implementation of these 'real world' experiments is challenging and can be problematic.** RCTs may not always be feasible for local economic growth policies – for example, policymakers may be unwilling to randomise.[4] And small-scale trials may have limited wider applicability.

Where randomised control trials are not an option, **'quasi-experimental'** approaches of randomisation can help. These strategies can deal with selection on unobservables, by (say) exploiting institutional rules and processes that result in some locations quasi-randomly undertaking projects.

Even using these strategies, though, the treatment and control groups may not be fully comparable in terms of observables. Statistical techniques such as **Ordinary Least Squares** (OLS) and **matching** can be used to address this problem.

Note that higher quality impact evaluation first uses identification strategies to construct a control group and deal with selection on unobservables. Then it tries to control for remaining differences in observable characteristics. It is the combination that is particularly powerful: OLS or matching alone raise concerns about the extent to which unobservable characteristics determine both treatment and outcomes and thus bias the evaluation.

Evidence included in the review

We include any evaluation that compares outcomes for places hosting an event or building a new facility (the treated group) after the project with outcomes in the treated group before the project; relative to a comparison group used to provide a counterfactual of what would have happened to these outcomes in the absence of the project.

4 Gibbons, Nathan and Overman (2014).

This means we look at evaluations that do a reasonable job of estimating the impact of the project using either randomised control trials, quasi-random variation or statistical techniques (such as OLS and matching) that help make treatment and control groups comparable. We view these evaluations as providing credible impact evaluation in the sense that they identify effects which can be attributed, with a reasonable degree of certainty, to the project in question. A full list of shortlisted studies is given in Appendix A.

Evidence excluded from the review

We exclude evaluations that provide a simple before and after comparison only for those places hosting events or building facilities because we cannot be reasonably sure that changes for the treated group can be attributed to the effect of the project.

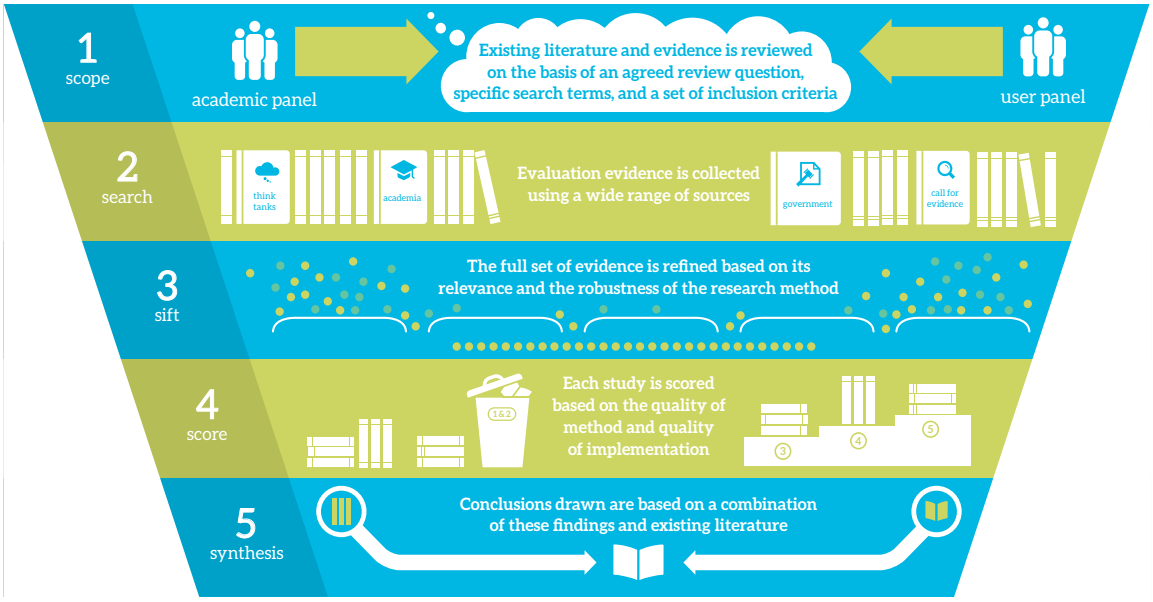
We also exclude case studies or evaluations that focus on process (how the project is implemented) rather than impact (what was the effect of the project). Such studies have a role to play in helping formulate better policy but they are not the focus of our evidence reviews.

05

Methodology

To identify robust evaluation evidence on the causal impact of hosting events or building facilities, we conducted a systematic review of the evidence from the UK and across the world. Our reviews followed a five-stage process: scope, search, sift, score and synthesise.

Figure 1: Methodology



Stage 1: Scope of Review

Working with our User Panel and a member of our Academic Panel, we agreed the review question, key terms and inclusion criteria. We also used existing literature reviews and meta-analyses to inform our thinking.

Stage 2: Searching for Evaluations

We searched for evaluation evidence across a wide range of sources, from peer-reviewed academic research to government evaluations and think tank reports. Specifically, we looked at academic databases (such as EconLit, Web of Science and Google Scholar), specialist research institutes (such as CEPR and IZA), UK central and local government departments, and work done by think tanks (such as the OECD, ILO, IPPR and Policy Exchange). We also issued a call for evidence via our mailing list and social media. This search found just over 550 books, articles and reports. Appendix B provides a full list of sources and search terms.

Stage 3: Sifting Evaluations

We screened our long-list on relevance, geography, language and methods, keeping impact evaluations from the UK and other OECD countries, with no time restrictions on when the evaluation was done. We focused on English-language studies, but would consider key evidence if it was in other languages. We then screened the remaining evaluations on the robustness of their research methods, keeping only the more robust impact evaluations. We used the Maryland Scientific Methods Scale (SMS) to do this.[5] The SMS is a five-point scale ranging from 1, for evaluations based on simple cross sectional correlations, to 5 for randomised control trials (see Box 2). We shortlisted all those impact evaluations that could potentially score three or above on the SMS[6]. In this case we found no evaluations scoring four or five: for examples of impact evaluations of events and facilities that score three on the SMS scale see www.whatworksgrowth.org.

Stage 4: Scoring Evaluations

We conducted a full appraisal of each evaluation on the shortlist, collecting key results and using the SMS to give a final score for evaluations that reflected both the quality of methods chosen and quality of implementation (which can be lower than claimed by some authors). Scoring and shortlisting decisions were cross-checked with the academic panel member and the core team at LSE. The final list of included studies and their reference numbers (used in the rest of this report) can be found in Appendix A.

Stage 5: Synthesising Evaluations

We drew together our findings, combining material from our evaluations and the existing literature.

5 Sherman, Gottfredson, MacKenzie, Eck, Reuter, and Bushway (1998).
6 Sherman et al. (1998) also suggest that level 3 is the minimum level required for a reasonable accuracy of results.

Box 2: The Scientific Maryland Scale

Level 1: Correlation of outcomes with presence or intensity of treatment, cross-sectional comparisons of treated groups with untreated groups, or other cross-sectional methods in which there is no attempt to establish a counterfactual. No use of control variables in statistical analysis to adjust for differences between treated and untreated groups.

Level 2: Comparison of outcomes in treated group after an intervention, with outcomes in the treated group before the intervention ('before and after' study). No comparison group used to provide a counterfactual, or a comparator group is used but this is not chosen to be similar to the treatment group, nor demonstrated to be similar (e.g. national averages used as comparison for policy intervention in a specific area). No, or inappropriate, control variables used in statistical analysis to adjust for differences between treated and untreated groups.

Level 3: Comparison of outcomes in treated group after an intervention, with outcomes in the treated group before the intervention, and a comparison group used to provide a counterfactual (e.g. difference in difference). Some justification given to choice of comparator group that is potentially similar to the treatment group. Evidence presented on comparability of treatment and control groups but these groups are poorly balanced on pre-treatment characteristics. Control variables may be used to adjust for difference between treated and untreated groups, but there are likely to be important uncontrolled differences remaining.

Level 4: Comparison of outcomes in treated group after an intervention, with outcomes in the treated group before the intervention, and a comparison group used to provide a counterfactual (i.e. difference in difference). Careful and credible justification provided for choice of a comparator group that is closely matched to the treatment group. Treatment and control groups are balanced on pre-treatment characteristics and extensive evidence presented on this comparability, with only minor or irrelevant differences remaining. Control variables (e.g. OLS or matching) or other statistical techniques (e.g. instrumental variables, IV) may be used to adjust for potential differences between treated and untreated groups. Problems of attrition from sample and implications discussed but not necessarily corrected.

Level 5: Reserved for research designs that involve randomisation into treatment and control groups. Randomised control trials provide the definitive example, although other 'natural experiment' research designs that exploit plausibly random variation in treatment may fall in this category. Extensive evidence provided on comparability of treatment and control groups, showing no significant differences in terms of levels or trends. Control variables may be used to adjust for treatment and control group differences, but this adjustment should not have a large impact on the main results. Attention paid to problems of selective attrition from randomly assigned groups, which is shown to be of negligible importance.

06

Definition

We initially focused the review on evaluations of any sporting or cultural events (arts, music or heritage). As we discuss above, however, we found no evaluations of small-scale local events that met our minimum evidence standards. As a result, in practice, the evidence we consider largely covers 'major' events and facilities. 'Major events' tend to meet two of the three following criteria:

- resulting from a national and/or international competition;
- operating over at least 1 week, or shorter events on a frequently recurring basis;
- targeted at a national and/or international audience.

'Major facilities' meet the following criteria:

- permanent facility of regional or national scale;
- targeted at a regional, national or international clientele.

We excluded:

- Conferences and conference centres
- Trade events
- Expos.

Impact evaluation for events and facilities

It is often relatively easy to understand how we might construct control groups and undertake evaluation for policies targeted at individuals or firms. It is much harder to think about how we might do this for policies – such as events and facilities – that target *areas*. One of our motivations in considering major events and facilities is to help convince local decision makers that better evaluation of area based interventions is possible. This section provides a brief explanation of how the reports we considered have tried to do this. Further details on specific examples can be found at www.whatworksgrowth.org.

Evaluation of local economic growth effects of events and facilities in sports and culture poses a number of unique challenges. Firstly, mega-events such as the Olympics are rare, thus reducing

the number of observations for analysis. They also tend to be hosted in unique places, e.g. global cities such as London or Los Angeles, making it difficult to find similar control cities. Conversely for smaller local events that are more numerous, the effect size is potentially too small to easily detect. Secondly, events and facilities are not located randomly: policymakers may choose prestige locations, or locations which they hope have strong regeneration potential, in which case underlying factors for these areas need to be disentangled from any project effect. In any case, the criteria on which decisions are made about who hosts events or where facilities are built are not always transparent making it difficult to control for selection bias. Thirdly, the effects of events and facilities may exhibit complex patterns over time and space: a sports stadium may improve a neighbourhood nearby at the expense of a neighbourhood further away; a World Cup may be expected to have effects before (e.g. construction effects), during (visitor spending) or after (e.g. due to infrastructure improvements).

