Economic analysis of options to increase the regional impact of Channel 4 Corporation

A report for DCMS

Prepared by Oliver & Ohlbaum Associates Ltd and Europe Economics

October 2017

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1 Executive summary

1.1 About this report

The creative industries, of which broadcasting is a major element, play a central role in the UK's diverse economic and cultural life. The public service television broadcasters (PSBs) have a range of obligations intended to ensure that they reflect the UK's nations and regions in their programming. Off-screen, regional offices and production locations help to spread the creative sector's economic benefits around the country. Yet growth in the broadcasting and production sectors has not been evenly distributed in recent years. London and the South East - where more than two thirds of producers are presently based – have benefited more than elsewhere in the UK.

The government is considering how Channel 4 Corporation (C4C) can most effectively fulfil three objectives: contribute to regional economic growth; stimulate regional creative industries; and better serve regional audiences. The 2017 Conservative Party election manifesto included a commitment to relocate Channel 4 outside London, as part of a broader drive to ensure the UK's major cultural institutions build their presence across the UK.

The Department for Digital, Culture, Media & Sport (DCMS) commissioned Oliver & Ohlbaum and Europe Economics to analyse the potential regional economic benefits and costs of two policy options under consideration in its 2017 consultation on C4C's regional economic impact:

- Relocation of some or all of C4C outside London, potentially including moving its headquarters
- Increasing Channel 4's broadcast hours of, and spend on, programmes made outside London

This report contains our findings.

1.2 Our scope and approach

The primary purpose of this project is to assess the expected economic impact of the proposed policy options, both for regions outside London and for the UK as a whole.

We have conducted both quantitative and qualitative analysis. The quantitative analysis models the economic impact of the chosen policy options under specified assumptions, using standard economic valuation techniques (although we have made some modifications to these to reflect C4C's particular business model and strategy). We have modelled multiple sets of assumptions and combinations of policy options, to illustrate the range of possible outcomes. Modelling includes the direct impact of the policy options (arising from increased C4C output in the target regions); indirect benefit (arising from knock-on effects on C4C suppliers); and induced effects (arising from increased expenditure by C4C staff and supplier staff). This analysis is supplemented by qualitative discussion of the deliverability of the identified benefits; this includes considerations which bear on the government's other objectives (to stimulate regional creative industries and to better serve regional audiences), and we have drawn out these implications where relevant.

It is not part of our scope to assess the costs, benefits or risks of the options to C4C itself; these issues are being considered separately by DCMS with the input of Channel 4. Nevertheless, to the extent that the options may support or constrain C4C's future growth, this will affect the deliverability of the modelled benefits. We have therefore commented on such potential effects on C4C's commercial performance in our qualitative analysis.

1.3 The unique nature of Channel 4

Since it was established in 1982, Channel 4 has played an important role in the evolution of the UK's broadcasting sector. It was the third national public service channel, publicly owned but commercially funded. Its particular remit includes being innovative and distinctive, reflecting cultural diversity, championing alternative perspectives and appealing to the tastes of younger audience. As of the 1990 Broadcasting Act, Channel 4 has been operated by the Channel 4 Corporation.

C4C is a self-financing, publicly owned corporation; it receives no direct public funding, although like other public service broadcasters it receives indirect support from the state in the form of reserved access to digital broadcasting spectrum and prominence on electronic programme guides.

C4C differs from the UK's other leading broadcasters in two ways relevant to our analysis: firstly, it has no in-house production capability, and indeed is prevented from being involved in production of programmes for its main channel. This tends to reduce its economic impact in the region in which it is located, because its content spend is distributed to external producers around the UK, rather than creating local in-house production jobs.

Secondly, its recent strategy has been to prioritise investment in original content in order to fulfil its public service remit, rather than to make profits.[1] From an economic perspective, this has the effect of redistributing a proportion of profits to content producers, rather than retaining or reinvesting them in the business. This also tends to reduce its economic impact in its region of location, relative to a profit-maximising firm of similar scale, but increase its impact elsewhere.

1.4 Channel 4's activity in the nations and regions

Unlike the BBC and ITV, Channel 4 has no obligation to provide dedicated programmes for the UK's nations and regions. But, like them, it does have quotas for the proportion of its programming that must be made outside London. Currently Ofcom requires that at least 35% of transmitted hours on its main public service channel (excluding news) must comprise first-run programmes produced outside the M25, which must also account for at least 35% of programme expenditure. Of this, 3% of main channel output (by hours and spend) must be first-run programmes made in the devolved nations (due to rise to 9% by 2020).[2] In recent years it has consistently over-achieved against these quotas.

Because C4C is not permitted to be directly involved in the making of programmes to be broadcast on Channel 4, it is if anything more dependent than other broadcasters on production companies outside London in order to deliver its quota. We estimate that Channel 4 represented at least a third of all spend by PSBs on out-of-London (OOL) external commissions in 2016.

C4C's main headquarters are in London, at its wholly-owned Horseferry Road site. The vast majority of its 814 staff (average for 2016) are based there. It has two small regional bases in Manchester (regional advertising sales) and Glasgow (Nations and Regions team, including commissioners, and the All 4 Games team; the implications of the planned spinoff of All 4 Games for this office is unclear, at the time of writing).

1.5 Policy context

There have been several initiatives since the early 2000s to increase the provision of network programming from the UK's nations and regions, and to boost the regional broadcasting and production sectors.

With respect to programming, quotas for OOL production have been increased for all the three main PSBs. Ofcom increased the quotas for first-run OOL programming on ITV1 from 33% of hours, and 40% of spend, to 50% of both following its first statutory review of public service broadcasting in 2004-5. These were subsequently revised back down to 35% from 2009. The same quotas on Channel 4's main public service channel were increased from 30% to 35%, both hours and spend, from 2012, when its nations quotas were also introduced; Channel 4 is unique amongst the commercial PSBs in having a specific quota for first-run programmes made in the nations. And the BBC Trust set a target for the BBC to increase its OOL production to 50% of network spend by 2017, including 17% in the UK's devolved nations; Ofcom has proposed to broadly take forward these targets under the new governance arrangements introduced by the BBC's 2017 Royal Charter.

With respect to regional creative industrial strategy, the most significant change in recent years has been the BBC's partial relocation to MediaCityUK, in Salford. By 2015, more than half the BBC's staff were based outside London; a report by KPMG for the BBC Trust concluded that this had delivered 'material growth' in

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[1] Channel 4, Creative Greenhouse 2016
[2] Ofcom, Channel 4 licence: Attachment to variation no. 18

the BBC's economic impact outside London and the South East, contributing £277m of Gross Value Added (GVA) in 2014/15, and creating 3,778 jobs in the North West. KPMG also identified agglomeration and network effects, with the BBC's presence attracting other media organisations and helping to establish MediaCityUK as a hub for firms with creative and digital capabilities.

1.6 Assessment of economic impact of relocation of C4C (Option 1)

We modelled three hypothetical relocation scenarios, designed to illustrate the range of outcomes that would arise from relocating different numbers of C4C staff:

- full relocation of the entire C4C operation;
- partial relocation (in which the Advertising Sales function remains in London while the rest of the operation relocates); and
- limited relocation (in which Advertising Sales, Commissioning and teams with strong connections to London remain, while operational and technical functions relocate).

We modelled the impact of these scenarios in four illustrative regions, representing the range of plausible destinations for C4C: one with high existing TV activity and high unemployment; one with low TV activity, but high general media activity, and low unemployment; one with high general media activity and high unemployment; and one with low TV and general media activity, and high unemployment.

Our modelling found that full relocation, based on 2016 C4C profits and staff costs, delivers an economic benefit of around £235m Gross Value Added (GVA) to the target region, including direct, indirect and induced impacts. The total modelled regional employment impact (direct, indirect and induced) is around 3,400 jobs. Across the modelled regions, with varying degrees of TV/media activity and unemployment levels, there is relatively little variation in impact in absolute terms.

Partial relocation delivers smaller benefits, of around £170m GVA and up to 2,500 jobs.

Limited relocation delivers the least GVA benefit, of around £95m, and an employment benefit of around 1,400 jobs.

Relocation makes a somewhat bigger proportionate difference to regions with relatively smaller GDP. For example, to a region with GDP of £65-70bn, full relocation with a GVA impact of around £235m represents a 0.35% boost to regional GDP. A smaller region, of around £30bn, receives a 0.8% boost. While it is not possible to quantify potential agglomeration and network effects, we assess these would be greater, and execution risk lower, in regions with an established media sector; the potential for C4C to be the driving force behind a completely new creative cluster is constrained by its lack of in-house production capacity and relatively small creative workforce.

Taking into account the adverse effects on London of C4C's relocation, all modelled scenarios find positive but small net benefits to the UK economy as a whole. The modelled net GVA benefit to the UK of full relocation, taking into account these adverse effects, is around £8-11m, and 140-200 jobs, depending on the particular region to which C4C relocates. The modelled net impact of partial relocation is around £5-8m and 90-135 jobs, while limited relocation delivers net benefits to the UK of £3-4m and 50-75 jobs. These estimates are sensitive to C4C's financial performance and number of employees – were these to decline, so would the economic benefits of relocation.

Median wages in most job categories relevant to C4C are lower outside London. Consequently, C4C might expect staff costs to fall over time, following relocation (both as a result of replacing staff who choose not to relocate at lower cost, and in lower wage inflation). This will reduce the benefit of relocation to the host region in the medium- to long-term, but increase benefits to other regions, on the assumption that C4C would reinvest any savings into commissioned content, in line with its current stated strategy.

To illustrate this effect, we modelled a scenario in which staff costs fall by 20% following relocation. This assumption was based on C4C/Deloitte analysis provided by DCMS, and validated using regional wage data from ONS. We assume savings are reinvested in content commissioned around the country in line with C4C's prevailing regional distribution of spend. In this scenario, the aggregate benefit across all beneficiary regions (£238-240m for full relocation) is marginally greater than the benefit to the target region in scenarios which do not take into account the long-term impact on wage levels. The adverse effects of relocation on London are also slightly lower in this scenario, because some of the increased content spend arising from savings in staff costs flows to London-based producers. Consequently the modelled net GVA benefit to the UK of this scenario is around £60m.

Other factors that could affect the modelled benefits include the potential for a downturn in TV advertising, changes in Channel 4 viewing share, and any potential cost increases or productivity impacts arising from relocation. The individual impact of any one of these factors on the regional economic benefit of relocation may be expected to be relatively small. Different factors may reinforce or counteract each other; if for example relocation, decline in TV advertising and greater competition for TV audiences were to happen simultaneously, this would pose a significant commercial and operational challenge. Should this have an adverse effect on C4C's performance, resulting in staff cuts, this would reduce the net benefit of relocation, or make it negative. Conversely, should C4C staff levels increase over time, this would increase the economic benefit of relocation.

A summary of the modelling results for Option 1 are shown in Figure 1.1.

Figure 1.1: Modelled economic impact of C4C 'full' and 'partial' relocation scenarios in terms of GVA (*left*) and jobs (*right*)

Note: The impact of relocation represents the average impact across the regions that have been modelled. Numbers may not add up correctly due to rounding.

1.7 Assessment of economic impact of increased out-of-London programming spend by Channel 4 (Option 2)

We modelled two variants of increased OOL spend: an £88m increase (representing a shift out of London of 20% of total spend on original programmes on the main public service channel); and a £44m increase (10% of original programme spend).

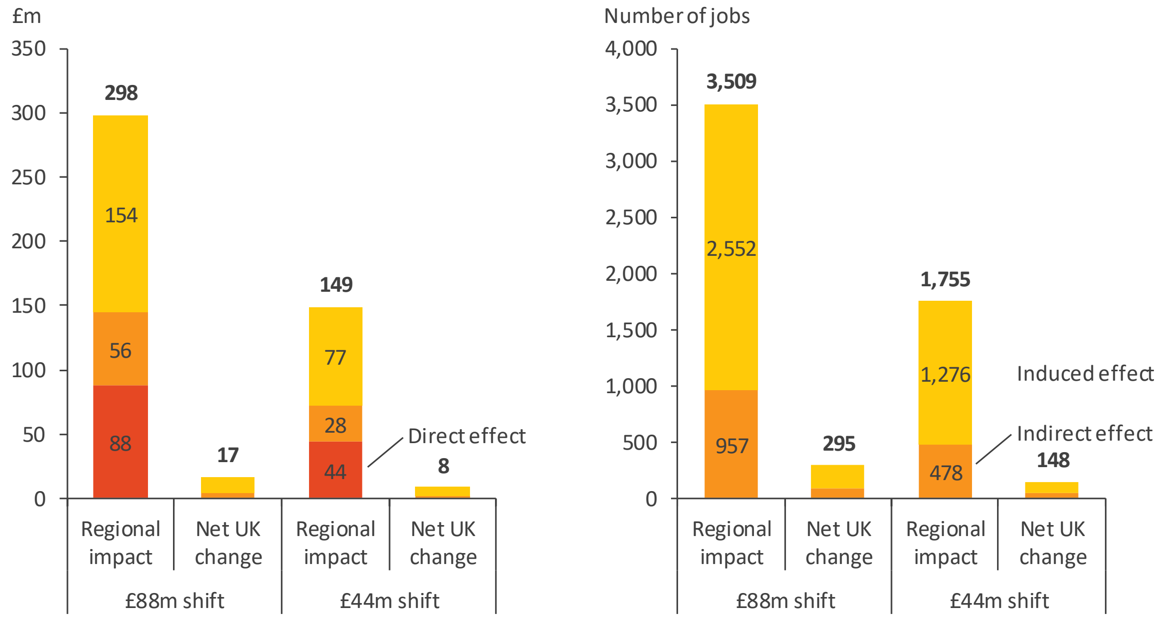
These options deliver less targeted regional benefit, but a potentially greater aggregate impact across a range of regions. Our modelling finds an £88m increase in OOL spend achieves a total GVA benefit (direct, indirect and induced) of £298m across all beneficiary regions, and an employment benefit of a little over 3,500 jobs. A modelled £44m increase delivers a GVA benefit of around £149m and an employment impact of just over 1,750 jobs. Furthermore, the net economic benefits to the UK of these options are slightly greater than those of the relocation scenarios; a £88m shift generates a modelled net GVA benefit of £17m and net employment benefit of 295 jobs, while a £44m shift results in a modelled net benefit of £8m and 148 jobs.