In order to overcome these challenges, studies of mega-events and facilities typically employ quasi-experimental approaches. This usually means comparing outcomes for 'treated' areas (e.g. host cities) to a group of 'control' areas (e.g. similar cities that did not host an event). Similarity is important to reduce the degree to which differences in outcomes could be driven by other factors. For example, it is not wise to compare outcomes of an Olympic host with that of an average city since they are not similar and would likely follow different paths even in the absence if the games. Approaches taken vary: study 360 gets around the problem by comparing winners with losers from the Olympic process, relying on the assumption that these are fairly similar types of city. Further differences between the treatment and control group are accounted for using control variables and by removing the long run growth trends. Very few studies scored higher than a level '3' in this review. This is because randomisation (level '5') is generally not feasible in these situations and because instruments, etc. (level '4') are particularly hard to find.

Studies of local events and facilities, as mentioned before, may struggle to detect much of an effect using a quasi-experimental approach. Therefore they typically use a category of methods that examines visitor numbers or expenditure data. These methods suffer from a number of problems. These problems include deadweight – visitors would have come anyway; displacement – visitors come during the event instead of some other time; leakage – spending in local area 'leaks' to other areas thus does not convert to local jobs/output; and multiplier effects – where spending circulates many time around the local economy (unknown and potentially exaggerated by many studies). Notably, studies of this type are most prevalent in the area of culture (rather than sport), perhaps because of the lack of mega-scale events and facilities. These studies do not pass our requirements for robustness and are not included in our review.

There is potential for smaller scale projects in sport and, in particular, culture to be evaluated more robustly. Techniques that have been applied for ex-post evaluations of Olympic and World Cup event could be applied at the local scale. While individual local authorities may have little incentive to undertake such evaluations (especially for one off investments or events) there would still be a large benefit for local decision makers as a whole in knowing the impact of these events and how that compares to appraisals done before the project is implemented. This would allow better decision making on future projects. We return to these issues below when we consider ways to help fill the evidence gaps on the wider economic impacts of events and facilities.

07

Findings

This section sets out the review's findings. We begin with a discussion of the evidence base, and then explore the overall pattern of positive and negative results. After this we consider specific economic outcomes in more detail.

Quantity and quality of the evidence base

From an initial long list of 556 studies, 36 evaluations met our minimum standards.[7] This is a smaller evidence base than for our first review (on employment training), though larger than for our second (on business support). This may also still be larger than the evidence base for many other local economic growth policies. It is a small base relative to that available for some other policy areas (e.g. medicine, aspects of international development, education and social policy).

We found no studies that used randomised control trials or credible quasi-random sources of variation to identify policy impacts (i.e. scored 4 or 5 on the SMS). As we discussed in the previous section, this is not that surprising given the nature of these projects. All 36 studies scored 3 on the SMS, and use variations on OLS, difference in differences or matching techniques. The techniques applied in these studies mean that we can be reasonably confident that the evaluation has done a good job of controlling for all observable characteristics of areas (for example: labour market characteristics; economic strengths) which might explain differences in area outcomes. However, for these studies, it is likely that unobservable factors such as political commitment, market forces or other plans and policies for growth may still be affecting the results. This raises concerns that the evaluation incorrectly attributes beneficial outcomes to the event or facility rather than to these other area characteristics.

As RCTs are obviously not practically achievable in a policy area of this nature we cannot be fully confident that selection on these unobservables has been eradicated.

7 Many of the studies not included provided case studies or process evaluations which are often valuable, but are not the focus of our review. See methodology section for further discussion.

Type of project

Overall, the evidence is mixed. Effects on the wider economy tend not to be large and are more often zero. Some projects, particularly facilities, have a positive impact on local property markets.

The majority of the evaluations (33 of 36) looked at sports interventions; only three looked at cultural events or facilities. The evaluations included a variety of types of sports and scales: from international (such as the Summer and Winter Olympic Games[8] and FIFA World Cup);[9] to national (such as the Super Bowl); and local (such as college American Football games.[10] The three cultural events looked at European Capitals of Culture,[11] cultural districts[12] and art galleries.[13]

The paucity of evaluations on cultural projects is in part a result of the methodologies deployed in the studies evaluating them (often simply surveys of attendees, asking them about spend, motivation for visit etc.). In the absence of a suitable control group, studies focusing on tourist surveys alone, were not included in this review as none of them met the criteria for SMS3 or above.

Overall, given we only have three studies on cultural projects, we do not have enough information to make a meaningful comparison of the difference between sport and cultural projects. We can, however, go further when comparing the type of project.

The 36 evaluations look at a range of different types of sports and cultural projects. Broadly, these may take the form of:

- *events*, which could be one-off,[14] large-scale competitions such as the Super Bowl[15] or Major League Baseball 'All-Star Games',[16] or shorter, recurring events such as major league US sports fixtures;[17]
- *facilities*, both sports[18] and cultural,[19] which are not tied to specific events;
- *events and legacy facilities*, where high-profile, International events often occur alongside the development of associated physical infrastructure or facilities;[20]
- *franchises*, specifically related to Major League sports teams in the USA; or
- *announcements*, where the evaluation focuses on the impacts of public announcement of events[21] or the development of facilities[22] prior to the intervention actually taking place.

In the case of *events*, most of the evaluations in our review do not explicitly state whether there is associated development of facilities, even when it is very likely that associated development would

8 Studies 302, 309, 321, 328. 330, 337, 349, 359, 360, 363, 369, 373 all consider Summer and/or Winter Olympic Games
9 Studies 320, 331, 333, 347, 367 all consider FIFA World Cups.
10 Study 441
11 Study 324
12 Study 327
13 Study 368
14 Although events such as these are not strictly 'one-off', they are in the sense that the host city/region is unlikely to host such a significant event twice in quick succession.
15 Study 372
16 Study 442
17 Study 342
18 Studies 309, 311, 326, 345 and 379 all consider the impacts of sports arenas or stadiums.
19 Study 368 focuses on an art gallery, whilst 327 looks at physical development associated with Cultural Districts.
20 Examples include the more recent Olympic Games, football World Cup and European Capital of Culture programmes.
21 Study 359
22 Study 357

have taken place.[23] We have systematically reviewed the evidence and drawn out evaluations of events where physical development is implied but not stated by the authors.

Table 1: Type of Intervention

	No. of Studies	Evaluation Reference Numbers	Broad study conclusions			
			Positive	Zero	Mixed	Negative
Facility	7	309, 311, 326, 327, 345, 368, 379	5	1	1	0
Event (only)	5	302, 330, 342, 372, 442	2	0	2	1
Event and (explicit) legacy facility	3	301, 331, 441	0	3	0	0
Event and (implicit) legacy facility	15	320, 321, 324, 328, 331, 333, 336, 337, 347, 349, 360, 363, 367, 369, 373, 382	4	5	4	2
Franchise	4	315, 316, 355, 371	0	2	2	0
Announcement	2	357, 359	1	0	0	1

When evaluations are categorised by type of intervention, there is evidence to suggest that facilities alone appear more likely to have had the most consistent, positive impacts on economic growth outcomes. Five of the seven evaluations find positive outcomes.[24] Notably, four of these look specifically at property prices.[25] Broadly, property prices are found to have increased in neighbourhoods around new sports stadiums, with the increase gradually fading as distance from the stadium increases, or in cultural districts. Increases range between 2% for the area within 1000m of the new Velodrome in Berlin,[26] to 15% for the area around the new Wembley Stadium in London.[27] This limited scope of evaluation may help to explain the correlation between standalone facilities and positive growth impacts; it may simply be that property values are easier to affect than outcomes such as employment.

For studies which explicitly evaluate events which include associated facilities, or leave behind 'legacy' facilities, there is no evidence that these had a significant positive impact.[28] However this finding should be treated with caution as there are a number of other evaluations of events which do not explicitly mention associated legacy facilities but might reasonably be assumed to include them (for example, evaluations of the more recent Olympic Games hosts). When these studies are incorporated into the findings, the picture becomes more mixed in terms of findings.

The two studies which consider the impact of public announcements of forthcoming events and construction of facilities find that the impacts on economic growth were mixed. Both studies evaluate

23 For example, modern Olympic Games and large tournaments such as the World Cup.
24 Studies 309, 311, 326, 327 and 379
25 Studies 309, 311, 326 and 327
26 Study 309
27 Study 311
28 Studies 301, 331 and 441 all find negative impacts.

the effect on property prices. In one case, there was an uplift of 5% for properties up to three miles from the proposed Olympic Stadium in London following the announcement of the Games,[29] whilst the relocation of the Dallas Cowboys stadium caused property prices values to decrease by 1.5%.[30] In the latter case, this equated to the anticipated burden of a new sales tax levied to pay for the stadium. With such a small and conflicting evidence base, we cannot conclude that announcements had a significant positive effect on growth.

29 Study 359
30 Study 357

08

Detailed findings

Given the lack of clear findings by sector or by type of intervention in the preceding section, we turned next to consider whether the impact of sports and culture projects differs by the outcome considered/ This section considers each of the main outcomes evaluated in turn.

Employment

Employment effects tend not to be large and are more often zero.

16 evaluations specifically look at employment as a project outcome. The balance of evidence suggests that these sporting and cultural projects tend not to have had positive impacts on employment. Whilst four studies find positive coefficients, the majority (9 out of 16) find no statistically significant positive findings.

Table 2: Employment

Broad study conclusions	No. of Studies	Evaluation Reference Numbers
Positive	4	327, 328, 347, 379
Mixed	2	337, 369
Zero	9	301, 302, 320, 321, 331, 333, 355, 367, 441
Negative	1	442

Notably, the nine evaluations where the impact was zero all assess the impact of sporting interventions. These vary in terms of both scale[31] and the scope of the intervention, though most consider events which are also likely to include the construction of new, permanent facilities.[32]

Of the evaluations where positive employment effects were observed, one of the four considers the impact of a cultural intervention.[33] This could imply a link between the longevity of the intervention and employment effects; in a majority of cases where employment impacts are zero, development focuses on a set time period, culminating in a one-off sporting event,[34] whereas Cultural Districts involve much longer-term programmes to rejuvenate districts. However it is not possible to say anything conclusive on the basis of a single study.

Also of note are the examples of events being evaluated multiple times but with differing outcomes. The 1996 Atlanta Olympic Games is evaluated twice, with one evaluation concluding that the event led to 17% higher employment in the surrounding counties, equating to 293,000 jobs,[35] whereas a later study found the effects to be statistically insignificant.[36] The latter of these used a longer evaluation period and accounted for differences in long term trends. This somewhat undermines the positive effects observed in the earlier evaluation.

The 2006 football World Cup was evaluated three times. Again, one evaluation found positive effects,[37] but two found no positive, statistically significant impacts on employment.[38] In the study which found positive impacts, the authors confirmed that the results were weak, with positive effects only felt in the hospitality industry (an additional 2,600 jobs were created in this sector), which would be expected of any large, public event. Significantly, a more general, significant short term effect was not found. These caveats add to the weight of evidence which suggests that, overall, these sports and cultural events did not bring about significant or sustained uplifts in employment.

Wages & incomes

Positive effects on wages and incomes were slightly more likely than positive effects on employment (although wages are considered in a smaller number of studies). These wage and income effects were usually small and limited to particular areas or particular types of workers.

Eleven evaluations considered the impact of sport and cultural projects on wages and income level. The balance of evidence is, in this case, mixed. While there is evidence of positive impacts, six of the eleven finding statistically significant, positive outcomes, nearly as many studies find mixed results or no increase in income or wage levels.

31 To illustrate the range, study 441 looks at college football in the USA, whereas studies 321 and 302 look at different Olympic Games.
32 Since a sizeable number of studies do not explicitly describe the physical developments associated with events, we have developed systematic assumptions about whether or not facilities are likely to be included; for example, Olympics or World Cup tournaments are highly likely to include new or redeveloped facilities.
33 Study 327 considers the development of Cultural Districts in the USA.
34 Studies 302, 320, 321, 331, 333 and 367, 6 of 9, look specifically at sports events (Olympics or football World Cups).
35 Study 328
36 Study 321
37 Study 347
38 Studies 331 and 333

Table 3: Wages or incomes

Broad study conclusions	No. of Studies	Evaluation Reference Numbers
Positive	6	302, 316, 327, 328, 372, 379
Mixed	1	316
Zero	4	301, 331, 355, 441

Of the evaluations which find positive impacts, the result is far from clear cut in most cases. In one case, lack of correction for long term trends is questioned by a later study which utilises the same data.[39]

In some cases, while positive income or wage impacts are recorded, significant caveats are put forward. One finds that small positive observed impacts on the earnings of employees in the amusement and recreation sector were off-set by decreases in the earnings of employees in other sectors of the economy.[40] A further study finds that the winning percentage of local, professional American football teams was positively linked to income, but the overall effect of having a team appears to be negative and significant.[41]

Property or land prices

Positive effects on property or land prices were slightly more likely than positive effects on wages (although property and land prices are considered in a smaller number of studies). Effects (both positive and negative) were more likely to be felt in close geographical proximity to the event or facility.

Nine shortlisted evaluations looked at property values, land prices or rents, and the balance of evidence does suggest that these project had a positive impact (results are set out in Table 4). The reported uplift in prices or values varies across evaluations. The evaluation of the Max-Schmeling Arena and Velodrom in Berlin[42] reported respective growth rates in property values of 1.3% and 2% post-completion, and the announcement of the London 2012 Olympics[43] was found to generate a 5% uplift for properties up to three miles away from the main Olympic stadium. In comparison, the one relevant evaluation looking at cultural districts[44] finds a property value growth rate of 10% when past trends are taken into account.

39 The methodology in study 328 is questioned by the authors of study 321, who see weakness and subjectivity where long term trends are not adequately controlled
40 Study 379
41 Study 316
42 Study 309
43 Study 359
44 Study 327

Table 4: Property or land prices

Broad study conclusions	No. of Studies	Evaluation Reference Numbers
Positive	5	309, 311, 326, 327, 359
Mixed	2	336, 363
Zero	1	371
Negative	1	357

The findings appear to be influenced by where the boundaries for measuring impacts are drawn; each evaluation chose different boundaries, which reduces comparability of results. The evaluation of the impact of London 2012 Olympics announcements[45] dealt with this issue by measuring impacts in concentric circles drawn around the main stadium. It found that the strongest impacts were found within three miles of the stadium, reducing with distance and with no statistically significant impacts beyond nine miles.

The nature of the facility provided also seems to influence the findings. The new Wembley Stadium included a distinctive iconic element visible from a considerable distance, which was found to cause a significant stadium effect at relatively more distant properties.[46]

It is worth noting that where evaluations have found zero or negative impacts (see Table 4) do so in the context of the USA local taxation system. In the case of the relocation of the Dallas Cowboys,[47] the new stadium was funded through the levying of county-wide taxes, including an increase in sales tax rate, and it was found that the any gain which might have resulted from proximity to the stadium was more than offset by the anticipation of increased future tax liability decreased property prices. This would not necessarily be experienced in the same way in the UK because of the structure of the UK local taxation system (i.e. a new stadium is less likely to be subsidised by a local authority and where it is, it is very unlikely to translate directly into local council tax increases), so this negative finding may not be transferrable to the UK unless specialist local financing mechanisms or levies were used.

Property prices tend to capture ('capitalise') benefits that come from improvements in a locality. So it is possible that these increases in property prices are capturing improvements to the local economy. However, given the findings on employment and wages it seems more likely that these property price changes are capturing improvements to local amenities rather than to the local economy. That said, further consideration of property price effects might provide a useful way of evaluating a larger range of projects. This, in turn, might allow for improved appraisal through the use of land value up-lift.

45 Study 359
46 Study 311
47 Study 357

Trade imports and exports

Projects may have been associated with increased trade imports and exports, including tourism, although these effects may be short lived (and are only considered in a limited number of studies).

Only three evaluations measured the effect on trade imports and exports or tourism, and so it is difficult to draw strong conclusions. However, there is some evidence that sport interventions may have been associated with benefits to these outcomes.

Table 5: Trade imports and exports

Broad study conclusions	No. of Studies	Evaluation Reference Numbers
Positive	2	330, 373
Zero	1	349

Spiegel and Rose's evaluation of Olympic Games held between 1948 and 2008[48] finds a significant positive effect on exports of 20%. However, unsuccessful bidders also displayed a similar positive effect, and so the impact is attributed to the 'signal effect' of bidding (thought to signify that a country is 'open for business' and trade). The evaluation is careful not to attribute a causal effect to the bidding process itself.

There is some indication that the effects on trade and tourism may be short-lived. One evaluation[49] found that positive effects on tourism numbers caused by the Olympic Games tend to last between four and twelve years, with the largest effects within the four years before and four years after the event. Following the Olympics, tourist visits decrease at a rate of 1.44% per year.

48 Study 373
49 Study 330

09

Summary of findings

These reviews consider the wider local economic impacts of sports & culture events and facilities in terms of the effects on, for example, employment, wages or property prices. It is important to note that sports and culture have intrinsic value, which many see as their primary value, and which is quite unrelated to local growth impacts. This intrinsic value is not disputed here, but neither is it the focus of the study. However it is the case that public sector investment or subsidy of sports & culture is sometimes justified on the grounds of stimulating local economic growth, and the evidence (or otherwise) to support that argument *is* the focus of this study.

What the evidence shows

- Effects on the wider economy tend not to be large and are more often zero. Some projects, particularly facilities, have a positive impact on local property markets. Any wage and income effects tend to be small and limited to particular areas or particular types of workers.
- Facilities tend to have a positive impact on local property prices. Policymakers should consider the distributional effects of these property market changes (who are the likely winners and losers).
- Projects may have been associated with increased trade imports and exports, including tourism, although these effects may be short lived (and are only considered in a small number of studies).

Where there is a lack of evidence

- We found no high quality evaluations of the impact of events and facilities on visitor numbers. Far more should be done to assess the extent to which projects lead to ***net*** increases in visitor numbers for the area as a whole. Visitor numbers for the project alone and surveys of attendees, (asking them about spend, motivation for visit etc.) do not provide strong evidence on the impact of projects on net visitor numbers.
- There was a paucity of evidence regarding cultural projects overall. This is an issue for understanding the likely impact of such projects and also leaves a gap in our ability to compare the economic effects of sport projects and cultural projects.

- We found no robust evidence on the economic impacts of smaller projects (such as arts centres or small-scale festivals) – although based on what we found for large projects, it seems reasonable to assume that the wider economic impact of such projects would be even smaller.
- We found no robust evidence on the impact of recurring sport and cultural events, such as annual festivals or tournaments.

How to use this review

This review considers a specific type of evidence – impact evaluation. This type of evidence seeks to identify and understand the causal effect of policy interventions and to establish their cost-effectiveness. To put it another way they ask 'did the policy work'?

The focus on impact reflects the fact that we often do not know the answers to basic questions that might reasonably be asked when hosting a new event or building a new facility. In particular what kind of effects events and facilities might have on the local economy, as well as whether these effects differ by the type of project? Being clearer about what *is* known will enable policymakers to make better decisions and undertake further evaluations to start filling the gaps in knowledge.

Supporting and complementing local knowledge

The evidence review sets out a number of 'Best Bets' – based on the best available impact evaluations. In particular it identifies what kind of effects events and facilities might have on the local economy, as well as whether these effects differ by the type of project.

However, the 'Best Bets' do not address the specifics of 'what works where' or 'what will work for a particular locality'. Reflecting this, the overall findings from the evaluations should be regarded as a complement, not a substitute, for local knowledge. Detailed local knowledge and context remain crucial.

'Best Bets' also raise a note of caution for policymakers if they decide to undertake a project on the basis of anticipated effects that have not generally materialised elsewhere.

Specific recommendations

Almost all of the evaluations that we found to be rigorous are focused on projects at the grand end of the scale. However, we are confident that there are lessons for everyone facing this type of spending decision from the evidence we have looked at regarding these very large projects.

The evidence shows that it is important to have realistic expectations of what sports and cultural projects can achieve. For example:

- Facilities may be more likely to produce economic benefits than events, probably due to the longevity of their impact.
- Indirect employment effects are unlikely to be large, and focus should be on the direct employment effects generated by an event or facility. Reflecting this, time and expense can be saved by forgoing complex multiplier-based appraisal systems in lieu of solid 'narrow' evaluations.
- As the benefits of new facilities tend to be very localised and related to property prices and regeneration, they should be part of a broader strategy rather than seen as stand-alone projects. They should not be relied upon as the major component of a job creation strategy.

- Considered together the findings raise interesting questions about who should pay for sport and cultural events and facilities in any given locality.

None of this should overshadow the other real if difficult-to-measure benefits of hosting sport and cultural activities: throwing a good party is always appreciated.

Helping to fill the evidence gaps

As should be clear from this review, there are many things that we do not know about the impact of sport and cultural projects. Most of the evidence is focused at the very large end of the scale, and on professional sport franchises.