Spend would likely be concentrated in existing regional creative industry clusters, helping boost agglomeration and network effects in those areas, and further encouraging the growth of production outside London, albeit not encouraging the dispersal of production activity between the regions. It is beyond the scope of this report to assess the feasibility of Channel 4 making such significant increases in its OOL spend, but we note the possibility that doing so could have impacts on its commercial performance. These changes represent significant shifts in commissioning activity which are not easy to make quickly and may require Channel 4 to commission programmes it otherwise would not. If this were to impact C4C's revenue and require it to reduce staff costs, this would tend to reduce both the regional benefit of this option and its net benefit to the UK. These risks could be partly mitigated by phasing in increased quota requirements over a number of years.

Some shift in production outside London may come naturally as a result of relocation; new supplier relationships and new commissioning staff may reduce dependency on London and the South East. However, we note that C4C's publisher-broadcaster model means that this link is not as direct as it would be for other broadcasters with in-house production, and that its commissioning incentives are not immediately affected by relocation.

A summary of the modelling results for Option 2 are shown in Figure 1.2.

Figure 1.2: Modelled economic impact of large and moderate out-of-London shifts in Channel 4 programming spend in terms of GVA (*left*) and jobs (*right*)



Note: The impact of increased OOL spend is the impact of a shift in spend distributed across all regions outside London. Numbers may not add up correctly due to rounding.

1.8 Assessment of combining multiple policy options

Finally, we modelled combinations of these policy options to assess the relative importance of, and interplay between, relocation and OOL spend. For example, one possibility is that relocation combined with measures to increase C4C's OOL spend would incentivise C4C to commission more in, and attract more potential content suppliers to, the new host region than either option would if considered on a standalone basis. We term this hypothetical possibility a 'location boost'. We also considered the potential medium-long term effect of 20% wage reductions; we assume that savings arising from these reductions are reinvested in content, commissioned both outside and inside London in line with C4C's prevailing regional distribution of spend.

The biggest impact modelled – requiring full relocation of C4C, an £88m shift in spend outside London, a further £12m location boost to commissioning in the target region, and 20% staff cost reduction – results in a total economic benefit to all regions outside London of around £580m. The employment impact outside London is 7,490 jobs. Again, it is not in our scope to assess the potential for C4C to successfully implement these changes, but any negative impacts on its business performance may reduce the realised economic benefits.

Taking into account the adverse effects on London of these initiatives (partly offset by the benefit to London of a share of increased commissioning spend), the modelled net impact on the UK is positive – a GVA uplift of £77m, and a net employment impact of 1,050 jobs.

Both the regional benefits, and the net impact on the UK, would be smaller (but still positive) for all other combinations of options.

1.9 Conclusions

Our analysis shows that both policy options would deliver regional economic benefits and a small positive net impact on the UK as a whole, assuming no significant change to C4C’s commercial performance.

Relocation of C4C delivers a more concentrated benefit, to one particular region; the absolute size of the economic impact does not vary significantly across the modelled regions.

Increased OOL spending delivers a more dispersed benefit across a range of regions, although if a large shift in spend were achieved this could deliver a greater aggregate benefit than relocation.

Inevitably, the benefits would be greatest if both changes were made, and even greater if C4C were able to reduce staff costs and reinvest savings in commissioned content. Set against this must be the increased risk to C4C’s ongoing commercial performance of having to make multiple significant changes to its business and operating model at a time of ongoing uncertainty in the wider media market; any cuts in staffing arising from reduced profitability would reduce these benefits.

2. About this report

2 About this report

2.1 Context

The creative sectors play an important role in the UK's regional economies and cultural life. Yet growth in the broadcasting and production sector has not been evenly distributed in recent years, with London and the South East – where more than two thirds of producers are presently based – seeing more of the benefits than the rest of the UK. The government has indicated that it wishes to see broadcasting, in particular, do more to support the regional objectives described in its Plan for Britain[3] and the Industrial Strategy Green Paper.[4]

This report is about the costs and benefits, with respect to the government's regional objectives, of options to increase Channel 4 Corporation's regional impact. Channel 4 has a unique status in UK broadcasting. Publicly owned but commercially funded, it was established in 1982 with a remit to provide an 'alternative voice' in the broadcasting landscape, including delivering programming that appealed to tastes and interests not generally catered for by ITV, programming that had an educational nature and programming that encouraged innovation and experimentation. Furthermore, its creation was intended to support the development of the UK TV production sector, which until then had been dominated by the BBC and ITV. With no in-house production capability, it is the UK's leading publisher-broadcaster, investing substantially more in original UK non-sport content than any other broadcaster excepting the BBC and ITV.

Although its headquarters have always been in London, Channel 4 plays a significant role in supporting producers around the UK. In 2016, 40% of its spend on programmes for the main public service channel related to first-run programmes produced outside London, which represented 55% of its transmitted hours.[5] It out-performed its Ofcom-set quota for OOL first-run programmes (35% of transmitted hours and programme spend), as it has consistently in recent years.[6] Channel 4 also has two small offices in Manchester and Glasgow, housing a regional advertising sales team and a dedicated Nations and Regions commissioning team respectively, in addition to a range of minority investments in small- and medium-sized production companies based across the UK.

Looking ahead, the government is considering how Channel 4 can most effectively contribute to regional economic growth, stimulate regional creative industries, and better serve regional audiences. It launched a consultation in April 2017 to solicit views on three specific questions ('the Options'):

- to what extent Channel 4 should be based outside London, potentially including moving its headquarters ('Option 1');
- whether more programmes shown on Channel 4 should be made outside London ('Option 2'); and
- whether Channel 4 should be able to make larger investments in production companies to support the development of emerging talent, including that from the regions, and help bolster Channel 4's future financial position ('Option 3').

Alongside this consultation, the government undertook to carry out external analysis to look at the potential regional economic benefits and costs resulting from the Options. DCMS subsequently commissioned Oliver & Ohlbaum and Europe Economics to fulfil this need. This report describes our findings.

2.2 Objectives

DCMS specified that our report address issues including:

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[3] Prime Minister Theresa May, 'The government's negotiating objectives for exiting the EU', speech at Lancaster House, 17 January 2017
[4] Building Our Industrial Strategy, January 2017
[5] Ofcom, PSB Annual Compliance Report 2017
[6] Ibid.

(a) Identifying appropriate quantitative and qualitative methodologies and criteria for assessing the regional, and wider national economic benefits and costs resulting from the Options;
(b) Identifying the different types of benefits and costs resulting from the Options, and the different types of region to which C4C could relocate (in whole or in part);
(c) Based on (a) and (b), a quantitative analysis (supported by selected qualitative analysis) presenting the impact of C4C being based outside of London (in whole or in part), potentially including relocating its headquarters, and of other Options being considered in the Consultation, both on a standalone basis and in combination with other Options
(d) A preliminary view on the deliverability of the potential regional economic benefits and costs of different Options including identification of any likely barriers to their delivery.

Following discussion with DCMS, it was agreed that the scope should not include Option 3, i.e. empowering C4C to make larger investments in production companies, on a standalone basis, since the economic impact of such a change would depend on where C4C chose to make such investments and how much it invested, and there was no available basis on which to make this judgment. However, we have considered qualitatively what impact this might have if implemented in combination with one or both the other Options.

It is not in the scope of our brief to assess the impact of the Options or the costs, benefits and risks of any relocation to C4C itself, its business model and sustainability, or its ability to deliver Channel 4's public service remit; these subjects are being considered separately by DCMS with the input of Channel 4. Nonetheless, to the extent that C4C's financial performance may improve or deteriorate as a result of either of these Options being implemented or other changes in market conditions, this would have an impact on its regional economic impact, and we have provided some qualitative analysis to help clarify these dependencies but detailed analysis of the costs of transition or impact on the business are outside the scope of this report.

2.3 Approach

Our primary quantitative method is Input-Output (IO) modelling of the regional economic benefits and costs of the two Options being considered, under various scenarios. IO analysis is the standard method for assessing the economic impact of a policy option. It is based on a simple model which links various sectors in the economy and shows how changes between output in one sector affect demand for inputs in other sectors. In this way, we can assess how a change in activity in one sector has ripple effects throughout the economy (regionally and nationally), deriving an assessment of the total economic impact of that change. The analysis is consistent with approaches to cost-benefit analysis described in the Treasury's Green Book,[7] including, for example, the impact of displacement effects.

However, quantitative modelling is not a predictive tool. It describes the economic impact of a policy intervention based on specified inputs, specifically assumptions about the nature and magnitude of that intervention. If the inputs are different in practice to what the economic modelling has assumed, the realised economic impact will also be different. Often, there is unavoidable uncertainty about those assumptions.

For this reason we have supplemented the quantitative analysis with qualitative assessment of factors that may affect, in practice, the modelled economic impact.

Channel 4 is unlike any other company in the broadcasting sector, and that has required some specific assumptions to be made. In particular, because it spends most of its income on commissioning content, a critical assumption is whether relocation changes the regional distribution of its commissioning spend. In our base case, we have assumed no such impact. We describe how we modelled this assumption, and our reasons for it, in section 4 below. In practice, we consider there may be an indirect relationship between location and commissioning strategy, which evolves over time. We have considered this relationship, and its potential implications for Channel 4's regional portrayal and value to regional audiences, in sections 5.4.3.8 and 5.5.3.4.

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[7] HM Treasury, The Green Book: appraisal and evaluation in central government

2.4 Report structure

The next section describes the background to this study in more detail, including an overview of the regional distribution of the broadcasting, production and media sectors; an overview of C4C, its business model and Channel 4's remit; C4C's activities in the nations and regions; and the relevant policy and regulatory context.

In section 4, we describe our methodology in more detail, including how we developed hypothetical types of region for the purpose of the analysis, an overview of IO modelling and how we tailored the standard approach to reflect the particularities of Channel 4's operating model.

Section 5 describes the results of the quantitative modelling and the qualitative analysis of the deliverability of the identified benefits and costs.

The main report ends with a short Conclusions section. There follows a technical appendix with more methodological details, including sensitivity analysis.

2.5 Terminology

Channel 4 is a broadcast channel owned and operated by Channel 4 Corporation (C4C). C4C also runs a number of commercial channels and other ventures in support of the main channel.

In line with the Government's consultation document, we use 'Channel 4 Corporation', C4C or Channel 4 interchangeably to refer to the organisation itself, and try to be clear when we are referring specifically to the broadcast public service channel.

3. Background

3 Background

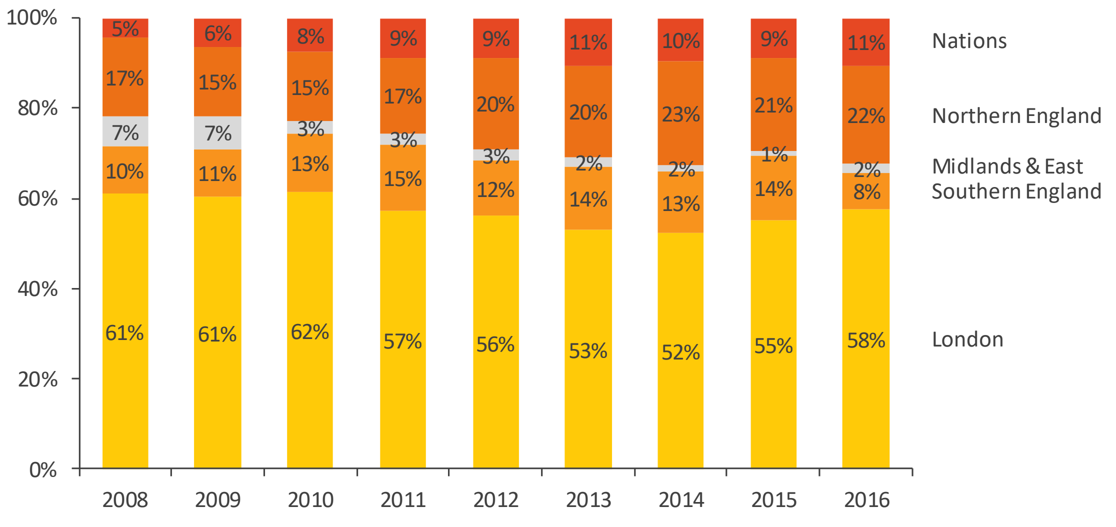
3.1 Regional media sectors

The economic prosperity of regions outside London and its surrounding area was a key issue raised in the government's industrial strategy earlier this year. The government wants to support the regional economy and spread jobs, prosperity and opportunity more evenly across the UK; the creative industries have a part to play.

The creative industries tend to be concentrated in specific geographic hubs, where they benefit from easy access to infrastructure and a pool of skilled labour. This was especially true during television's infancy which subsequently led to the development of a large London hub. The TV industry is now highly concentrated with most broadcasters, including all pan-UK public service broadcasters, having their headquarters in or around London. Some moves have been made to rebalance this distribution, most notably the BBC relocating 2,500 roles from London to MediaCity in Salford (which has itself become a sizeable media hub), but the TV industry is still largely based in and around London, particularly since the retrenchment of ITV from its regional franchise structure.

The production of programmes is also concentrated in London, but to a lesser extent. Around two thirds of all producers are currently based in London and the South East.[8] Production activity itself is slightly more geographically dispersed as producers may choose to locate a production in a region away from their main office or production base. According to Ofcom, production activity in London accounted for over half of the total value of original PSB productions in the UK in 2016 (Figure 3.1). There was also a significant amount of production in Northern England and some in Southern England, mostly coming from the South East and areas around London; and some in the nations, over half of which tends to come from Scotland. The share of spend in London has declined slightly over the past decade, but the distribution of spend has been mostly stable.

Figure 3.1: PSB expenditure on original productions by region



Source: Ofcom PSB Annual Compliance Reports

These areas of high production activity correlate well with the locations of major production hubs, such as London, Manchester (largely built around MediaCity in Salford) and Glasgow (largely built around STV and BBC Scotland). There are also local centres of excellence, such as Bristol's natural history expertise and the growth of drama production in Cardiff.

[8] Ofcom, Review of the operation of the television production sector, 2015

Independent production companies, the source of content for Channel 4, are more geographically diverse than broadcasters' in-house production operations, which are typically deeply rooted in the aforementioned hubs. However, about two thirds of the value of external commissions in 2016 were still based in London and the largest non-London regions are the North West and Scotland, both of which account for about 10% of the total[9]. This suggests that while some smaller independent production companies are based in regions without much of a pre-existing TV industry, most activity and companies are still based in and around the main hubs.

3.2 Policy and regulatory history and objectives

The provision of programming made in, and reflecting the life and culture of, the UK's diverse nations and regions is a long-established public policy aim. In recent years, policy and regulatory activity has centred on three principal areas:

- requirements on all PSBs to produce a certain proportion of their network programming outside London;
- the relocation of publicly owned broadcasters outside London, in whole or in part; and
- provision of dedicated programmes for audiences in the nations and regions, including the BBC's and ITV's regional news and non-news output, and services in Welsh, Gaelic and Irish (not relevant to this report).

This section summarises the recent history and current status of the former two interventions in turn.

The 2003 Communications Act tasks Ofcom with ensuring that a sufficient quantity of programmes, across all PSBs, reflect "the lives and concerns of different communities and cultural interests and traditions within the United Kingdom, and locally in different parts of the United Kingdom." [10] Specifically, the Communications Act[11] and the BBC Agreement require that a suitable proportion of programmes are made outside the M25, that these constitute a suitable range of programmes, and that a suitable proportion of expenditure is spent on producing these programmes in a suitable range of production centres – with 'suitable' to be determined by Ofcom.

To enact this requirement, Ofcom sets quotas for the proportion of transmitted hours (excluding network news) that must comprise first-run original programmes made outside the M25 motorway; and for the proportion of expenditure on programming they account for.

Quotas on the PSBs have varied over time:

- Following its first PSB Review, in 2004-5, Ofcom increased the quotas on **ITV1** (as it then was), from 33% by volume and 40% by spend, to 50% of both. However, these quotas were subsequently reduced to 35% of volume and value, following evidence that the increased obligations had placed a significant cost on licensees, and were being addressed through long-running studio-based shows that had little benefit in terms of on-screen diversity.[12]
- **The BBC** has also had objectives to increase its OOL production, although its regulatory arrangements are somewhat different. Its quotas for regional production, set jointly by Ofcom and the BBC Trust, are currently 25% by hours and 30% by spend. However, the Trust set separate targets to grow out-of-London activity significantly beyond these requirements, to 50% of network spend outside London by 2016, including 17% in the UK's devolved Nations. In its recent proposals for the BBC's Operating Licence, introduced under the new BBC Charter and Agreement, Ofcom proposed broadly to take forward these targets, by increasing the hours and value quotas to 50% of each, introducing a new Nations quota of 16% of both, and separate requirements for each of the three devolved Nations.[13]

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[9] Pact UK Television Production Census 2017
[10] Communications Act 2003, s264
[11] Sections 286 for Channel 3 and Channel 5 licensees and section 288 for Channel 4
[12] Ofcom, Channel 3 and Channel 5: proposed programming obligations, February 2013
[13] Subject to consultation, which closed in July 2017; at the time of writing Ofcom has not announced a final decision in respect of these quotas. Ofcom, Holding the BBC to account for the delivery of its mission and public purposes, March 2017

- Since 2012, the requirements on **Channel 4** have been that at least 35% of transmitted hours on the main public service channel must comprise first-run programmes made outside the M25, and that these programmes must account for at least 35% of programme expenditure. Prior to 2012, these quotas were set at 30%. Uniquely among the PSBs, Channel 4 also has an Ofcom-set quota for production outside England, currently set at 3% of hours by volume and value, but planned to rise to 9% by 2020. No quotas apply to Channel 4's non-public service channels.

Ofcom issues guidance on the definition of an 'out-of-London production', to manage the risk of so-called 'brass-plating' (that is, the maintenance of small regional offices by production companies to give the appearance of having a base in the regions, enabling them to take 'regional' commissions which in reality are produced by London-based teams). To qualify, productions must meet two out of three criteria:

1. the production company must have a 'substantive' business and production base outside the M25 (ie the usual place of employment of executives managing the regional business, of senior personnel involved in the production in question, and of senior personnel involved in seeking programme commissions);
2. at least 70% of the production budget (excluding on talent, archive material, sports rights, competition prize-money and copyright costs) must be spent outside the M25; and
3. at least 50% of the production talent (i.e. not on-screen talent) by cost must have their usual place of employment outside the M25

These criteria have been tightened over time; Ofcom has announced it intends to review the guidance again "to ensure that the programmes the BBC and other PSB channels identify as being made outside London make a genuine contribution to the nations' and regions' creative economies."[14]

The legislation and regulatory documentation suggest that the purpose of regional production quotas is to ensure the on-screen representation of the regional and national diversity of the UK. They have not historically been intended as industrial or regional development policy, that is designed to boost the regional creative economies.[15]

But regional strategic concerns have played a part in media policy over the last decade or so, specifically with respect to the partial relocation of the BBC outside London.

Historically, although it had a wide range of regional and local offices and studios, the majority of the BBC's operations were based in London and the South East of England, and its approval ratings were generally lower elsewhere. In 2003, as part of the early preparations for the review of its Royal Charter, the BBC considered possible responses to these challenges, and in 2004 the BBC committed to moving a significant part of its activities outside London. In doing so, its long-term objectives were to better serve regional audiences, improve the quality of content for all audiences, improve efficiency and provide economic and other benefits to the region[16] - in other words, a blend of audience value and economic impact factors.

In 2006 a site at Salford Quays, subsequently named MediaCityUK, was chosen for redevelopment. By 2011 a number of divisions and services had relocated, the major parts including BBC Sport, Children's, Learning, Radio 5 Live, BBC Breakfast, and a number of staff from marketing, audiences, and digital and technology teams.

A 2015 analysis by KPMG for the BBC Trust reported that more than half the BBC's staff were based outside London,[17] resulting in 'material growth' in the BBC's economic impact outside the South East. KPMG concluded that the BBC's activities in the North West (predominantly driven by the Salford site) contributed £277m to UK Gross Value Added (GVA) in 2014/15, including both indirect and induced benefits. This was equivalent to approximately 5% of the GVA of Salford, 2% of the GVA of Manchester and 6% of the GVA of the UK's programming and broadcasting activities sector. The total indirect and

[14] Ofcom, Holding the BBC to account for the delivery of its mission and public purposes, March 2017
[15] E.g. Ofcom, Review of the Television Production Sector, 2006: "Our concern [with respect to UK content production in general] is not to seek to maintain high levels of investment in UK content for industrial policy reasons…diversity in production is a means to the end of meeting the needs and interests of viewers…the location of production may be critical in delivering a diversity of perspectives."
[16] National Audit Office, The BBC's move to Salford, 2013
[17] KPMG, The role of the BBC in supporting economic growth, 2015

induced employment arising from the BBC's presence in the North West was 3,778 jobs. Furthermore, KPMG found evidence of 'agglomeration' and 'network' effects, with the BBC's presence attracting other media organisations and helping to establish MediaCityUK as a hub for firms with creative and digital capabilities.

3.3 Channel 4 – remit and business model

Channel 4 occupies a unique space in the UK broadcasting landscape. It was established without in-house production capability and with an explicit mandate to support the UK independent production sector by commissioning all of its content from external producers. Channel 4 aims to fulfil its remit, as defined by government, while being commercially self-sufficient.

Channel 4 is operated by the Channel 4 Corporation (C4C), which is a self-financing public corporation, that is a commercially-funded organisation wholly owned by the public. It does not own by right its formats or programme rights. Under the negotiated Terms of Trade these are retained by the independent producers who supply its output.

The public service remit of Channel 4 is defined by the Communications Act 2003 and Digital Economy Act 2010; Channel 4 categorises its remit into 15 elements, which include:

- Providing high-quality programming
- Being innovative and distinctive
- Reflecting cultural diversity
- Championing alternative points of view
- Stimulating well-informed public debate
- Appealing to the tastes of younger audiences
- Nurturing new and existing creative talent

There is no hard and fast distinction between 'public service' and 'commercial' programming in Channel 4's schedule, and its remit is not restricted to the explicit programming requirements in its licence. It chooses how to optimise its schedule to fulfil its remit while remaining commercially sustainable.

Ofcom monitors and reviews Channel 4's delivery against its remit every year through both the 'statement of media content policy' process, which includes research on audience perceptions of Channel 4, and Ofcom's PSB report. Ofcom found that Channel 4 performed strongly in 2016, broadly delivering against its remit requirements while exhibiting a strong and distinctive personality.[18]

Channel 4's remit does not refer explicitly to geographic representation, but a number of elements of its remit may have a regional dimension: for example, reflecting cultural diversity, and championing alternative viewpoints. Channel 4's specific nations and regions responsibilities are set by Ofcom licence quotas, as described in section 3.4, and shaped by Ofcom's PSB purposes. These purposes, applicable to all PSB channels, include reflecting cultural identity, at a national and regional level, and making the public aware of different cultures and viewpoints through programming that reflects the lives of other communities within the UK.

PSB purposes related to regionality are some of the most under-delivered across all of the PSBs; Channel 4 rates lower than the BBC One, BBC Two and ITV. As we discuss in section 5, this is no doubt partly because of the specific regional programming and identities of the other PSBs, but Ofcom also identified room for improvement in Channel 4's regional portrayal.[19]

Only the main Channel 4 is a PSB channel. The other channels in Channel 4's portfolio, such as E4, More4, and Film4, are not governed by PSB regulations or the main channel's quotas but they are still shaped by Channel 4's remit.

[18] Ofcom, Letter to Channel 4 Corporation on its Statement of Media Content Policy 2016/17
[19] Ofcom, Letter to Channel 4 Corporation on its Statement of Media Content Policy 2016/17: Ofcom noted that the gap between importance and delivery of cultural portrayal on C4C was largest among viewers in Scotland and Northern Ireland; these nations, along with the North West of England, also had the largest declines in Channel 4's weekly reach across the UK in 2016.

The vast majority of C4C's revenue comes from advertising (94% in 2016[20]), most of which is spent on content. Almost all its revenue is derived from TV viewing or viewing of TV programmes online; TV broadcast advertising still accounts for the majority of advertising revenue, but over time an increasing share is coming from digital advertising (digital revenues have grown from £63m in 2014 to £102m in 2016[21]) and Channel 4 sales house's commission from advertising sales for other TV networks, such as UKTV, Box and BT Sport. While this has diversified C4C's revenue sources to some extent, these areas of growth are still reliant on the consumption of TV content and live broadcast TV.

Programming and content expenditure is C4C's main cost; other sizeable costs included advertising sales and the costs associated with transmission (Table 3.1). C4C employed on average 814 people during 2016, the direct cost of all these employees was £80m[22]. The largest departments by headcount are advertising sales, accounting for about one quarter of all employees, and content commissioning. C4C's salary bill is small given the size of its revenues because it has no in-house production so relatively little of its main cost item, programming and content, is spent on internal staff.