One promising study ORiEL – the Olympic Regeneration in East London (ORiEL) study – is rolling out at present.[50] The study will take a quasi-experimental approach to evaluate the urban regeneration impacts of the Olympics on young people and their families. Adolescents aged 11-12 years in 2012 have been selected from 6 schools in the London Borough of Newham (the key host borough for the London 2012 Olympics) with baseline data collected before the Olympics and up to 3 years' follow up data collection post-Olympics. The primary outcomes to be studied are socio-economic status, economic activity, mental health, wellbeing, and physical health with controls for contextual effects. Results are expected in 2015 or later.

The scale of the ORiEL study is commensurate with the scale of the Olympics and would be inappropriate for smaller projects, however it does demonstrate the type of quantitative research that is possible to support sports and culture impact evaluation.

There needs to be more experimentation in measuring the economic impact of smaller projects. This may require improvements in data collected on key variables (e.g. visitor numbers) as well as the use of improved evaluation techniques. In particular, evaluations should make greater use of suitable comparison groups when looking at both wider economic impacts and the overall impact on visitor numbers. While individual local authorities may have little incentive to undertake such evaluations (especially for one off investments or events) there would still be a large benefit for local decision makers as a whole in knowing the impact of these events and how that compares to appraisals done before the project is implemented. At a minimum, some larger scale impact evaluation studies could provide us with some idea on the extent to which techniques that are currently widely applied (such as user surveys) actually identify net policy impacts. This would allow better decision making on future projects.

The Centre's longer term objectives are to ensure that robust evidence is embedded in the development of policy, that these polices 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.

50 Smith et al. (2012). The Olympic Regeneration in East London (ORiEL) study: protocol for a prospective controlled quasi-experiment to evaluate the impact of urban regeneration on young people and their families. BMJ Open 2012. Downloaded on April 24 2014.

10

References

Ahlfeldt, G., and Maennig, W. (2009). Arenas, Arena Architecture and the Impact on Location Desirability: The Case of `Olympic Arenas' in Prenzlauer Berg, Berlin. Urban Stud 46, 1343–1362.

Ahlfeldt, G.M., and Kavetsos, G. (2014). Form or function?: the effect of new sports stadia on property prices in London. Journal of the Royal Statistical Society Series a-Statistics in Society 177, 169–190.

Baade et al (2008). Assessing the Economic Impact of College Football Games on Local Economies. Journal of Sports Economics, Volume 9 Number 6, December 2008 628-643

Baade, R. and Matheson, V. (2001) Home Run or Wild Pitch? Assessing the Economic Impact of Major League Baseball's All-Star Game. Journal of Sports Economics 2(4), 307-327.

Baade, R.A. (1996). Professional Sports as Catalysts for Metropolitan Economic Development. Journal of Urban Affairs 18, 1–17.

Baumann, R., Ciavarra, T., Englehardt, B., and Matheson, V.A. (2012). Sports Franchises, Events, and City Livability: An Examination of Spectator Sports and Crime Rates. Economic and Labour Relations Review 23, 83–97.

Baumann, R., Engelhardt, B., and Matheson, V. (2010). The Labor Market Effects of the Salt Lake City Winter Olympics (College of the Holy Cross, Department of Economics).

Baumann, R., Engelhardt, B., and Matheson, V. (2011a). Labor Market Effects of the World Cup: A Sectoral Analysis (College of the Holy Cross, Department of Economics).

Billings, S.B., and Holladay, J.S. (2012). Should Cities Go for the Gold? The Long-Term Impacts of Hosting the Olympics. Economic Inquiry 50, 754–772.

Coates, D., and Depken, C.A. Mega-Events: Is the Texas-Baylor game to Waco what the Super Bowl is to Houston? International Association of Sports Economists 06-06.

Coates, D., and Humphreys, B.R. (2003) The Effect of professional sports on earnings and employment in the services and retail sectors in US cities, Regional Science and Urban Economics 33 175-198.

Coates, D., and Matheson, V.A. (2011). Mega-Events and Housing Costs: Raising the Rent While Raising the Roof? Annals of Regional Science 46, 119–137.

CREMA European Capitals of Culture and Life Satisfaction.

Davis, M.C., and End, C.M. (2010). A Winning Proposition: The Economic Impact of Successful National Football League Franchises. Econ. Inq. 48, 39–50.

Dehring, C.A., Depken, C.A., and Ward, M.R. (2007). The Impact of Stadium Announcements on Residential Property Values: Evidence from a Natural Experiment in Dallas-Fort Worth. Contemporary Economic Policy 25, 627–638.

Feddersen, A., and Maennig, W. (2012). Sectoral labour market effects of the 2006 FIFA World Cup. Labour Econ. 19, 860–869.

Feddersen, A., and Maennig, W. (2013a). Employment Effects of the Olympic Games in Atlanta 1996 Reconsidered. Int. J. Sport Financ. 8, 95–111.

Feddersen, A., and Maennig, W. (2013b). Mega-events and Sectoral Employment: The Case of the 1996 Olympic Games. Contemporary Economic Policy 31, 580–603.

Feddersen, A., Groetzinger, A.L., and Maennig, W. (2009). Investment in Stadia and Regional Economic Development-Evidence from FIFA World Cup 2006. Int. J. Sport Financ. 4, 221–239.

Fourie, J. (2011).The impact of mega-sport events on tourist arrivals Tourism Management 32, 1364-1370.

Hagn, F., and Maennig, W. (2008). Employment effects of the Football World Cup 1974 in Germany. Labour Economics 15, 1062–1075.

Hagn, F., and Maennig, W. (2009). Large sport events and unemployment: the case of the 2006 soccer World Cup in Germany. Appl. Econ. 41, 3295–3302.

Hotchkiss, J.L., Moore, R.E., and Zobay, S.M. (2003). Impact of the 1996 Summer Olympic Games on Employment and Wages in Georgia. Southern Economic Journal 69, 691–704.

Huang, H., Humphreys, B., and Zhou, L. (2014). Do Urban Casinos Affect Nearby Neighborhoods? Evidence from Canada (University of Alberta, Department of Economics).

Jasina, J., and Rotthoff, K. (2008). The Impact of a Professional Sports Franchise on County Employment and Wages. International Journal of Sport Finance 3, 210–227.

Jasmand, S., and Maennig, W. (2008). Regional Income and Employment Effects of the 1972 Munich Summer Olympic Games. Regional Studies 42, 991–1002.

Kavetsos, G. (2012). The Impact of the London Olympics Announcement on Property Prices. Urban Studies 49, 1453–1470.

Kiel, K.A., Matheson, V., and Sullivan, C. (2010). The Effect of Sports Franchises on Property Values: The Role of Owners versus Renters (International Association of Sports Economists & North American Association of Sports Economists).

Kontokosta, C. (2012). The Price of Victory The Impact of the Olympic Games on Residential Real Estate Markets. Urban Stud 49, 961–978.

Matheson, V.A., and Baade, R.A. (2003). Super Bowl or Super (Hyper)Bole? Assessing the Economic Impact of America's Premier Sports Event (Department of Economics, Williams College).

Nelson, A.C. (2001). Prosperity or Blight? A Question of Major League Stadia Locations. Economic Development Quarterly 15, 255–265.

Nitsch, V., and Wendland, N. The IOC's Midas Touch: Summer Olympics and City Growth.

Noonan, D.S. (2013). How US Cultural Districts Reshape Neighborhoods. Cultural Trends, 22(3-4), 203-212.

Rose, A.K., and Spiegel, M.M. (2011). The Olympic Effect - Rose - 2011 - The Economic Journal - Wiley Online Library. The Economic Journal 121, 652–677.

Schuetz, J. Do Art Galleries Stimulate Redevelopment? Working Paper, August 2013

Smith et al. (2012). The Olympic Regeneration in East London (ORiEL) study: protocol for a prospective controlled quasi-experiment to evaluate the impact of urban regeneration on young people and their families. BMJ Open 2012. Downloaded on April 24 2014.

Appendix A: Evidence Reviewed

Ref No.	Reference
301	Baade, R.A. (1996). Professional Sports as Catalysts for Metropolitan Economic Development. Journal of Urban Affairs 18, 1–17.
302	Jasmand, S., and Maennig, W. (2008). Regional Income and Employment Effects of the 1972 Munich Summer Olympic Games. Regional Studies 42, 991–1002.
309	Ahlfeldt, G., and Maennig, W. (2009). Arenas, Arena Architecture and the Impact on Location Desirability: The Case of `Olympic Arenas' in Prenzlauer Berg, Berlin. Urban Stud 46, 1343–1362.
311	Ahlfeldt, G.M., and Kavetsos, G. (2014). Form or function?: the effect of new sports stadia on property prices in London. Journal of the Royal Statistical Society Series a-Statistics in Society 177, 169–190.
315	Baumann, R., Ciavarra, T., Englehardt, B., and Matheson, V.A. (2012). Sports Franchises, Events, and City Livability: An Examination of Spectator Sports and Crime Rates. Economic and Labour Relations Review 23, 83–97.
316	Davis, M.C., and End, C.M. (2010). A Winning Proposition: The Economic Impact of Successful National Football League Franchises. Econ. Inq. 48, 39–50.
320	Hagn, F., and Maennig, W. (2008). Employment effects of the Football World Cup 1974 in Germany. Labour Economics 15, 1062–1075.
321	Feddersen, A., and Maennig, W. (2013a). Employment Effects of the Olympic Games in Atlanta 1996 Reconsidered. Int. J. Sport Financ. 8, 95–111.
324	CREMA European Capitals of Culture and Life Satisfaction.
326	Tu, C.C. (2005). How does a new sports stadium affect housing values? The case of FedEx field. Land Econ. 81, 379–395.
327	Noonan, D.S. (2013). How US Cultural Districts Reshape Neighborhoods. Cultural Trends, 22(3-4), 203-212.
328	Hotchkiss, J.L., Moore, R.E., and Zobay, S.M. (2003). Impact of the 1996 Summer Olympic Games on Employment and Wages in Georgia. Southern Economic Journal 69, 691–704.
330	Song, W. (2010). Impacts of Olympics on Exports and Tourism. Journal of Economic Development 35, 93–110.
331	Feddersen, A., Groetzinger, A.L., and Maennig, W. (2009). Investment in Stadia and Regional Economic Development-Evidence from FIFA World Cup 2006. Int. J. Sport Financ. 4, 221–239.
333	Hagn, F., and Maennig, W. (2009). Large sport events and unemployment: the case of the 2006 soccer World Cup in Germany. Appl. Econ. 41, 3295–3302.
336	Coates, D., and Matheson, V.A. (2011). Mega-Events and Housing Costs: Raising the Rent While Raising the Roof? Annals of Regional Science 46, 119–137.
337	Feddersen, A., and Maennig, W. (2013b). Mega-events and Sectoral Employment: The Case of the 1996 Olympic Games. Contemporary Economic Policy 31, 580–603.
342	Coates, D., and Depken, C.A. Mega-Events: Is the Texas-Baylor game to Waco what the Super Bowl is to Houston? International Association of Sports Economists 06-06.
345	Nelson, A.C. (2001). Prosperity or Blight? A Question of Major League Stadia Locations. Economic Development Quarterly 15, 255–265.
347	Feddersen, A., and Maennig, W. (2012). Sectoral labour market effects of the 2006 FIFA World Cup. Labour Econ. 19, 860–869.

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355	Jasina, J., and Rotthoff, K. (2008). The Impact of a Professional Sports Franchise on County Employment and Wages. International Journal of Sport Finance 3, 210–227.
357	Dehring, C.A., Depken, C.A., and Ward, M.R. (2007). The Impact of Stadium Announcements on Residential Property Values: Evidence from a Natural Experiment in Dallas-Fort Worth. Contemporary Economic Policy 25, 627–638.
359	Kavetsos, G. (2012). The Impact of the London Olympics Announcement on Property Prices. Urban Studies 49, 1453–1470.
360	Nitsch, V., and Wendland, N. The IOC's Midas Touch: Summer Olympics and City Growth.
363	Kontokosta, C. (2012). The Price of Victory The Impact of the Olympic Games on Residential Real Estate Markets. Urban Stud 49, 961–978.
366	Huang, H., Humphreys, B., and Zhou, L. (2014). Do Urban Casinos Affect Nearby Neighborhoods? Evidence from Canada (University of Alberta, Department of Economics).
367	Baumann, R., Engelhardt, B., and Matheson, V. (2011a). Labor Market Effects of the World Cup: A Sectoral Analysis (College of the Holy Cross, Department of Economics).
368	Schuetz, J. Do Art Galleries Stimulate Redevelopment? Working Paper, August 2013
369	Baumann, R., Engelhardt, B., and Matheson, V. (2010). The Labor Market Effects of the Salt Lake City Winter Olympics (College of the Holy Cross, Department of Economics).
371	Kiel, K.A., Matheson, V., and Sullivan, C. (2010). The Effect of Sports Franchises on Property Values: The Role of Owners versus Renters (International Association of Sports Economists & North American Association of Sports Economists).
372	Matheson, V.A., and Baade, R.A. (2003). Super Bowl or Super (Hyper)Bole? Assessing the Economic Impact of America's Premier Sports Event (Department of Economics, Williams College).
373	Rose, A.K., and Spiegel, M.M. (2011). The Olympic Effect - Rose - 2011 - The Economic Journal - Wiley Online Library. The Economic Journal 121, 652–677.
379	Coates, D., and Humphreys, B.R. (2003) The Effect of professional sports on earnings and employment in the services and retail sectors in US cities, Regional Science and Urban Economics 33 175-198.
382	Fourie, J. (2011).The impact of mega-sport events on tourist arrivals Tourism Management 32, 1364-1370.
441	Baade et al (2008). Assessing the Economic Impact of College Football Games on Local Economies. Journal of Sports Economics, Volume 9 Number 6, December 2008 628-643.
442	Baade, R. and Matheson, V. (2001) Home Run or Wild Pitch? Assessing the Economic Impact of Major League Baseball's All-Star Game. Journal of Sports Economics 2(4), 307-327.

Appendix B: Search Terms and Sources

Source	Search Terms
EconLit	“impact” AND “event*” AND “employment”
EconLit	“evaluation” AND “event*” AND “employment”
EconLit	“impact” AND “event*” AND “econom*”
EconLit	“evaluation” AND “event*” AND “econom*”
EconLit	“impact” AND “event*” AND “property”
EconLit	“evaluation” AND “event*” AND “property”
EconLit	“impact” AND “festival” AND “employment”
EconLit	“evaluation” AND “festival” AND “employment”
EconLit	“impact” AND “festival” AND “econom*”
EconLit	“evaluation” AND “festival” AND “econom*”
EconLit	“impact” AND “festival” AND “property”
EconLit	“evaluation” AND “festival” AND “property”
EconLit	“impact” AND “sport*” AND “employment”
EconLit	“evaluation” AND “sport*” AND “employment”
EconLit	“impact” AND “sport*” AND “econom*”
EconLit	“evaluation” AND “sport*” AND “econom*”
EconLit	“impact” AND “sport*” AND “property”
EconLit	“evaluation” AND “sport*” AND “property”
EconLit	“impact” AND “sport*” AND “employment”
EconLit	“evaluation” AND “cultur*” AND “employment”
EconLit	“impact” AND “cultur*” AND “econom*”
EconLit	“evaluation” AND “cultur*” AND “econom*”
EconLit	“impact” AND “cultur*” AND “property”
EconLit	“evaluation” AND “cultur*” AND “property”
EconLit	“impact” AND “stadium”
EconLit	“evaluation” AND “stadium”
EconLit	“impact” AND “track”
EconLit	“evaluation” AND “track”
EconLit	“impact” AND “arena”
EconLit	“evaluation” AND “arena”

Source	Search Terms
EconLit	“impact” AND “host”
EconLit	“impact” AND “host” AND “employment”
EconLit	“impact” AND “host” AND “econom*”
EconLit	“impact” AND “host” AND “property”
EconLit	“evaluation” AND “host” AND “employment”
EconLit	“evaluation” AND “host” AND “econom*”
EconLit	“evaluation” AND “host” AND “property”
EconLit	“evaluat*” AND “event”
EconLit	“evaluat*” AND “event” AND “employment”
EconLit	“evaluat*” AND “event” AND “econom*”
EconLit	“evaluat*” AND “event” AND “property”
EconLit	“evaluat*” AND “festival”
EconLit	“evaluat*” AND “sport*”
EconLit	“evaluat*” AND “cultur*”
EconLit	“evaluat*” AND “cultur*” AND “employment”
EconLit	“evaluat*” AND “cultur*” AND “econom*”
EconLit	“evaluat*” AND “cultur*” AND “property”
EconLit	“evaluat*” AND “stadium”
EconLit	“evaluat*” AND “arena”
EconLit	“evaluat*” AND “track”
EconLit	“evaluat*” AND “host”
EconLit	“evaluat*” AND “conferenc*”
EconLit	“impact” AND “conferenc*”
EconLit	“impact” AND “exhibition”
EconLit	“evaluat*” AND “exhibition”
EconLit	“impact” AND “expo”
EconLit	“evaluat*” AND “expo”
EconLit	“impact” AND “business tourism”
EconLit	“evaluat*” AND “business tourism”
EconLit	“impact” AND “trade fair*”
EconLit	“evaluat*” AND “trade fair*”

Source	Search Terms
RePEc	“impact” AND “event*” AND “employment”
RePEc	“evaluation” AND “event*” AND “employment”
RePEc	“impact” AND “event*” AND “econom*”
RePEc	“evaluation” AND “event*” AND “econom*”
RePEc	“impact” AND “event*” AND “property”
RePEc	“evaluation” AND “event*” AND “property”
RePEc	“impact” AND “festival” AND “employment”
RePEc	“evaluation” AND “festival” AND “employment”
RePEc	“impact” AND “festival” AND “econom*”
RePEc	“evaluation” AND “festival” AND “econom*”
RePEc	“impact” AND “festival” AND “property”
RePEc	“evaluation” AND “festival” AND “property”
RePEc	“impact” AND “sport*” AND “employment”
RePEc	“evaluation” AND “sport*” AND “employment”
RePEc	“impact” AND “sport*” AND “econom*”
RePEc	“evaluation” AND “sport*” AND “econom*”
RePEc	“impact” AND “sport*” AND “property”
RePEc	“evaluation” AND “sport*” AND “property”
RePEc	“impact” AND “sport*” AND “employment”
RePEc	“evaluation” AND “cultur*” AND “employment”
RePEc	“impact” AND “cultur*” AND “econom*”
RePEc	“evaluation” AND “cultur*” AND “econom*”
RePEc	“impact” AND “cultur*” AND “property”
RePEc	“evaluation” AND “cultur*” AND “property”
RePEc	“impact” AND “stadium”
RePEc	“evaluation” AND “stadium”
RePEc	“impact” AND “track”
RePEc	“impact” AND “track” AND “econom*”
RePEc	“evaluation” AND “track” AND “econom*”
RePEc	“impact” AND “track” AND “employment”
RePEc	“evaluation” AND “track” AND “employment”

Source	Search Terms
RePEc	“impact” AND “track” AND “property”
RePEc	“evaluation” AND “track” AND “property”
RePEc	“impact” AND “arena”
RePEc	“evaluation” AND “arena”
RePEc	“impact” AND “host”
RePEc	“impact” AND “host” AND “employment”
RePEc	“impact” AND “host” AND “econom*”
RePEc	“impact” AND “host” AND “property”
RePEc	“evaluation” AND “host” AND “employment”
RePEc	“evaluation” AND “host” AND “econom*”
RePEc	“evaluation” AND “host” AND “property”
RePEc	“impact” AND “exhibition”
RePEc	“evaluation” AND “exhibition”
RePEc	“impact” AND “expo”
RePEc	“evaluation” AND “expo”
RePEc	“impact” AND “business tourism”
RePEc	“evaluation” AND “business tourism”
RePEc	“impact” AND “trade fair*”
RePEc	“evaluation” AND “trade fair*”
RePEc	“impact” AND “conference”
RePEc	“evaluation” AND “conference”
RePEc	“evaluate” AND “event”
RePEc	“evaluate” AND “event” AND “employment”
RePEc	“evaluate” AND “event” AND “economy”
RePEc	“evaluate” AND “event” AND “economic”
RePEc	“evaluate” AND “event” AND “property””
RePEc	“evaluate” AND “festival”
RePEc	“evaluate” AND “culture”
RePEc	“evaluate” AND “cultural”
RePEc	“evaluate” AND “stadium”
RePEc	“evaluate” AND “arena”