Table 3.1: Channel 4 income statement 2015 & 2016

Activity		2015	2016
Revenue	Advertising and sponsorship	925	938
	Other	54	56
	Total	**979**	**995**
Costs	Programme and other content	(641)	(706)
	Indirect programme costs	(57)	(62)
	Transmitter and regulatory costs	(94)	(94)
	Cost of sales	(87)	(80)
	Cost of marketing	(44)	(44)
	Total	**(923)**	**(986)**
Gross profit		*56*	*9*
Other operating expenditure		(32)	(27)
Operating (loss)/profit		*24*	*(18)*

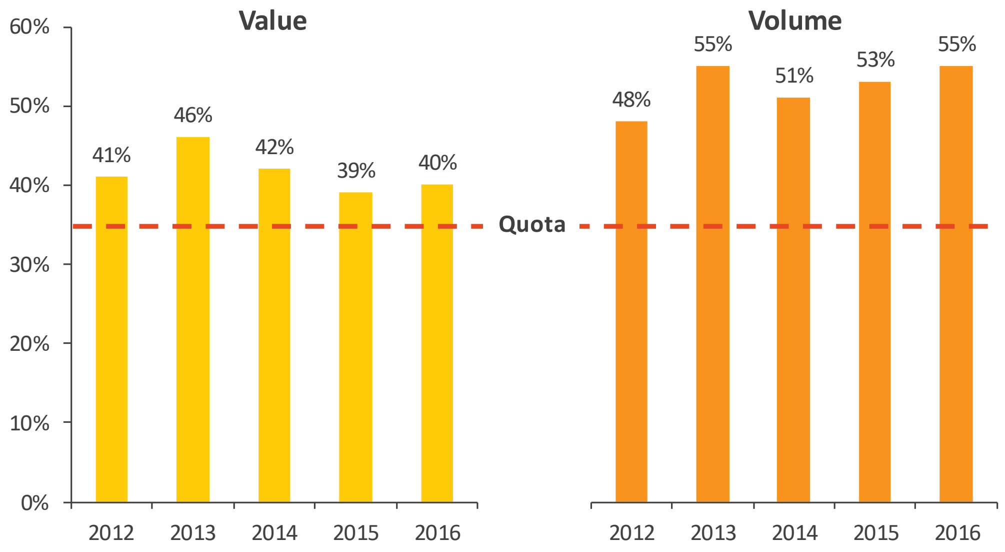
Source: Channel 4 Annual Report 2016

3.4 Channel 4 – nations and regions activity

Channel 4 commissions a wide range of programming produced in the nations and regions every year. In recent years, Channel 4 has consistently exceeded its quotas for first-run programmes produced outside London. Between 2012-2016, against Ofcom-set minimum requirements of 35%, its OOL programmes ranged between 39%-46% of spend and 48-55% of hours (Figure 3.2). For out-of-England first-run programmes, compared to minimum requirements of 3%, its spend rose steadily over the period from 5% to 8% and its hours varied between 6%-9%.[23]

[20] Channel 4 Annual Report 2016
[21] Channel 4 Annual Report 2016
[22] Channel 4 Annual Report 2016
[23] Ofcom, PSB Annual Compliance Report 2017

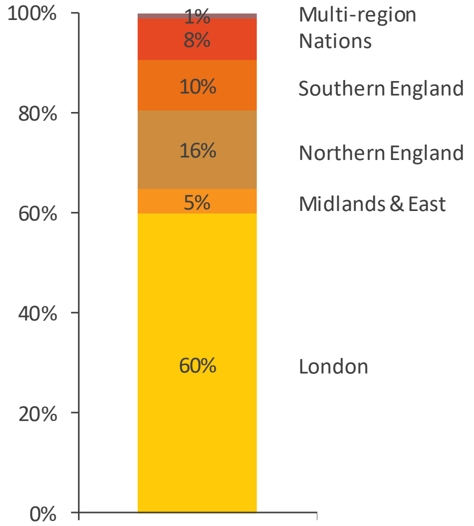
Figure 3.2: Channel 4 programming produced outside London by share of spend on first-run originations and share of first-run originated hours



Source: Ofcom PSB Annual Compliance Report 2017

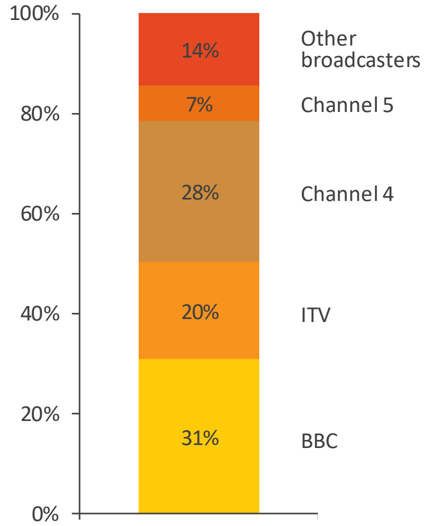
C4C reports that it spent £169m on production companies based outside London across its TV portfolio[24]. The geographic split of C4C's total spend on originations is similar to the split reported for spend on the main channel by Ofcom (see Figure 3.3), mostly because spend on main channel originations represents about 90% of C4C's total spend on originations across its TV portfolio.[25] Spend tends to be focused in areas with large media sectors, as described above, as this is where the majority of regional production companies and production capacity is based. Outside of London, Channel 4 spends the most on programming in Northern England, which contains large production hubs such as Manchester.

Figure 3.3: Share of Channel 4 spend on first-run originations by region, 2016



Source: Ofcom PSB Annual Compliance Report 2017

Figure 3.4: Share of total spend on external commissions by broadcaster, 2015



Source: Pact UK Television Production Census 2016

[24] Channel 4 Annual Report 2016; note that differences in definition and scope mean that these figures are not directly comparable with Ofcom's
[25] Channel 4 Annual Report 2016

Channel 4's spend in the nations has steadily grown over recent years from 5% of spend on originations on the main channel in 2012 to 8% in 2016,[26] as it makes progress towards a quota target of 9% of hours and expenditure on programmes by 2020. This increase in share of spend in the nations is currently coming largely at the expense of regional production, rather than production within London, as Channel 4's overall performance against its regional production quota has not increased (Figure 3.2). Channel 4 spent £36 million on production companies in the nations in 2016;[27] Scotland received the most (5.2% of spend on originations[28]) out of the nations.

Though Channel 4's programming budget is comparatively much smaller than other PSBs, it plays a vital role in the independent production business (Figure 3.4). We estimate that Channel 4 provided over a third of the total value of PSB external commissions outside of London in 2016; only the BBC spent more.

Channel 4 also has two small regional bases in Manchester and Glasgow which are used to support the nations and regions. Though the vast majority of Channel 4's workforce is based in their London headquarters, there are also a small number of employees based in the two regional offices (we estimate that there are about 20 employees in Manchester and 5 to 10 in Glasgow). The Manchester office houses Channel 4's Northern sales team while the Glasgow office houses the Nations and Regions team, who are involved in content commissioning, and the All 4 Games team; the future of this office is unclear following news of the planned spinoff of All 4 Games.

3.5 Government policy objectives and the Channel 4 consultation

The current government has made industrial strategy a 'critical part' of its plan for post-Brexit Britain.[29] This includes spreading wealth and opportunity around the UK, including increasing productivity and growth across the country; the Government's Green Paper on industrial strategy cites Eurostat data showing that central London is the most prosperous local economy in Northern Europe, but the UK also includes twelve of the twenty poorest local economies in the region. Initiatives to rebalance the regional economy include infrastructure projects, increasing skill levels and supporting local innovation; the Green Paper emphasises the importance of institutions for local growth, including cultural institutions and the media.

Consequently, the government launched a consultation on options to increase C4C's regional impact, which sought views on how Channel 4 can most effectively meet three objectives: contributing to regional economic growth; stimulating regional creative industries; better serving regional audiences.[30] It identified a preference for Channel 4 to have a major presence outside London, stimulating creative and economic activity right across the country, as part of an evolved role for Channel 4 and a refreshed approach to its delivery of public value. The Conservative Party manifesto for the June 2017 election reiterated its view that both civil service and cultural bodies needed "to represent and be present across our whole United Kingdom," including Channel 4 relocating out of London.[31]

The consultation raised three Options including full or partial relocation of C4C's headquarters from London; Channel 4 commissioning more programmes from outside London; and Channel 4 being able to make larger investments in production companies, to support the development of emerging talent and help bolster its future financial position.[32]

In addition to seeking views from stakeholders in the broadcasting and production sectors, regional authorities and audiences, it undertook to commission external analysis of the potential regional economic benefits and costs of the Options under consideration. In the next section, we describe the methodology we have used to provide this analysis.

[26] Ofcom PSB Annual Compliance Report 2017
[27] Channel 4 Annual Report 2016
[28] Ofcom PSB Annual Compliance Report 2017
[29] Building Our Industrial Strategy, January 2017
[30] Department for Culture Media & Sport, Increasing the Regional Impact of Channel 4 Corporation: Consultation, April 2017
[31] The Conservative and Unionist Party, Forward Together, 2017
[32] While C4C is not permitted to be involved in the making of programmes to be broadcast on the main public service channel, it could own companies that broadcast on its portfolio or for other broadcasters; and it has taken up to 25% equity stakes in independent production companies

4. Methodology

4 Methodology

The purpose of this section is to illustrate the methodologies used for the selection of candidate regions and the quantitative analysis of economic impacts. Accordingly, the following sub-sections discuss:

- our approach to regional selection;
- the input-output (IO) methodology employed.

4.1 Regional selection

4.1.1 Selection framework

To infer potential regional candidates for any relocation of C4C, we consider both the business rationale for a given choice and its wider economic implications.

- From a **business perspective**, it may be sensible for C4C to move to a region where the potential disruption to its business is minimal. In this respect, a region with high TV intensity would enhance the smoothness of the transition as the required infrastructure would be readily available. Moreover, a crucial characteristic of Channel 4 is that it does not produce content. Therefore, an additional dimension to be taken into consideration with respect to the candidate region is the extent of general media activity. The intuition is that relocating to a region with high media activity would allow Channel 4 to be in proximity to (and therefore easily access) relevant skills and suppliers, including in digital services, content commissioning, and advertising sales.
- From a **wider economic perspective**, the state of the regional economy will influence the extent and nature of the impacts of any Channel 4 relocation or increased investment. In particular the rate of unemployment will correlate with the size of the regional impact coming out of the IO estimation, because relocation to regions with lower unemployment is more likely to result in displacement of existing jobs rather than creation of new jobs. The effects of relocation on employment could be the result of a rise in the price of labour (caused by the additional demand), or the result of workers in nearby regions commuting to the target region to satisfy the excess demand (and therefore with no impact on wages). It needs to be mentioned, nevertheless, that IO analysis (see Section 4.2 below) is not capable of distinguishing across these two effects (i.e. wage effect, labour migration).

Based on this analysis, we defined three variables - TV intensity, general media intensity and unemployment - and grouped regions into six types, as shown in Table 4.1. The Annex contains more details of the definition of region-types, and sources of data on which this categorisation was made.

In general we would expect relocation of Channel 4 to have more impact on regions with little established TV and media activity, and high unemployment due to the greater shock induced in terms of demand for media-relevant output, output from intermediate sectors and labour. In other words, regions with low TV intensity, low general media intensity and high unemployment might be expected to display proportionately higher impact than regions with high TV intensity, high general media intensity and low unemployment. This is also shown in Table 4.1.

Table 4.1: Selection framework and likely impacts

Region	Business perspective	Economic perspective	Anticipated relative local impact
1	High TV	Low unemployment	Smaller
2	High TV	High unemployment	Smaller to moderate

3	(Low TV) High general media	Low unemployment	Moderate
4	(Low TV) High general media	High unemployment	Moderate
5	Low TV & Low general media	Low unemployment	Moderate to higher
6	Low TV & Low general media	High unemployment	Higher

4.1.2 Methodology

The analysis of TV intensity regarded the following SIC[33] sectors as TV-relevant:

- SIC59: Motion picture, video and television programme production, sound recording and music publishing activities.
- SIC60: Programming and broadcasting activities.

The analysis of general media intensity regarded the following sectors as general media-relevant:

- SIC59: Motion picture, video and television programme production, sound recording and music publishing activities.
- SIC60: Programming and broadcasting activities.
- SIC62: Computer programming, consultancy and related activities.
- SIC63: Information service activities.
- SIC73: Advertising and market research.

To infer TV intensity within a region, we obtained the regional and national numbers of employees aged 20-64 in TV-relevant sectors in the UK from Eurostat. We then computed the ratio of regionally employed over nationally employed in TV-relevant sectors and calculated the mean and standard deviation of the sample of UK regions. A threshold value was imposed equal to the sum of the mean and one standard deviation. Regions above the threshold were considered to exhibit high TV-intensity.

To infer general media intensity for a region that is not within the high TV-intensity group, we obtained the regional and national numbers of employees aged 20-64 in media-relevant sectors in the UK from Eurostat. We then computed the ratio of regionally employed over nationally employed in media-relevant sectors and calculated the mean and standard deviation of the sample of UK regions. A threshold value was imposed equal to the sum of the mean and one standard deviation. Regions above the threshold were considered to exhibit high general media intensity.

Lastly, to infer the extent of unemployment within a region, we obtained regional unemployment rates in the 20-64 age band from Eurostat and performed a median split of the regions to infer high and low unemployment.