Source	Search Terms
RePEc	“evaluate” AND “track”
RePEc	“evaluate” AND “track” AND “employment”
RePEc	“evaluate” AND “track” AND “economy”
RePEc	“evaluate” AND “track” AND “economic”
RePEc	“evaluate” AND “track” AND “property””
RePEc	“evaluate” AND “track”
RePEc	“evaluate” AND “host”
RePEc	“evaluate” AND “conference”
RePEc	“evaluate” AND “conferencing”
RePEc	“evaluate” AND “exhibition”
RePEc	“evaluate” AND “expo”
RePEc	“evaluate” AND “trade fair”
RePEc	“evaluate” AND “business tourism”
Web of Science (SCCI) via Endnoteweb	“impact” AND “event*” AND “employment”
Web of Science (SCCI) via Endnoteweb	“impact” AND “event*” AND “econom*”
Web of Science (SCCI) via Endnoteweb	“impact” AND “event*” AND “property”
Web of Science (SCCI) via Endnoteweb	“impact” AND “festival”
Web of Science (SCCI) via Endnoteweb	“evaluation” AND “festival”
Web of Science (SCCI) via Endnoteweb	“impact” AND “sport*”
Web of Science (SCCI) via Endnoteweb	“impact” AND “sport*” AND “employment”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “event”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “event” AND “employment”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “event” AND “econom*”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “event” AND “property”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “festival”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “festival” AND “employment”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “festival” AND “econom*”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “festival” AND “property”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “sport*”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “sport*” AND “employment”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “sport*” AND “econom*”

Source	Search Terms
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “sport*” AND “property”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “cultur*”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “cultur*” AND “employment”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “cultur*” AND “econom*”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “cultur*” AND “property”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “stadium”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “stadium” AND “employment”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “stadium” AND “econom*”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “stadium” AND “property”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “arena”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “arena” AND “employment”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “arena” AND “econom*”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “arena” AND “property”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “track”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “track” AND “employment”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “track” AND “econom*”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “track” AND “property”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “host”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “host” AND “employment”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “host” AND “econom*”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “host” AND “property”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “conferenc*”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “conferenc*” AND “employment”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “conferenc*” AND “econom*”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “conferenc*” AND “property”
Web of Science (SCCI) via Endnoteweb	“impact” AND “conferenc*”
Web of Science (SCCI) via Endnoteweb	“impact” AND “conferenc*” AND “employment”
Web of Science (SCCI) via Endnoteweb	“impact” AND “conferenc*” AND “econom*”
Web of Science (SCCI) via Endnoteweb	“impact” AND “conferenc*” AND “property”
Web of Science (SCCI) via Endnoteweb	“impact” AND “sport*” AND “econom*”
Web of Science (SCCI) via Endnoteweb	“impact” AND “sport*” AND “property”

Source	Search Terms
Web of Science (SCCI) via Endnoteweb	“impact” AND “cultur*”
Web of Science (SCCI) via Endnoteweb	“impact” AND “cultur*” AND “employment”
Web of Science (SCCI) via Endnoteweb	“impact” AND “cultur*” AND “econom*”
Web of Science (SCCI) via Endnoteweb	“impact” AND “cultur*” AND “property”
Web of Science (SCCI) via Endnoteweb	“impact” AND “stadium”
Web of Science (SCCI) via Endnoteweb	“impact” AND “track”
Web of Science (SCCI) via Endnoteweb	“impact” AND “track” AND “employment”
Web of Science (SCCI) via Endnoteweb	“impact” AND “track” AND “econom*”
Web of Science (SCCI) via Endnoteweb	“impact” AND “track” AND “property”
Web of Science (SCCI) via Endnoteweb	“impact” AND “arena”
Web of Science (SCCI) via Endnoteweb	“impact” AND “arena” AND “employment”
Web of Science (SCCI) via Endnoteweb	“impact” AND “arena” AND “econom*”
Web of Science (SCCI) via Endnoteweb	“impact” AND “arena” AND “property”
Web of Science (SCCI) via Endnoteweb	“impact” AND “host”
Web of Science (SCCI) via Endnoteweb	“impact” AND “host” AND “employment”
Web of Science (SCCI) via Endnoteweb	“impact” AND “host” AND “econom*”
Web of Science (SCCI) via Endnoteweb	“impact” AND “host” AND “property”
Web of Science (SCCI) via Endnoteweb	“impact” AND “conferenc*”
Web of Science (SCCI) via Endnoteweb	“impact” AND “conferenc*” AND “employment”
Web of Science (SCCI) via Endnoteweb	“impact” AND “conferenc*” AND “econom*”
Web of Science (SCCI) via Endnoteweb	“impact” AND “conferenc*” AND “property”
Web of Science (SCCI) via Endnoteweb	“impact” AND “exhibition”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “exhibition”
Web of Science (SCCI) via Endnoteweb	“impact” AND “expo”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “expo”
Web of Science (SCCI) via Endnoteweb	“impact” AND “business tourism”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “business tourism”
Web of Science (SCCI) via Endnoteweb	“impact” AND “trade fair*”
Web of Science (SCCI) via Endnoteweb	“evaluat*” AND “trade fair*”
Google Scholar	“impact” AND “event*” AND “employment”
Google Scholar	“evaluation” AND “event*” AND “employment”

Source	Search Terms
Google Scholar	“impact” AND “event*” AND “econom*”
Google Scholar	“evaluation” AND “event*” AND “econom*”
Google Scholar	“impact” AND “event*” AND “property”
Google Scholar	“evaluation” AND “event*” AND “property”
Google Scholar	“impact” AND “festival”
Google Scholar	“evaluation” AND “festival”
Google Scholar	“impact” AND “sport*” AND “employment”
Google Scholar	“evaluation” AND “sport*” AND “employment”
Google Scholar	“impact” AND “sport*” AND “econom*”
Google Scholar	“evaluation” AND “sport*” AND “econom*”
Google Scholar	“impact” AND “sport*” AND “property”
Google Scholar	“evaluation” AND “sport*” AND “property”
Google Scholar	“impact” AND “sport*” AND “employment”
Google Scholar	“evaluation” AND “cultur*” AND “employment”
Google Scholar	“impact” AND “cultur*” AND “econom*”
Google Scholar	“evaluation” AND “cultur*” AND “econom*”
Google Scholar	“impact” AND “cultur*” AND “property”
Google Scholar	“evaluation” AND “cultur*” AND “property”
National Audit Office	“impact” AND “event*”
National Audit Office	“evaluation” AND “event*”
National Audit Office	“impact” AND “festival”
National Audit Office	“evaluation” AND “festival”
National Audit Office	“impact” AND “sport*”
National Audit Office	“evaluation” AND “sport*
National Audit Office	“impact” AND “cultur*”
National Audit Office	“evaluation” AND “cultur*”
National Audit Office	“impact” AND “stadium”
National Audit Office	“evaluation” AND “stadium”
National Audit Office	“impact” AND “arena”
National Audit Office	“evaluation” AND “arena”
National Audit Office	“impact” AND “host”

Source	Search Terms
National Audit Office	“evaluation” AND “host”
.gov.uk (via Google Advanced Search)	“impact” AND “event*” AND “employment”
.gov.uk (via Google Advanced Search)	“evaluation” AND “event*” AND “employment”
.gov.uk (via Google Advanced Search)	“impact” AND “event*” AND “econom*”
.gov.uk (via Google Advanced Search)	“evaluation” AND “event*” AND “econom*”
.gov.uk (via Google Advanced Search)	“impact” AND “event*” AND “property”
.gov.uk (via Google Advanced Search)	“evaluation” AND “event*” AND “property”
.gov.uk (via Google Advanced Search)	“impact” AND “festival”
.gov.uk (via Google Advanced Search)	“evaluation” AND “festival”
.gov.uk (via Google Advanced Search)	“impact” AND “sport*”
.gov.uk (via Google Advanced Search)	“impact” AND “sport*” AND “employment”
.gov.uk (via Google Advanced Search)	“impact” AND “sport*” AND “econom*”
.gov.uk (via Google Advanced Search)	“impact” AND “sport*” AND “property”
.gov.uk (via Google Advanced Search)	“evaluation” AND “sport*”
.gov.uk (via Google Advanced Search)	“evaluation” AND “sport*” AND “employment”
.gov.uk (via Google Advanced Search)	“evaluation” AND “sport*” AND “econom*”
.gov.uk (via Google Advanced Search)	“evaluation” AND “sport*” AND “property”
.gov.uk (via Google Advanced Search)	“impact” AND “cultur*” AND “employment”
.gov.uk (via Google Advanced Search)	“evaluation” AND “cultur*” AND “employment”
.gov.uk (via Google Advanced Search)	“impact” AND “cultur*” AND “econom*”
.gov.uk (via Google Advanced Search)	“evaluation” AND “cultur*” AND “econom*”
.gov.uk (via Google Advanced Search)	“impact” AND “cultur*” AND “property”
.gov.uk (via Google Advanced Search)	“evaluation” AND “cultur*” AND “property”
.gov.uk (via Google Advanced Search)	“impact” AND “stadium”
.gov.uk (via Google Advanced Search)	“evaluation” AND “stadium”
.gov.uk (via Google Advanced Search)	“impact” AND “track” AND “employment”
.gov.uk (via Google Advanced Search)	“evaluation” AND “track” AND “employment”
.gov.uk (via Google Advanced Search)	“impact” AND “track” AND “econom*”
.gov.uk (via Google Advanced Search)	“evaluation” AND “track” AND “econom*”
.gov.uk (via Google Advanced Search)	“impact” AND “track” AND “property”
.gov.uk (via Google Advanced Search)	“evaluation” AND “track” AND “property”

Source	Search Terms
.gov.uk (via Google Advanced Search)	“impact” AND “arena”
.gov.uk (via Google Advanced Search)	“evaluation” AND “arena”
.gov.uk (via Google Advanced Search)	“impact” AND “host” AND “employment”
.gov.uk (via Google Advanced Search)	“evaluation” AND “host” AND “employment”
.gov.uk (via Google Advanced Search)	“impact” AND “host” AND “econom*”
.gov.uk (via Google Advanced Search)	“evaluation” AND “host” AND “econom*”
.gov.uk (via Google Advanced Search)	“impact” AND “host” AND “property”
.gov.uk (via Google Advanced Search)	“evaluation” AND “host” AND “property”
IPPR	Visual scan of full publications list
Work Foundation	Visual scan of full publications list
Centre for Cities	“impact” AND “event*”
Centre for Cities	“impact” AND “festival”
Centre for Cities	“impact” AND “sport*”
Centre for Cities	“impact” AND “cultur*”
Centre for Cities	“impact” AND “stadium”
Centre for Cities	“evaluation” AND “stadium”
Centre for Cities	“impact” AND “track”
Centre for Cities	“evaluation” AND “track”
Centre for Cities	“impact” AND “arena”
Centre for Cities	“evaluation” AND “arena”
Centre for Cities	“impact” AND “host”
Centre for Cities	“evaluation” AND “host”
OECD LEED (via Google Advanced Search)	“impact” AND “event*” AND “employment”
OECD LEED (via Google Advanced Search)	“evaluation” AND “event*” AND “employment”
OECD LEED (via Google Advanced Search)	“impact” AND “event*” AND “econom*”
OECD LEED (via Google Advanced Search)	“evaluation” AND “event*” AND “econom*”
OECD LEED (via Google Advanced Search)	“impact” AND “event*” AND “property”
OECD LEED (via Google Advanced Search)	“evaluation” AND “event*” AND “property”
OECD LEED (via Google Advanced Search)	“impact” AND “festival”
OECD LEED (via Google Advanced Search)	“evaluation” AND “festival”
OECD LEED (via Google Advanced Search)	“impact” AND “sport*” AND “employment”

Source	Search Terms
OECD LEED (via Google Advanced Search)	“evaluation” AND “sport*” AND “employment”
OECD LEED (via Google Advanced Search)	“impact” AND “sport*” AND “econom*”
OECD LEED (via Google Advanced Search)	“evaluation” AND “sport*” AND “econom*”
OECD LEED (via Google Advanced Search)	“impact” AND “sport*” AND “property”
OECD LEED (via Google Advanced Search)	“evaluation” AND “sport*” AND “property”
OECD LEED (via Google Advanced Search)	“impact” AND “sport*” AND “employment”
OECD LEED (via Google Advanced Search)	“evaluation” AND “cultur*” AND “employment”
OECD LEED (via Google Advanced Search)	“impact” AND “cultur*” AND “econom*”
OECD LEED (via Google Advanced Search)	“evaluation” AND “cultur*” AND “econom*”
OECD LEED (via Google Advanced Search)	“impact” AND “cultur*” AND “property”
OECD LEED (via Google Advanced Search)	“evaluation” AND “cultur*” AND “property”
OECD LEED (via Google Advanced Search)	“impact” AND “stadium”
OECD LEED (via Google Advanced Search)	“evaluation” AND “stadium”
OECD LEED (via Google Advanced Search)	“impact” AND “track”
OECD LEED (via Google Advanced Search)	“evaluation” AND “track”
OECD LEED (via Google Advanced Search)	“impact” AND “arena”
OECD LEED (via Google Advanced Search)	“evaluation” AND “arena”
OECD LEED (via Google Advanced Search)	“impact” AND “host”
OECD LEED (via Google Advanced Search)	“evaluation” AND “host”
ILO	Visual scan of full publications list
UNESCO(via Google Advanced Search)	“impact” AND “event*”
UNESCO(via Google Advanced Search)	“evaluation” AND “event*”
UNESCO(via Google Advanced Search)	“impact” AND “festival”
UNESCO(via Google Advanced Search)	“evaluation” AND “festival”
UNESCO(via Google Advanced Search)	“impact” AND “sport*”
UNESCO(via Google Advanced Search)	“evaluation” AND “sport*
UNESCO(via Google Advanced Search)	“impact” AND “cultur*”
UNESCO(via Google Advanced Search)	“evaluation” AND “cultur*”
UNESCO(via Google Advanced Search)	“impact” AND “stadium”
UNESCO(via Google Advanced Search)	“evaluation” AND “stadium”
UNESCO(via Google Advanced Search)	“impact” AND “track”

Source	Search Terms
UNESCO(via Google Advanced Search)	“evaluation” AND “track”
UNESCO(via Google Advanced Search)	“impact” AND “arena”
UNESCO(via Google Advanced Search)	“evaluation” AND “arena”
UNESCO(via Google Advanced Search)	“impact” AND “host”
UNESCO(via Google Advanced Search)	“evaluation” AND “host”
Eurofound	Visual scan of full publications list
IZA Discussion Papers	“impact” AND “event*” AND “employment”
IZA Discussion Papers	“evaluation” AND “event*” AND “employment”
IZA Discussion Papers	“impact” AND “event*” AND “econom*”
IZA Discussion Papers	“evaluation” AND “event*” AND “econom*”
IZA Discussion Papers	“impact” AND “event*” AND “property”
IZA Discussion Papers	“evaluation” AND “event*” AND “property”
IZA Discussion Papers	“impact” AND “festival”
IZA Discussion Papers	“evaluation” AND “festival”
IZA Discussion Papers	“impact” AND “sport*”
IZA Discussion Papers	“evaluation” AND “sport*”
IZA Discussion Papers	“impact” AND “cultur*” AND “employment”
IZA Discussion Papers	“evaluation” AND “cultur*” AND “employment”
IZA Discussion Papers	“impact” AND “cultur*” AND “econom*”
IZA Discussion Papers	“evaluation” AND “cultur*” AND “econom*”
IZA Discussion Papers	“impact” AND “cultur*” AND “property”
IZA Discussion Papers	“evaluation” AND “cultur*” AND “property”
IZA Discussion Papers	“impact” AND “stadium”
IZA Discussion Papers	“evaluation” AND “stadium”
IZA Discussion Papers	“impact” AND “track” AND “employment”
IZA Discussion Papers	“evaluation” AND “track” AND “employment”
IZA Discussion Papers	“impact” AND “track” AND “econom*”
IZA Discussion Papers	“evaluation” AND “track” AND “econom*”
IZA Discussion Papers	“impact” AND “track” AND “property”
IZA Discussion Papers	“evaluation” AND “track” AND “property”
IZA Discussion Papers	“impact” AND “arena”

Source	Search Terms
IZA Discussion Papers	“evaluation” AND “arena”
IZA Discussion Papers	“impact” AND “host” AND “employment”
IZA Discussion Papers	“evaluation” AND “host” AND “employment”
IZA Discussion Papers	“impact” AND “host” AND “econom*”
IZA Discussion Papers	“evaluation” AND “host” AND “econom*”
IZA Discussion Papers	“impact” AND “host” AND “property”
IZA Discussion Papers	“evaluation” AND “host” AND “property”
CEPR Discussion Papers	“impact” AND “event*” AND “employment”
CEPR Discussion Papers	“evaluation” AND “event*” AND “employment”
CEPR Discussion Papers	“impact” AND “event*” AND “econom*”
CEPR Discussion Papers	“evaluation” AND “event*” AND “econom*”
CEPR Discussion Papers	“impact” AND “event” AND “property”
CEPR Discussion Papers	“evaluation” AND “event*” AND “property”
CEPR Discussion Papers	“impact” AND “festival” AND “employment”
CEPR Discussion Papers	“evaluation” AND “festival” AND “employment”
CEPR Discussion Papers	“impact” AND “festival” AND “econom*”
CEPR Discussion Papers	“evaluation” AND “festival” AND “econom*”
CEPR Discussion Papers	“impact” AND “festival” AND “property”
CEPR Discussion Papers	“evaluation” AND “festival” AND “property”
CEPR Discussion Papers	“impact” AND “sport*”
CEPR Discussion Papers	“evaluation” AND “sport*”
NBER	“impact” AND “event”
NBER	“impact” AND “event” AND “employment”
NBER	“impact” AND “event” AND “econom*”
NBER	“impact” AND “event” AND “property”
NBER	“impact” AND “festival”
NBER	“impact” AND “sport*”
NBER	“impact” AND “cultur*”
NBER	“impact” AND “cultur*” AND “employment”
NBER	“impact” AND “cultur*” AND “econom*”
NBER	“impact” AND “cultur*” AND “property”

Source	Search Terms
NBER	“impact” AND “stadium”
NBER	“impact” AND “arena”
NBER	“impact” AND “track”
NBER	“impact” AND “track” AND “employment”
NBER	“impact” AND “track” AND “econom*”
NBER	“impact” AND “track” AND “property”
NBER	“impact” AND “host”
NBER	“evaluat*” AND “event”
NBER	“evaluat*” AND “festival”
NBER	“evaluat*” AND “sport”
NBER	“evaluat*” AND “cultur*”
NBER	“evaluat*” AND “cultur*” AND “employment”
NBER	“evaluat*” AND “cultur*” AND “econom*”
NBER	“evaluat*” AND “cultur*” AND “property”
NBER	“evaluat*” AND “stadium”
NBER	“evaluat*” AND “arena”
NBER	“evaluat*” AND “track”
NBER	“evaluat*” AND “track” AND “employment”
NBER	“evaluat*” AND “track” AND “econom*”
NBER	“evaluat*” AND “track” AND “property”
NBER	“evaluat*” AND “host”
NBER	“impact” AND “conferenc*”
NBER	“evaluat*” AND “conferenc*”
SERC	Visual scan of full publications list
RDA websites (archived)	Visual scan of full publications list

Appendix C: Case Studies

Study 311: Matching; SMS level 3

This 2014 study by Gabriel Ahlfeldt and Georgios Kavetsos (study 311) examines the effect on property prices of two new football stadia in London: The New Wembley Stadium and the Emirates Stadium. In both cases the stadia were replacements for older facilities helping to separate effects of 'form' from effects of 'function'. The authors test whether the new and improved architectural quality provides benefits that improve the desirability of the neighbourhood and therefore property prices.

In general, the sites for football stadia are not chosen randomly. The choice of neighbourhood is often a result of history and institutional decision-making. This makes it harder to evaluate their effects, because there are a variety of potential reasons for different property prices closer to a stadium compared with further away. For example, the stadium may be centrally located and prices in that central area may be high for other reasons (such as good rail access, high level of consumption amenities, proximity to workplaces) rather than anything to do with the stadium itself.

In order to deal with this problem the authors use a difference-in-difference approach. Distance rings up to 5km are drawn around the two stadia (e.g. 0-1km, 1-2km, 3-4km and 4-5km) and properties in the outermost ring serve as the control group. Properties in the inner rings are separate treatment groups. The control properties are chosen to be as close as possible to the treated properties – but without being treated themselves – so that they are as similar as possible. The authors then look at the change in property prices inside each inner ring, and compare to the change in the outer ring. Furthermore, they use a large set of control variables to account for differences in property and location characteristics between the treatment and control groups. This method controls well for observable differences between the treatment and control group. However, there likely remain some unobservable differences, despite the close proximity of the two groups. Therefore we score it a '3' on the Maryland Scientific Method Scale.

To implement this approach, the authors used a dataset of property prices from Nationwide Building Society. This dataset contains the address, price and property characteristics for 5,263 properties within 5km of Wembley and a further 9,933 within 5km of Emirates. Importantly, they observe transactions in both the pre- and post-construction periods for both stadia. They were also able to replicate their results using an alternative dataset of Land Registry property transactions.

This evaluation finds significant increases in property prices surrounding both new stadia compared with the control groups. In both cases, this effect decreases with distance to the new stadia but for New Wembley the decline is more gradual. The authors suggest the wider effect for New Wembley is a result of an architectural feature – the arch that stretches about 130m high. They calculate the total increases in property prices (£1.91bn) to be larger than the construction costs (£1.4bn). For Emirates, where the stadium was relocated by around 500m, they found an increase in property prices where distance to the stadium was reduced. Property prices increased around Emirates but decreased around the old Arsenal stadium leading to a net negative effect on the neighbourhood.