4.2 Analysis of economic impacts

The quantitative analysis of economic impacts is based on the well-established input-output analysis method (IO). This section presents our approach to estimating the economic impacts in more detail; the Appendix presents an example of the mechanics of IO modelling, along with a description of the construction of regional IO tables. A section on the assumptions and limitations of IO modelling is also included.

[33] The Standard Industrial Classification (SIC) system is a typical approach used to classifying business establishments and other statistical units by type of economic activity. See for instance information available by the ONS at https://www.ons.gov.uk/methodology/classificationsandstandards/ukstandardindustrialclassificationofeconomicactivities/uksic2007

4.2.1 Overview of IO modelling

Input-Output (IO) analysis is an economic modelling technique which links various sectors in the economy. This is achieved through the relationships between the output of a sector and the inputs it requires from itself and other sectors.

The main attraction of IO analysis (using national IO tables) is that it allows us to calculate the effects of an increase in output in one sector on every other sector in the economy and on various macroeconomic variables – GDP, employment, tax revenue. In this respect, a fundamental aspect of IO analysis consists of 'multipliers' which indicate the percentage change in any macroeconomic quantity as a result of a unit increase in output from a particular sector.

Regional IO models are a variant of national IO models where instead of national sectoral input multipliers, regional sectoral multipliers are used to estimate the indirect and induced effects of a direct change in demand in a given region. For the purpose of this study, we used the latest available national UK IO table.[34] As data are not available on regional purchases and sales for all UK regions, the most commonly used method for estimating regional input multipliers is the use of employment based location quotients (LQs).[35]

Accordingly, we used employment based location quotients (LQ) from the ONS.[36] In particular, we have used the most commonly used location quotient, the CLIQ which is the relative ratio of the following — the ratio of regional to national employment in the supplying sector and the ratio of regional to national employment in the purchasing sector.

Once the regional multipliers are estimated, they can be used in a way similar to the national multipliers to estimate the economic impact (direct, indirect and induced impact on GDP, employment and taxes) of moving C4C or different outputs pertaining to C4C to different UK regions. More specifically, having constructed a regional IO table, the model captures the following effects for a given change of output (see the Appendix):

- **Direct effect**: If a sector produces more output, it results in greater GDP, employment, income, taxes, and other policy relevant variables.
- **Indirect effect**: These relate to all sectors adjusting their outputs so as to accommodate the increase in demand for intermediate inputs that would accompany any increase in output by the focus sector. The IO model employed in this study captures such indirect effects.
- **Induced effect**: Increases in production mean increased incomes for those providing the factors of production (e.g. workers providing labour). As they spend those higher incomes, that creates an increase in final demand and therefore a further increase in production. Induced effects are calculated indirectly using data on income multipliers at the economy level, not at the sector level.

4.2.2 Assumptions to reflect the unique nature of Channel 4

We have assumed that the activities, and associated costs, of Channel 4 fall into the following sectors (mapped onto SIC categories):

- SIC59-60: Motion picture, video and television programme production, sound recording and music publishing activities; programming and broadcasting activities
- SIC62-63: Computer programming, consultancy and related services; information services
- SIC73: Advertising and market research services
- SIC82: Administrative and support service activities

[34] See https://www.ons.gov.uk/economy/nationalaccounts/supplyandusetables/datasets/ukinputoutputanalyticaltablesdetailed
[35] LQs reflect the industrial specialisation profile of a given region based on employment in each sector in each region, relative to national employment in that sector. LQs may thus be perceived as a regional trading coefficient measuring the proportion of regional requirements met by local firms. LQs may also be perceived as accounting, to some extent, for interregional trade and the exchange of production factors
[36] See https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/datasets/locationquotientdataandindustrialspecialisationfornuts2areas

Channel 4's activities do not, however, map across exactly to these sector categories. In particular, Channel 4 does not itself produce content (in contrast to its main competitors). As such it would be inaccurate to include a direct impact on content production from the relocation. However, SIC59-60 (Motion picture, video and television programme production, sound recording and music publishing activities; programming and broadcasting activities) includes content production; and SIC62-63 (Computer programming, consultancy and related services; information services) includes digital content and service production.

In order to take account of this we have partly discounted the impact of the policy options on these sectors in our analysis. Specifically, we have assumed that the majority of C4C's activities in SIC59-60 do not move as a result of relocation, and therefore moving C4C does not have significant impact on those sectors in the new host region. Numerically, we have excluded 90% of the modelled impact on this sector. We have also assumed that a part of C4C's activities in SIC62-63 also do not move (although only a small part, since SIC62-63 also includes many other activities not associated with commissioned content production). We have excluded 10% of the modelled impact on this sector.[37] We note, however, that we do allow for indirect and induced effects to occur in this artificial content production sector via their relationships with other sectors which have been affected by the relocation. If we did not account for the fact that Channel 4 do not produce content then the estimated indirect impact in Option 1 scenarios would have been higher.

Had we not made these adjustments, we would have over-estimated the impact of relocation, by assuming that all the production activity arising from C4C's commissioning moves as a result of relocation. We do allow, however, for indirect and induced effects to occur in these sectors via their relationships with other sectors directly affected by the relocation.

Direct impacts of changes in SIC62-63 and SIC59-60 are captured in our analysis of Option 2, since this specifically envisages a shift in content production expenditure outside London.

It is also important to note the particular nature of C4C's current stated strategy, which is to reinvest any profits back into content. For this reason, its GVA may be relatively lower than other companies of similar size in its sector, in terms of revenue, because a significant part of its overall costs are spent on external services, or intermediate inputs, rather than producing goods or services internally and adding value to it. On the other hand, it may have greater indirect effects than other companies because of its greater propensity to redistribute profits to suppliers. We have not sought to incorporate these factors into the modelling but note that our estimates of the GVA impact of relocation (Option 1) may be conservative as a consequence.

4.2.3 Estimating direct effect (change in value added) of Channel 4

Any business takes some intermediate inputs (e.g. electricity, programme content purchased externally) and adds value to these inputs, which is eventually reflected in the difference between the price it charges for its product and the cost of those inputs. Put in terms of a simple equation

Value Added or GVA = Revenue – costs of intermediate inputs

Labour costs, being a primary factor of production are not an intermediate input. Rather, they constitute a primary input which, when applied to the intermediate inputs, add value by shaping these intermediate inputs into the final products to be delivered to consumers. There is another way to think about this, though. The profits a firm makes are the difference between its revenue, its labour costs and the costs of its inputs.

Profits = Revenue – costs

= Revenue – (labour costs + costs of intermediate inputs)

= (Revenue – costs of intermediate inputs) – labour costs

= GVA – labour costs

[37] We also conducted sensitivity tests with different assumptions about the amount of C4C activity in the relevant SIC categories that moves as a result of relocation, which found little difference in the outcomes. See Annex for more details

By rearranging, we get:

Profits + labour costs = GVA

So the value added is equal, by definition, to the sum of profits and labour costs which will have an impact on the economy. This value added figure is the direct impact of C4's activities on the economy.

Since we are modelling changes in total GVA due to the activities of C4, these changes in GVA implicitly assume a change in intermediate consumption related to all sectors providing inputs to C4C (identified in the IO table). These sectors constitute the complete set of intermediate costs (i.e. non-staff costs and any other intermediate costs) to C4. Therefore, while estimating the indirect and induced impacts of gross value added by C4 using the I-O model, all the economic or GVA impact of non-staff costs is being accounted for in the indirect and induced effects produced by the model.

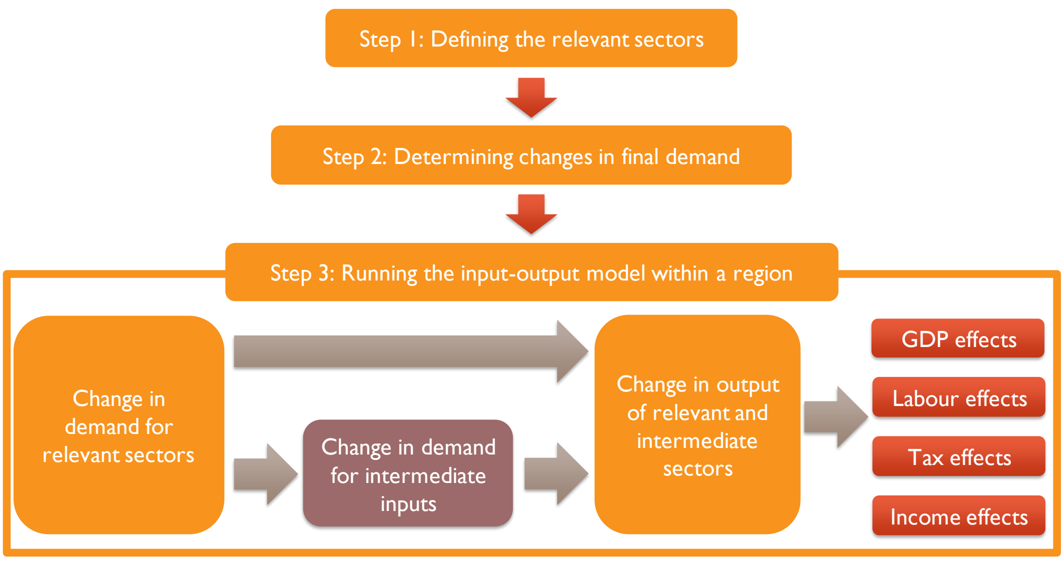
4.2.4 IO modelling in practice

Once the multipliers have been constructed (as described in sections 7.1 and 7.2), the model is ready to estimate the impacts of the change in output created by the Options under consideration in the target regions. There are a number of steps involved in constructing these impact estimates, as follows:

- The first step is to produce a list of sectors that relate directly to Channel 4's activities, the output of which will be shocked based on the individual scenario in hand.
- Once the relevant sectors have been finalised the next step is to determine how output for these sectors will change in the target region (i.e. the shock) for each of the two Options included in the analysis.
- These changes in output will in turn affect the respective sectoral outputs for both the media-relevant sectors and the sectors providing intermediate inputs to the media-relevant sectors (i.e. backward linkages). Once the new total outputs have been calculated, and the backward linkage estimates combined, the effects on several macro variables may be obtained.

The above are further reflected in the following figure:

Figure 4.1: Representation of IO modelling steps



5. Assessment of economic impact

5 Assessment of economic impact

5.1 Introduction

In this section, we present the results of our analysis. We describe first the identification of the regions for analysis. We then describe the quantitative analysis of economic impact on selected region-types, and explain how factors external to the modelling might impact the deliverability of the modelled impacts.

5.2 Results from regional selection for C4C relocation

From the regional selection framework described previously (section 4.1.1), we aimed to select a group of regional types for quantitative analysis that would allow us to assess the full range of feasible economic impacts. The following table shows the regional types that were selected for analysis; example regions were identified based on Eurostat data, available at a NUTS-2 regional level, as per the regional selection framework.[38]

Table 5.1: Regional Selection

Region	Business perspective	Economic perspective	Illustrative examples
2	High TV	High unemployment	Greater Manchester; South Western Scotland
3	Low TV & High general media	Low unemployment	East Anglia; Gloucestershire, Wiltshire and Bristol/Bath Area
4	Low TV & High general media	High unemployment	West Midlands; West Yorkshire
6	Low TV & Low general media	High unemployment	Merseyside; South Yorkshire; Tees Valley and Durham; Northumberland and Tyne and Wear

Representative members, and associated data, from the four regional types were selected to form the basis of our quantitative analysis. The results of our analysis are thus indicative of the resultant economic impact in each region type.

5.3 Construction of modelling scenarios

Having selected the regions for analysis, we constructed a range of modelling scenarios based on the identified policy Options, in isolation and together:

- Option 1: relocation (three scenarios: full, partial and limited relocation)
- Option 2: shift in programme spend out of London (two scenarios: large and moderate increase in OOL spend on the main channel)
- Hybrid scenarios:

[38] Given the absence of comprehensive statistics that would allow conducting the analysis at the city-level, it should thus be kept in mind that the respective impacts are measured at the wider regional-level. The respective impacts on London are measured using the corresponding NUTS-2 category (i.e. Inner West London).

- Options 1+2 combined: relocation+shift in OOL spend (HS1, four variants, see section 5.6.1)
- Options 1+2+reduced staff costs: as HS1, with an added assumption that staff costs fall as a result of relocation (HS2, four variants, see section 5.6.2)
- Option 1 only+reduced staff costs: as Option 1, with an assumption that staff costs fall as a result of relocation (HS3, two variants, see section 5.6.3)

The following sections describe each scenario in more detail, summarise the outputs of the modelling, and analyse the possible factors which might influence the impact of that scenario in practice.

The purpose of the scenarios is not to propose or predict particular policy options, nor to consider how Channel 4 might react to different policy interventions, but to show how the economic impacts vary under different possible policy permutations. Clearly, if policy interventions differ in practice from the assumptions we have used here, or result in different outcomes, the economic impact would be different. We have described in what follows (in the *Discussion* sections) how modelled outcomes might be affected by exogenous factors.

5.4 Option 1 — Relocation scenarios

5.4.1 Description of the scenarios

We modelled three variants of relocation, which differ in the assumption about which functions and therefore how much staff cost relocates to the target region. In short, full relocation assumes the whole of C4C relocates; partial relocation assumes every function except advertising sales and other commercial teams relocates; and limited relocation assumes only operations and consumer insight teams move (as shown in the following table):

Table 5.2

Activity		Full relocation		Partial relocation		Limited relocation	
Staff costs (£m) & *Headcount*		Cost	*Number*	Cost	*Number*	Cost	*Number*
Commercial	Ad sales and other commercial	20.6	*197*	-	-	-	-
	Consumer insight	3.2	*35*	3.2	*35*	3.2	*35*
Creative	Content, All4, commissioning and creative funding	16.3	*137*	16.3	*137*	-	-
	Marketing, 4Creative, corporate relations and press & publicity	9.5	*112*	9.5	*112*	-	-
Operations	Technology	10.2	*120*	10.2	*120*	10.2	*120*
	Commercial affairs, legal and compliance	9.1	*88*	9.1	*88*	9.1	*88*
	Corporate Services, HR, Finance, Corporate, Strategy, Growth Fund	9.3	*84*	9.3	*84*	9.3	*84*
	Interns	0.3	*17*	0.3	*17*	0.3	*17*
	Total	**78.5**	***790***	**57.9**	***593***	**32.2**	***344***

These scenarios were chosen to reflect three points on a spectrum of possible choices. They do not represent real-world choices or practical proposals. They are intended to show how economic impact varies with the number of staff relocated, and the size of the associated labour costs. As described in the Methodology section, labour costs are a key driver of economic impact, and therefore assumptions about how many staff relocate, in which functions, are crucial to the modelling. In practice decisions about how many staff relocate, and from which teams, would depend on a wide range of considerations out of scope for this analysis, including the potential impact of multiple sites on operational effectiveness, the importance of different teams' proximity to suppliers and customers, relative cost advantages of different locations, and so on.

The costs summarised above are then allocated to four SIC industry categories pertaining to C4C activities, as described in section 4, to enable modelling of the impact of 'shocks' to those sectors as a result of C4C's relocation.

5.4.2 Quantitative analysis of economic impacts

The following table presents the results of the **full relocation** scenario across the four target regions; and the net changes in the UK as a whole, taking into account the adverse effects of relocation in London.

Table 5.3

Option 1: Full relocation	**Region 2**		**Region 3**		**Region 4**		**Region 6**	
Direct	*Actual impact*	*Net change in the UK*	*Actual impact*	*Net change in the UK*	*Actual impact*	*Net change in the UK*	*Actual impact*	*Net change in the UK*
Change in GVA (£m)	79	-	79	-	79	-	79	-
Change in employment	790	-	790	-	790	-	790	-
Direct + Indirect								
Change in GVA (£m)	120	3	121	3	121	3	120	2
Change in employment	1,511	53	1,517	59	1,514	56	1,506	48
Direct, Indirect + Induced								
Change in GVA (£m)	235	10	236	11	235	10	233	8
Change in employment	3,406	171	3,433	197	3,412	177	3,378	143

The table shows that if C4C relocated in its entirety, and exactly as it existed in 2016 (the period to which our data relates), relocation results in a total GVA impact (direct, indirect and induced) of around £235m in the target region. The modelled total employment benefit is around 3,400 jobs.

Set against these benefits are the costs of relocation to the London economy. Our modelling suggests that the net effect of relocation, across the whole of the UK, is slightly positive; the UK economy benefits by around £8-11m, with 140-200 net jobs created. This reflects the presence of larger multipliers in regions outside London, with new jobs having greater indirect and induced effects than in the capital; this may be because the London media sector is highly saturated, so that Channel 4's presence delivers greater incremental benefit elsewhere.

These absolute impacts vary a little, but not significantly, for the different regions modelled.

The proportional impact of relocation, relative to the size of the target regional economy, varies more significantly, mainly because the regions themselves vary in size and output. A GVA increase of £230-240m represents a 0.3% boost to a larger region (of GDP around £70bn), or a 0.8% boost to a smaller region (of GDP around £30bn).

Table 5.4

Option 1: Full relocation	**Region 2**	**Region 3**	**Region 4**	**Region 6**
Illustrative Regional GDP, £bn	*67*	*73*	*67*	*27*
% change in GDP *(direct)*	0.12%	0.11%	0.12%	0.29%
% change in GDP *(direct and indirect)*	0.18%	0.17%	0.18%	0.42%
% change in GDP *(direct, indirect and induced)*	0.35%	0.32%	0.35%	0.79%
Total Regional employment, 1000	*1,283*	*1,225*	*1,180*	*602*
% change in employment *(direct)*	0.06%	0.06%	0.07%	0.13%
% change in employment *(direct and indirect)*	0.12%	0.12%	0.13%	0.25%
% change in employment *(direct, indirect and induced)*	0.27%	0.28%	0.29%	0.56%

The partial and limited relocation scenarios, shown in the following table, follow a similar pattern. **Partial relocation**, in which C4C's advertising sales team remains largely in London, has a lower economic impact, of around £170m GVA increase in the target region, creating up to 2,500 jobs. The net benefit to the UK as a whole is around £5-8m and 90-136 jobs.

Depending on the region selected, this might represent a 0.2%-0.6% increase in regional GDP, and a somewhat smaller increase in employment.

Table 5.5

Option 1: Partial relocation	**Region 2**		**Region 3**		**Region 4**		**Region 6**	
Direct	*Actual impact*	*Net change in the UK*	*Actual impact*	*Net change in the UK*	*Actual impact*	*Net change in the UK*	*Actual impact*	*Net change in the UK*
Change in GVA (£m)	58	-	58	-	58	-	58	-
Change in employment	593	-	593	-	593	-	593	-

Direct + Indirect								
Change in GVA (£m)	88	2	88	2	88	2	88	1
Change in employment	1,118	36	1,122	40	1,120	38	1,113	31
Direct, Indirect + Induced								
Change in GVA (£m)	170	7	171	8	170	7	168	5
Change in employment	2,478	115	2,498	136	2,481	119	2,452	90

Limited relocation delivers a smaller impact again, with creative and commissioning roles remaining in London as well as advertising sales. The GDP benefit in the target region ranges from £94-96m, and the employment impact is between 1,390-1,420 jobs (see full detail in Appendix).

5.4.3 Discussion of relocation scenarios

In this section we discuss the primary factors that would affect modelled outcomes, and where available assess evidence relating to them.

Because the modelling relies on assumptions about the size and cost of C4C's staffbase in the target region, the economic impact is sensitive to factors that might affect those assumptions. There are many such factors, which might either tend to boost or reduce the regional economic impact of relocation; we start by describing some of the most significant.

5.4.3.1 Decline in the advertising market

Being almost entirely funded by advertising, C4C is highly affected by upside or downside risk in the advertising market. Cyclical ebbs and flows in advertising may not have a lasting impact on the economic benefit of relocation if the long-term trend in TV ad spend continues upward. But more sustained effects, for example arising from any structural shift in advertising spend to digital inventory, could reduce the benefit of relocation, if it results in staff cuts.

There is some emerging evidence of a downturn in TV advertising, with ITV seeing significant declines in ad revenue in the first half of 2017. It is unclear the extent to which this is cyclical or structural. Some analysts see evidence of a structural shift to digital, although it should also be emphasised that TV advertising remains attractive by virtue of its unique ability to reach mass audiences at scale. Our own forecasts, based on Advertising Association/WARC data, suggest a short-term dip in traditional TV ad spend is likely to be followed by a sustained period of relatively low nominal growth, partly offset by increases in spend on broadcaster video-on-demand services (including All4). We believe that the rapid growth of digital advertising means that TV advertising will grow more slowly than advertising as a whole, but a significant real terms decline in TV revenues for structural reasons may be relatively unlikely in the short- to medium-term.

The effect of this on C4C staff costs, and therefore the economic impact of relocation, is somewhat unpredictable, because C4C has a range of ways of responding to economic pressure, including cutting spending on programmes. Nonetheless, we note that as ad revenue fell in the recession after 2007, C4C did indeed make substantial cuts in headcount, from 965 average employees in 2007 to 696 by 2009. As ad revenues began to rise again from 2010, so did staff numbers, although not to date back to their pre-recession peak.[39]

[39] Channel 4 financial reports

Reductions in staff costs have a linear relationship with economic impact. If, therefore, there were a sustained reduction in C4C's ad revenues, and this led to a 10% real-terms decline in ongoing staff costs, the economic benefit of relocation to the target region would also reduce by 10%, to around £210-215m (in the case of full relocation) or around £150-155m (partial relocation).

In its latest financial sustainability analysis of C4C, Ofcom found that C4C could currently survive a significant downturn by using its cash reserves and implementing cost-cutting measures.[40] However, cost-cutting measures will tend to reduce C4C's economic impact in its region of location if they include cutting staff, as has happened previously, and will have spillover effects on other regions due to C4C reducing its spend on externally commissioned content. Furthermore, if a severe downturn were to hit at the same time as relocation, C4C's ability to cope with both or either might be affected, due to a variety of factors which include a higher turnover of employees owing to relocation and the need for management to take on additional complex requirements at a time of commercial pressure.

5.4.3.2 Change in Channel 4 viewing share

Like most other public service channels, Channel 4's share of TV viewing declined during the run up to digital switchover, partly offset by increases in viewing to its portfolio channels (E4, More4, timeshifted +1 channels and so on). However, this stabilised after the completion of switchover in 2012; growth in online viewing, consumption of short-form online video (e.g. YouTube) and long-form subscription services (e.g. Netflix) have so far had relatively little impact on broadcast viewing time.[41] Since 2013, C4C's share of viewing has been around 5% for the main channel; its portfolio share has been drifting slowly downwards from 11% in 2013 to 10.5% in 2016.[42]

Declines in viewing could accelerate as competition for audiences' time and attention continues to intensify. In turn, this could have an impact on revenue, staff costs and therefore economic impact. However, this is unlikely to be a proportionate relationship. TV advertising spend has been relatively robust in recent years, despite slow declines in TV viewing, and channels' share of advertising revenue is driven by their share of commercial viewing, not by absolute levels of TV consumption. For these reasons, advertising revenues have tended to grow in recent years even as viewing has slipped somewhat. Declines in Channel 4's share of viewing between 2010-2013, and the portfolio share since then, have not been matched by a proportionate fall in ad revenues, for example. Furthermore, for reasons described above, the link between revenue and staff costs is not completely clear-cut. It is likely therefore that audience decline would need to be significantly greater than in the recent past for it to pose a significant risk to the economic benefits of relocation.

Is there any reason to think relocation itself might drive changes in viewing share? There is some evidence that programmes with a particular regional identity are more popular in their associated region.[43] If Channel 4 were to commission more programmes from and reflecting life in a new host region following relocation, this could give a boost to its audience performance in that region; we consider this possibility in more detail in consideration of the audience value impacts of relocation, below. We note that this is one of the government's objectives in seeking to enhance C4C's regional impact. However, whether or not relocation were to result in more regionally-specific programmes in Channel 4's schedule, the total effects on pan-UK viewing share may be muted, with little evidence that regional specificity either drives big national audiences, or deters audiences outside the relevant region(s).

5.4.3.3 Costs of relocation

Relocation of C4C will have a range of cost implications; we discuss here what, if any, impact this would have on business performance, staff numbers and therefore the economic impact of relocation.

First, there are temporary or one-off costs of relocation – most obviously, staff relocation support costs, and redundancy packages for those who do not wish to move, but also potential external consultancy and project management support, the opportunity cost of senior management time and focus, and potentially

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[40] Ofcom, Letter to Channel 4 Corporation on its Statement of Media Content Policy 2016/17
[41] Ofcom, Communications Market Report 2017
[42] Ofcom, PSB Annual Research Report 2017
[43] Ofcom, Reshaping television for the UK's nations, regions and localities, 2004

dual running costs for some teams and activities. It is beyond the scope of this project to model these 'costs of disruption', but we note that the NAO's analysis for the BBC's partial relocation to Salford, which involved the transfer of 1,500 roles from London, found[44] that: 38% of staff in transferring roles relocated, and relocation costs totalled £24m (this also includes the cost of relocating other BBC staff who offered to move voluntarily); 37% of staff in transferring roles took redundancy packages costing a total of £30m; £15m was spent on support (which includes the cost of training, HR activities, recruitment and familiarisation visits).

Nonetheless, proceeds from the sale of C4C's current Horseferry Road premises, which is expected to be worth up to around £100m[45], will significantly exceed the likely temporary costs of relocation, even on a relatively conservative reading. Therefore, it is unlikely that temporary costs alone would require C4C to reduce overall staff levels, and thus reduce the economic benefit of relocation. Interim funding might be required for these temporary costs though, assuming that the sale of Horseferry Road could not be completed in advance of relocation.