What do these results mean for policymakers? These results point to the existence of large positive stadium effects on nearby properties. This suggests that stadia, particularly when of high architectural quality, may be able to contribute to physical neighbourhood regeneration. In this case, it might be socially beneficial to invest public funds to ensure a high quality of stadium design. However, the distributional consequences of such investment would be complex. The benefits will typically

accrue to homeowners, who experience a gain in property value, rather than renters, who will likely experience higher rents and may be displaced. Further, it may be that the neighbourhoods surrounding the new stadia are made more attractive at the expense of the desirability of other neighbourhoods elsewhere, which then suffer. Finally, whilst the empirical method is fairly robust, there may be unobservable factors driving these results. If so, the true effects could be much smaller.

Study 321: Matching; SMS level 3

In this 2013 study, Arne Feddersen and Wolfgang Maennig evaluate the employment impacts of the 1996 Summer Olympics in Atlanta, Georgia. The event was expected to generate significant 'legacy' impacts, particularly employment gains. Such a jobs boost might come directly (via spending on the events and Games infrastructure, or through visitor spending), or indirectly (through job training provided to local workers and unemployed people). Conversely, we might expect Olympic-related expenditure to divert spending away from other job-creating activities; some potential visitors might stay away from the Games, and some locals might leave town.

Identifying the employment effects of a mega-event like this is not easy. First, the winning city is not randomly or transparently selected. Second, the scale and timing of 'Games effects' aren't straightforward to identify. Together, these factors make it hard to model the 'treatment', and to identify decent comparison groups. Unobservable individual, neighbourhood or city-level characteristics might also drive employment shifts, rather than any Games effect. And researchers need to control for long term local growth trends.

To deal with these issues, the authors compare changes in employment outcomes in treatment and 'quasi-control' areas (a 'difference in difference' approach). 'Treatment' areas are counties containing Olympic venues, or those immediately around those counties. 'Control' areas elsewhere in Georgia and outside the state are identified using matching.

Employment had been rising across Georgia since 1985, over a decade before the Games took place. This underlying trend also varied between treatment and control areas, both pre- and post-1996. To handle this, Feddersen and Maennig use a 'trend shift regression' that captures changes in employment growth in Olympic versus non-Olympic counties, as well as controlling for underlying long run trends. They also extend their model to test different treatment zones (37 counties or 10 key Olympic sites); allow effects to vary across space (over 80% of the Games took place in Atlanta itself, so impacts should be largest there); and allow for employment spillovers across county boundaries.

This methodology handles many of the challenges identified above, but is not perfect. Randomisation is not an option, and the IOC's selection decision is not observable. Even though area and time fixed effects control for unobservable factors at the aggregate level, individual resident characteristics will vary within areas, and may help explain employment outcomes. We therefore score this study '3' on the Scientific Maryland Scale.

The analysis is run with quarterly employment data from 1985 to 2000. An earlier study by Hotchkiss et al (study 328) found a 17% employment gain in Olympic counties. Using the same data, and controlling for underlying trends, Feddersen and Maennig find no significant effects of the Games on county employment growth. Rather, the Olympic counties were already experiencing strong employment growth, to which the Games added very little. Allowing the Olympic effect to start from 1994, they find a positive weakly significant effect, adding up to a 1% boost to jobs growth in Olympic counties. They also find a weak 'rebound' effect in Olympic counties between 1995 and 1996.

However, the likely range of these results includes zero. So overall, there is very little evidence for an Olympic jobs boost.

What can we learn from these results? Today's Olympic Games almost always highlight a 'legacy', which typically includes positive employment effects. However this study implies ex-post evaluations of British mega-events like London 2012 and Glasgow 2014 may find similarly small employment impacts. It also suggests that smaller sporting events and festivals – which typically don't involve new infrastructure – will not create net job gains. That does not mean we shouldn't run or fund such events, of course – simply that the main benefits are unlikely to be economic.

Study 324: Matching; SMS level 3

This 2013 study by Lasse Steiner, Bruno Frey and Simone Hotz (paper 324) looks at the effect of a major cultural event, the European Capital of Culture, on urban & regional GDP and residents' life satisfaction. Between 1990 and 2009, 29 European cities were chosen to be European Capital of Culture (ECOC) for a given year. The host cities were given a budget for both cultural projects and infrastructure improvements – with investments being mostly (77.5%) generated from the public sector. Projects vary in type and scale but the best represented sectors are theatre, visual arts, music, street parades, open-air events, heritage/history and architecture. There are an average of 500 events in the award year.

The fact that ECOC cities are selected by the EU's Council of Culture Ministers makes the event harder to evaluate. The selected cities are likely to have different characteristics to non-selected cities. For example, the ministers of culture may choose cities that are struggling or (alternatively) 'on the up', and any differences in outcome may be due to these conditions rather than the ECOC status and related investment. Furthermore, the individuals who live in the regions that are selected may have fundamentally different levels of life satisfaction or at least different tendencies in reports of life satisfaction.

In order to deal with this problem the authors use a difference-in-difference approach to estimate the effect on quality of life and GDP. Individuals in regions that have ECOC status in a particular year form the treatment group. The control group is formed of individuals in all other European regions that are not ECOC. The authors look at how much higher quality of life is in ECOC regions in the year that they were ECOC, compared with the control group in the same year. Importantly, a variety of control variables are used to account for regional and individual differences that may affect outcome variables in a particular year. The control variables for satisfaction were personal characteristics such as age, income, and so on, as well as regional economic growth. The controls for regional growth were macroeconomic factors such as population density, sectoral shares and human capital, represented by education. This method does a fairly good job controlling for observable differences between individuals across ECOC and non-ECOC regions/cities but is not able to deal with unobservable differences. Therefore we award it a '3' on the Maryland Scientific Methods Scale.

In order to implement this approach the authors make use of 'The Mannheim Eurobarometer Trend File 1970-2002', which is a longitudinal dataset of individuals in 18 Europeans nations (i.e. it follows the same people over time). The dataset includes self-reported life satisfaction, the dependent variable, which is rated on a 4-point scale from 'not at all satisfied' to 'very satisfied'. Individual-specific factors are also available such as employment situation, income, gender, etc. This dataset is combined with regional GDP per capita based on data from BAK Basel.

The results for GDP show no effect of ECOC status on GDP in either the run-up to the event, during the event or after the event. The results for life satisfaction indicate a negative effect for individuals in regions hosting the ECOC during the year of the event. The effect is 0.09 points lower on the 4-point scale, which the authors suggest is considerable. There is no significant effect on life satisfaction in the year prior to the event. After the event is over, life satisfaction returns to pre-ECOC levels. Unemployed people suffer the greatest drops in satisfaction during the event – being unemployed roughly doubles the negative impact on life satisfaction.

What do these results means for policymakers? If taken at face value, there are no GDP effects related to the ECOC and the wellbeing impact is actually negative. Therefore, the number of reasons why a region would want to host such an event is greatly diminished. However, since the control group in this evaluation is made up of all other European regions (rather than only similar regions), it is likely that there remain significant unobserved differences between ECOC and non-ECOC regions that could be responsible for lower quality of life during the event year, despite the large number of control variables. Furthermore, self-reported quality of life is a complex outcome variable to truly understand – hence policy recommendation based evidence of this type should always remain cautious.

Study 327: Matching; SMS level 3

In this 2013 paper (study 327), Douglas Noonan looks at the effect of cultural districts on employment, income and property prices in US neighbourhoods. Cultural districts are formally designated zones within a city: sometimes simply branded as an 'arts zone', sometimes with accompanying tax breaks or incentives for artists to move in. Some districts already have a cluster of cultural amenities and institutions (e.g. museums, arts workshops and studios) as well as complementary amenities (e.g. restaurants, cafes). Here, zoning is designed to maintain organic growth. In a few cases, local policymakers use designation to attract cultural players – such as artists, musicians, galleries or studios – into a neighbourhood with no arts presence. Cities often use cultural districts as part of a place-making strategy, and specifically to 'revitalise' the neighbourhood in question (in the US, the number of cultural districts rose from 40 to 127 between 1995 and 2008).

How do we assess the economic effects of cultural districts? Districts are most likely chosen for growth potential (or need for regeneration). So a city might pick a location where employment is already rising, which makes isolating any additional cultural district effect difficult. Some of these growth or decline factors may be unobservable. Alternatively, wider (city or national) conditions may influence outcomes – if the urban economy is growing, District outcomes are likely to improve whether or not zoning is in place. It is also not straightforward to identify the spatial scale of impact, or model its intensity across a treatment area – we can imagine property market effects might be biggest in the streets directly around a new museum or arts space.

Noonan gathers information on 99 cultural districts across the US, and combines this with city and neighbourhood-level data from the 1980, 1990 and 2000 Census. Neighbourhoods are defined by 'block groups', small areas with an average population of about 4,000.

Noonan then runs a 'difference in difference' analysis on a range of neighbourhood-level economic outcomes. Specifically, he compares changes in outcome between 1990 and 2000 for neighbourhoods with cultural districts, neighbourhoods immediately adjacent and neighbourhoods in the rest of the county (the latter used as a control group). To deal with underlying differences between areas, he also includes a county-level time trend (that captures the fact that counties may exhibit long run differences in growth rates), and a set of 1980 neighbourhood outcomes as controls.

This approach deals with some of the challenges above, but leaves others unsolved. There is no formal testing of whether control areas truly provide a good comparison group, and the evaluations do not control for some neighbourhood-level observable factors (such as supply of workspace) or unobservable factors (such as the quality or energy of local arts scenes). Spillovers from cultural districts might not be limited to adjacent areas – the other treatment group – and there may be some variance in effects within the designated zone. For these reasons we score this study '3' on the Scientific Maryland Scale.

Noonan finds multiple positive effects of cultural districts: growth in property values is 9.3% higher in district neighbourhoods than the rest of the county; income growth is 5.4% higher and employment growth is 4.4% higher. Poverty declines by 2.3% more in zoned neighbourhoods, but commuting times do not change; there also is some evidence of more skilled residents moving in, and increased population turnover. Taken together, this implies that residents are likely working outside the neighbourhood (so additional jobs may not go to locals), and there is some displacement of existing residents (likely connected to rising property prices). There is generally little difference in impacts within cultural districts and in adjacent areas.

This analysis raises important questions about who benefits (economically) from cultural districts and similar initiatives. If part of an economic growth strategy to help residents into work, the wage and employment effects are positive but pretty small (and may not accrue to existing residents). By contrast, property owners (whether residents or businesses) experience much larger gains. Local conditions will vary in UK cities compared to US cities, so some caution is needed in applying these results to Britain. The surest way to test the findings is to replicate the study. Some improvements could be made: for example, running a competition for cultural district designation, then using 'losers' as a control group, or comparing outcome shifts in active districts against areas where districts were planned but not enacted.

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