To avoid business disruption, C4C would also need to operate both its new and existing offices for an overlapping period during relocation thus adding to the temporary costs of relocation. The BBC spent £15m on 'other move and temporary 'dual running' costs' during its move to Salford. Despite this, there would still be a risk that C4C would experience significant disruption to its usual business activities during relocation as shown by the BBC's move to Salford, where the broadcast of some programmes was delayed by up to eight weeks due to delays in installing editing technology in the new offices.[46]

However, there are also more sustained potential cost dynamics to consider. We highlight four that may affect C4C's regional economic impact in practice, positively or negatively. Note that any cost increases may be addressed through efficiency savings or reduced programme spend; they would only reduce C4C's regional impact if they resulted in the organisation having to make cuts in staff costs:

- rent of new offices; these are likely to vary widely by region;
- productivity costs to C4C arising from increased distance from its customers and suppliers, or from fragmentation of the organisation, in the case of partial or limited relocation scenarios; or arising from the loss of key staff or the need to train new recruits;
- reduced labour costs following relocation. By virtue of wage differentials in relevant roles between regions, roles left vacant by current staff who choose not to relocate may be filled at lower rates; and inflation in the pay of staff who do move may be lower than it would have been in London.[47] This has the effect of reducing the economic benefit of relocation, by bringing down C4C's total wage bill. We have modelled this effect and include it in the analysis of Hybrid Scenarios 2 and 3 below; and
- changes to C4C's operating model arising from relocation. For example, if following relocation C4C chose to bring in-house functions it had previously outsourced, perhaps because suitable suppliers were not readily available in its immediate vicinity, this would tend to increase its staff costs and therefore its regional impact.

Furthermore, companies that work with and provide services for C4C may incur additional costs, mainly travel, if C4C relocates further away from their offices. It is likely that these costs would ultimately be passed onto C4C, or reduce producer surpluses, both of which would have negative economic impact.[48]

5.4.3.4 Combined effect of advertising downturn, audience trends and costs of relocation

Individually, each of the factors discussed so far may be expected to have a negative, but limited impact on the economic benefits and costs of relocation, relative to our modelling results. These effects could be amplified if they occur simultaneously. The next few years will be important for ad-funded broadcasters as

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[44] National Audit Office, The BBC's move to Salford, 2013; monetary totals are forecasts as at December 2012
[45] Channel 4 Annual Report 2016
[46] National Audit Office, The BBC's move to Salford, 2013
[47] We note that the BBC as a matter of policy announced that staff would retain their London-weighted salaries after relocation, but they would not be entitled to pay increases until their wages were within the relevant pay bands for out-of-London staff
[48] PACT estimates that individual producers will incur additional travel and accommodation costs of £2,000 per year if C4C relocates outside London. PACT response to Channel 4 consultation, http://www.pact.co.uk/news-detail.html?id=pact-response-to-channel-4-consultation-calls-for-50-investment-outside-of-london

they navigate likely decline in the TV advertising market and potential decline in TV audiences as a result of digital competition. Our analysis must also therefore recognise a risk, albeit one that is hard to quantify, that the simultaneous impact of relocation and commercial pressure makes it harder for C4C's leadership to respond effectively to these wider challenges to its business model, and that it consequently reaches the early 2020s less well equipped to compete than it would otherwise have been. This would reduce the economic benefit of relocation relative to a scenario absent these challenges; this risk could be mitigated by phasing in changes over time or delaying relocation until commercial conditions improve.

5.4.3.5 Creative sector clustering

We observed in section 3 that the broadcasting and production sectors have tended to concentrate in a small number of major hubs: particularly London, but also Manchester and Glasgow, and to a lesser extent cities including Birmingham, Leeds and Bristol. KPMG's report for the BBC Trust identified potential agglomeration and network effects in the media sector; it argued that the establishment of a major operator, such as the BBC, in a new region, attracts other firms with creative and digital capabilities, who benefit from the concentration of knowledge and skills in the region. Companies experience productivity and R&D gains from reduced barriers to collaboration, improvements in output quality, and a greater flow of creative industry talent to the area.

This affects the economic benefits of relocation of C4C in two ways. First, it suggests the benefits are likely to be greater than our modelling suggests if C4C relocates to a region with an established TV or media industry, thereby reinforcing pre-existing agglomeration effects. Secondly, it is likely to make the transition easier for C4C, potentially partly mitigating the costs of relocation described above.

If relocation of C4C could itself provide the spur to a new creative cluster, driving agglomeration effects where none previously existed, this might provide an argument for relocation to a region with little or no current media activity. For example, the presence of commissioners in a new location may attract new producers and creative talent. However, the potential for this is limited by C4C's status as a publisher-broadcaster, which means that its need for creative staff is relatively small (currently its creative and commissioning functions account for only 20% of total staff costs); it brings no in-house production activity with it, which would be the main driver of new demand in other parts of the value chain; and its content suppliers are already dispersed around the country, implying that they may not need to follow it to its new home to be able to continue to win commissions.

5.4.3.6 'Anchor tenant' effects

Separate from any agglomeration considerations, C4C's relocation could have a proportionately bigger impact if it can act as an anchor tenant. Cities seeking to redevelop business districts and bring in new employers would benefit from the commitment of a high-profile, national organisation like C4C, albeit it would not be a major tenant in terms of floorspace, with its current property estimated to comprise around 120,000 sq ft. We note that a number of cities expressed interest in hosting C4C in their submissions to the DCMS consultation on these options. Some offered incentives, including financial, which would help offset the costs of relocation and thereby help sustain C4C's regional impact. As with the clustering effects, the anchor tenant benefits will tend to be greater in regions with an existing media sector.

5.4.3.7 Change to Channel 4's ownership stakes in production companies

Although not analysed in detail for this project, we have considered the potential impact on regional economic benefits of the option for C4C to take greater stakes in production companies, as described in the government consultation on Channel 4's regional impact.

C4C's Indie Growth Fund made up to £20m available for investment over a period of three years, of which £14m[49] has been spent. This is intended to fund a range of investments in small and medium-sized production companies around the country, with no particular geographic focus.

It is unclear whether this policy would be designed to allow C4C to invest more in total in production companies, or to concentrate existing investments into a smaller number of bigger stakes. Investments at

[49] Channel 4 Annual Report 2016

the current scale would have little impact on regional GVA; they are too small to register meaningfully. To realise any significant impact, investments would need to be an order of magnitude greater than they currently are; it is unclear whether C4C would have access to capital to fund such investments.

This option could provide indirect regional benefit in two ways. First, it could change C4C's regional distribution of commissioning spend, if it were accompanied by changes in commissioning strategy, to direct more value and employment to the producers in which it has invested, But it is unclear whether Channel 4 would or could reorient its spend in this way. It relies on good relations with the wider independent production community, which could be damaged if it is perceived to be favouring its own investments. Moreover, even if Channel 4 did orient commissioning towards its investments, it is unclear this would have a particular regional effect; the regional location of the producer is likely to be a relatively small factor in its investment or commissioning decisions relative to more commercial considerations.

Secondly, this policy could diversify and increase C4C revenue over time, driving growth and profitability. This would increase C4C's regional impact, as well as its commercial sustainability. Specifically, if a relocated C4C took on more staff to manage its portfolio of investments, provide support to their management teams and oversee the use of funds, and assuming those investments generated sufficient return to justify this cost, then this would tend to increase its regional economic impact relative to relocation alone.

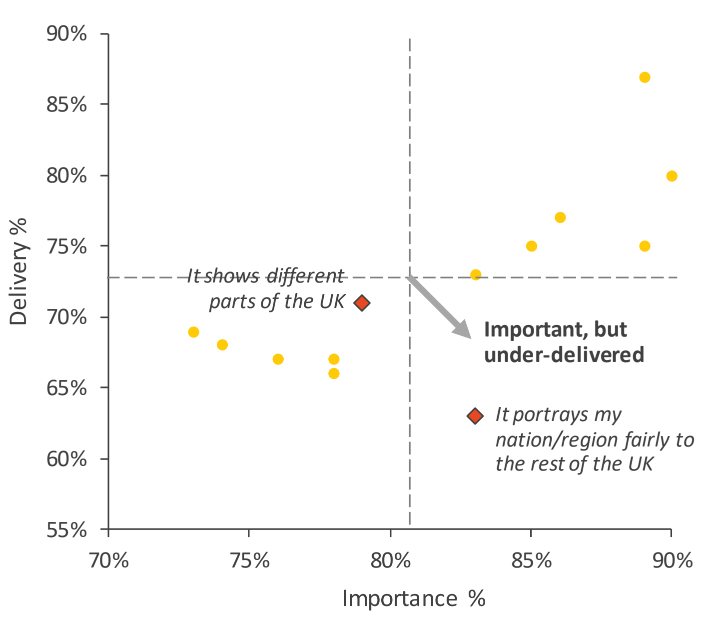
Having said that, it is important to bear in mind that these investments currently represent a small part of C4C's activities and that likely medium-to-long returns remain uncertain.

5.4.3.8 Audience value impacts

In addition to regional economic benefits, the government's objectives include better serving regional audiences. We were asked to provide a view on the relationship between the Options and C4C's value to regional audiences.

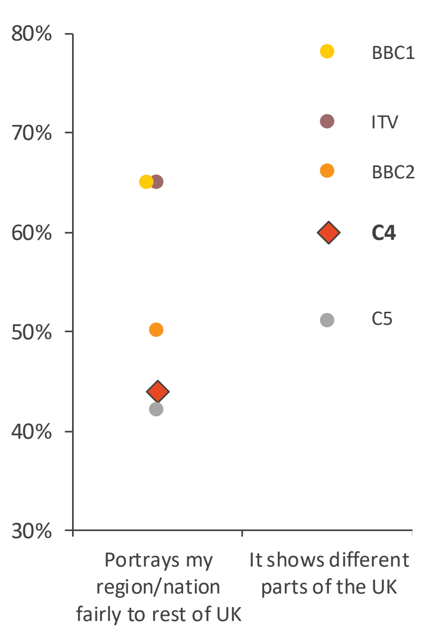
Regional representation has typically been one of the most under-delivered components of public service broadcasting, as measured by Ofcom (Figure 5.1), and one in which Channel 4's main public service channel rates less well than other public service channels (except Five) (Figure 5.2).

Figure 5.1: Importance and delivery of PSB purposes and characteristics, all PSB channels, 2016



Source: Ofcom PSB Annual Report 2017

Figure 5.2: Audience ratings of regional PSB purposes by channel, 2016



Source: Ofcom PSB Annual Report 2017

This may be because BBC One, BBC Two and ITV all (to varying degrees) have regionally-specific output in their schedules, as part of their public service remits. But Ofcom also found that Channel 4's main channel had experienced sizeable declines in its weekly reach in the North West of England, Scotland and Northern Ireland, and that its consumer research showed that it could be doing more to represent the different UK cultures and communities within its programmes.[50]

The link between location and audience value – whether defined in terms of programme output, viewing share or audience ratings – is unclear. There is no conclusive evidence to prove or disprove it, although there are some relevant data points from studies of the BBC's move to Salford: in 2013 the National Audit Office found "encouraging signs" that the anticipated benefits of the move, including improvements in the BBC's relative share of TV viewing in the north-west, were "beginning to be realised," although it was too early to reach firm conclusions about long-term benefits.[51] This was backed up by KPMG's 2015 report which found that the BBC's ratings for regional portrayal, and general impressions, had improved amongst audiences in the north of England since the move to Salford.

In Channel 4's case, vacancies in its commissioning team following relocation would likely be partly filled with local replacements, including staff recruited from regional independent production companies.[52] In the current debate about diversity in broadcasting, on-screen representation of ethnic minorities, women and disabled people is frequently linked to diversity of broadcasters' workforces,[53] although this remains a controversial area. There has been less focus on the link between regional portrayal and commissioners' location or identity, but it seems plausible that commissioners hired from the relocation region might be expected to have different perspectives, and producer relationships, which might over time result in more and different on-screen regional portrayal. This could conceivably lead to creative innovation, the commissioning of more programmes with a regional flavour, increased commissioning from local producers and/or more effective relationships with those producers, assuming production companies with sufficient capacity and capability exist in the host region. Regional and national audiences might benefit from this creative and cultural shift; there are already some examples of shows with prominent regional portrayal in Channel 4's schedule that drive big audiences (*Hollyoaks* being the most obvious example).

However, the link between C4C's headquarters and programme locations is indirect, and somewhat weaker than it might be for the other major public service broadcasters. There are several reasons for this. First, Channel 4's biggest hits tend to have little in the way of regional identity; its remit certainly has regional elements (to reflect cultural diversity, champion alternative viewpoints), but is more focused on national impact and programmes targeted at particular issues and demographic groups. This is unlike the BBC and ITV for whom dedicated regional programming is at the core of their remits. Secondly, C4C's incentive is to commission programmes that meet its remit and are commercially sustainable, wherever they are produced. That incentive does not immediately change as a result of relocation. Thirdly, C4C has no in-house production facilities, or majority stakes in independent producers, and therefore no regionally-based teams with a responsibility or propensity to make programmes in their local area. Finally, for its biggest shows (e.g. *Humans*), C4C may rely on international coproduction funding or deficit financing; in such cases regional identities could be of limited value and may even be confusing to international audiences.

So Channel 4's commissioning strategy and programming style would likely need to change to realise any significant improvement on regional portrayal from relocation. Additionally, local creative renewal might only positively impact the area immediately surrounding C4C's new location and, if Channel 4's OOL quota is unchanged, the spend on commissions from the local area might come at the expense of spend on programming from other regions; if this is the case, the diversity of pan-UK regional portrayal might suffer.

There are many other aspects of audience value such as quality of programming, distinctiveness, originality and ability to inform, which may potentially be affected by the Options; they change in tandem with the health of the business and size of the available commissioning budget which will be driven by commercial performance, and by cost increases or reductions in other areas. In that sense, the other factors we have discussed in this section could have indirect impacts on audience value both in the host region and for all audiences. Ultimately audience value is driven by the overall commissioning strategy and programming

[50] Ofcom, Letter to Channel 4 Corporation on its Statement of Media Content Policy 2016/17
[51] National Audit Office, The BBC's move to Salford, 2013
[52] KPMG found that around one third of the initial BBC jobs in Salford were newly hired, of which half were filled by people living in the North West
[53] House of Commons Library Briefing Paper, Diversity in Broadcasting, April 2016

style of the organisation; we note that this is likely entering a period of flux, with both C4C's Chief Executive and Chief Creative Officer departing in the second half of 2017.

5.5 Option 2 — Out-of-London shift in commissioning spend

5.5.1 Description of the scenarios

Channel 4 spent £441m on original programming on its main channel in 2016.[54] It reported spend with producers outside London of £169m. For the purposes of this analysis, we modelled two shifts in the distribution of this spend: first, the impact of a further shift of 20% of total spend out of London (£88m, or 'large shift'); and second, a 10% shift (£44m 'moderate shift').

In practice, both these scenarios would represent significant shifts in C4C's spending. Our modelling assumes that these shifts are feasible and can be achieved as the result of policy intervention. We do not intend to suggest that these increases would result from any particular change in policy. It is worth noting that the link between quota increases and spend increases is not direct, since Channel 4 already commissions significantly more outside London than it is required to, and could accommodate a certain amount of quota tightening without having to change behaviour. In other words, quotas may have to be increased by more than 20 percentage points to ensure a 20% shift in spend out of London.

Because OOL spend is distributed around the country, we have modelled the impact of increases in spend across all affected regions, not just the four regions considered for Option 1. We assume the additional OOL spend is distributed between regions in line with the current distribution of Channel 4's regional spend in 2016, as reported by Ofcom in its 2017 PSB Compliance Report. Ofcom reports regional spend distribution at macro-regional level; within each macro-region, we have allocated spend to the smaller NUTS-2 regions used for modelling, based on their 'TV and general media intensity' and our knowledge of Channel 4 commissions. This allocation is a simplification necessary for the modelling and is not intended as a prediction about how in practice any increases in out-of-London spend would be distributed.

5.5.2 Quantitative analysis of economic impacts

The following table represents the impacts of the large shift across all regions likely to receive part of the increased OOL spend, and the net impact calculated by subtracting the adverse impacts on London. Because of the relatively broad dispersal of C4C's spend across a wide range of different regions, these aggregate impacts would not be expected to change significantly as a result of limited differences in the distribution of future increases in OOL spend. If, however, a substantial proportion of any new OOL money were spent in regions from which we assume C4C currently commissions nothing, this could affect the aggregate impacts described here:

Table 5.6

Option 2: Large shift		Aggregate ex-London	Net impact on the UK
Direct	Change in GVA (£m)	88	-
	Change in employment	-	-
Direct + Indirect	Change in GVA (£m)	144	4
	Change in employment	957	90

[54] Channel 4 Annual Report 2016

Direct, Indirect + Induced	Change in GVA (£m)	298	17
	Change in employment	3,509	295

An £88m increase in C4C's OOL spend has a modelled impact on total GVA – direct, indirect and induced – of £298m across all affected regions, and an employment impact of a fraction over 3,500 jobs. At this level of spend shift, therefore, the *total* OOL impact is greater than full relocation of the business under Option 1. But it is dispersed across many regions, rather being concentrated in one.

Because of this, the *proportionate* impacts of a large shift in OOL spend are less than for Option 1, being a 0.04% increase in aggregate GDP across all affected regions, and a 0.03% increase in employment.

Table 5.7

Option 2: Large shift	**Aggregate ex-London**
Total Regional GDP, £m	*773,404*
% change in GDP *(direct)*	0.01%
% change in GDP *(direct and indirect)*	0.02%
% change in GDP *(direct, indirect and induced)*	0.04%
Total Regional employment, 1000	*13,545*
% change in employment *(direct)*	-
% change in employment *(direct and indirect)*	0.01%
% change in employment *(direct, indirect and induced)*	0.03%

The relationship between size of shift in OOL spend and economic impact is linear. So modelling a 'moderate shift' (£44m increase) in OOL spend shows a similar pattern, delivering half the value of the 'large shift' – a GVA impact of £149m (equivalent to a 0.02% increase in GDP of affected regions) and an employment impact of just over 1,750 jobs (0.014% increase).

5.5.3 Discussion of increased OOL spend scenarios

As with Option 1, there are many factors which may affect the modelled relationship between policy intervention and economic outcomes. We discuss some of the most significant here.

5.5.3.1 Distortion of incentives

The modelling necessarily assumes that changes in C4C's OOL spend can be implemented without any impact on other aspects of business performance or regional impact, but this is an oversimplification. In practice, a concerted strategy to drive more spend out of London would have unpredictable effects. On the one hand, it might identify and develop new talent around the country, spur innovation and incentivise currently London-based producers to relocate or set up new regional offices, all of which could help generate new ideas, potentially reduce the cost of commissions and enhance C4C's regional impact. But equally it could act as a constraint on C4C's commissioning choices, potentially reducing the commercial effectiveness of its schedule, which could over time require cuts that would reduce its economic impact across the whole of the country.

Similar interventions in ITV's regional production were made in the mid 2000s. Following its first review of public service broadcasting, Ofcom indicated that it intended to increase the regional production quotas on what was then called ITV1, to 50% by both volume and value – a small increase on previous performance - and to work with ITV plc to achieve a better dispersal of OOL production in the nations. ITV had also operated a Regional Production Fund for several years, intended to create opportunities for in-house and independent producers outside the M25 who would not normally pitch for network commissions, and at this time proposed to introduce a new ring-fenced fund of £9m to help regional producers meet increased demand from the network.[55]

However, Ofcom found subsequently that meeting the revised quota had imposed a significant cost on the Channel 3 network. It also concluded that the requirement, which had been met by long-running shows including quiz and other studio-based programming, had not delivered the additional diversity on screen which, in part, it had been intended to achieve. As a result, in 2009 Ofcom cut the quota to 35% by spend and volume.[56]

C4C and the current context are clearly different from ITV in the mid 2000s. In particular, Channel 4 has different incentives arising from its particular status and remit. Nonetheless, ITV's experience may reveal something of the challenges Channel 4 would face in meeting significantly increased regional production obligations, especially if these were introduced quickly and all at once. These risks could be partly mitigated by phasing in any increases in quotas over a number of years, as Ofcom has done with Channel 4's out-of-England production quotas, which were introduced at 3% by volume and value in 2012, with a planned increase to 9% in 2020.

5.5.3.2 Creative sector clustering

Increases in OOL spend are likely to mainly benefit existing creative clusters in the regions rather than build new ones. Producers will continue to gravitate towards those clusters, and Channel 4 will commission wherever it can find the best ideas and talent. This is likely to be beneficial for the total economic impact of increased OOL spend, relative to our modelling, since it reinforces existing agglomeration and network effects, and boosts the growth of production outside London - although it does not encourage the dispersal of production activity between the nations and regions. Conversely, efforts to require Channel 4 to disperse its spend more widely (such as increased nations production quotas), would tend to reduce the total economic benefit of this option.

5.5.3.3 Change to Channel 4's ownership stakes in production companies

As noted above, this change would have relatively little impact on C4C's regional economic contribution, unless investments were of a substantially greater size than its stakes in production companies to date. If this change were introduced in combination with a significant increase in OOL production, one way for C4C to achieve this increase would be to take stakes in regional companies to help build their capacity and commission more from them, which would provide a boost to regional economies. It is unclear whether these would be the most profitable investments available to C4C. If other, more commercially attractive investments were foregone in this scenario, its benefits would need to be set against the opportunity cost on long-term commercial performance.

5.5.3.4 Audience value impacts

Given the limited relationship between the location of C4C's headquarters and the destination of its commissioning spend, changing Channel 4's quota for first-run original programmes produced outside London may have more impact on C4C's regional portrayal and associated audience value than relocating

[55] Ofcom, Review of public service television broadcasting, Phase 3 – Competition for quality, February 2005
[56] Ofcom, Licensing of Channel 3 and Channel 5, May 2012

C4C's headquarters. The quota only directly affects spend on the main channel but this represents the bulk, around 90%,[57] of C4C's portfolio spend on originations.

An increase in the OOL quota would likely yield an improvement in regional portrayal if it results in an increase in the number of programmes based outside London with a distinctive regional flavour. Ofcom has shown that these types of programmes, most notably dramas such as *EastEnders* and *Coronation Street*, are typically more popular in the regions with which they are associated compared to the rest of the UK. However, this only holds for programmes with a distinctive connection to a particular location[58]; while this is feasible for dramas, some comedy and potentially magazine formats, other genres might struggle to demonstrate this connection. As discussed previously, Channel 4 currently produces few regionally distinctive programmes. If the style of C4C programming did not change, then the benefit to regional portrayal of an increased quota might be limited.

Other factors could limit the impact on regional portrayal of increased OOL production, as defined by Ofcom (section 3.2). First, productions only need to meet two of the three criteria thus allowing predominantly London-based producers to make OOL qualifying productions. Second, the criteria do not impact the subject or content of the programme so qualifying productions do not need to have a regional flavour.

Finally, one interpretation of current audience perceptions of regional portrayal by channel may suggest only a limited connection between quotas and regional portrayal. Channel 4 and Five perform similarly amongst audiences in terms of regional portrayal (Figure 5.2)[59] despite their sizeable difference in OOL spend (Channel 4 spent 40% of their commissioning spend on programmes produced outside London in 2016 while Channel 5 only spent 10%[60]). As we noted above, the other public service channels – with broadly similar percentage levels of OOL spend but dedicated regional news and non-news programmes in their schedules – score more highly, and Ofcom found "room for improvement" in viewers' ratings of regional portrayal.[61]

In addition, quota changes could have wider impacts on audience value but the extent and direction of these impacts largely depends on how C4C reacts to the changes. Increasing OOL quotas could drive innovation and the commissioning of more distinctive programming; on the other hand, it might lead to a reduction in programme quality as a result of restricting Channel 4's commissioning behaviour and ability to fund the best content ideas irrespective of where they come from.

5.6 Hybrid scenarios

We were asked to consider how the Options might interact if implemented together.

If there were no relationship between them, the economic impact estimates described above could be simply added together. But there is a credible long-term scenario in which the Options do interact. If relocation and increased OOL quotas were combined, it is conceivable that the focus of C4C's commissioning activity, producer relationships and wider creative strategy could change, contributing to a shift in commissioning over and above what is achieved through quotas alone. Commissioners may be expected to look close to their new home to achieve the new OOL spend requirement; they may form new networks with different producers and creative organisations; even their perception of audience needs and commissioning priorities may evolve. In this scenario, the combination of Options 1 and 2 may result in a 'location boost' that, over time, delivers an additional increase within the new host region over and above the impact of the Options individually.[62] In this case the total economic impact of the combined Options would be greater than the sum of the parts. Four variants of this scenario are described in 'Hybrid Scenario 1' below.

In addition, we modelled the potential effect of relocation in reducing wages as a 'hybrid' scenario, given the potential sensitivity of C4C's overall economic impact to this factor, both as an incremental change to

[57] Channel 4 Annual Report 2016
[58] Ofcom, Reshaping television for the UK's nations, regions and localities, 2004
[59] Ofcom, PSB Annual Research Report 2017: Audience opinions
[60] Ofcom, PSB Annual Compliance Report 2017
[61] Ofcom, Letter to Channel 4 Corporation on its Statement of Media Content Policy 2016/17
[62] Arguably this could benefit surrounding regions as well as the new host region, but for simplicity we have not attempted to model this effect

hybrid scenario 1 (see ‘Hybrid Scenario 2’) and as a variant of the Option 1 relocation scenarios (‘Hybrid Scenario 3’).

5.6.1 Hybrid scenario 1: relocation and increased OOL spend

The three relocation scenarios and two OOL spend scenarios derive a total of six possible combinations. We excluded two variants of ‘limited relocation’, as this scenario involves commissioning teams remaining in London, and therefore the ‘location boost’ would not occur. We modelled two variants of the ‘location boost’, a larger effect (£12m increase in commissioning in the target region); and a moderate effect (£6m increase in the target region). This is assumed to be a further shift in spend from London, and does not involve a reduction in spend in other regions. The proportionate effect of the location boost is greater in regions that are otherwise assumed to receive less benefit from increased OOL spend.

These are modelling assumptions, representing significant increases in spend in the target region, and chosen to illustrate the breadth of possible outcomes; as with the standalone Options, they are not intended to be predictions of how Channel 4 might respond to the Options in practice, nor assessments of the feasibility of achieving these increases. If the location boost were not as great as this in practice, the economic benefit of relocation would clearly be lower.

The full specification of the variants of this hybrid scenario is, therefore:

- HS1a-1: Full relocation with large shift (£88m) in OOL spend, and large location boost (£12m additional shift in spend from London to the target region).
- HS1a-2: Partial relocation with large shift (£88m OOL spend on content) and large location boost (£12m additional shift in spend from London to the target region).
- HS1b-1: Full relocation with moderate shift (£44m OOL spend on content) and moderate location boost (£6m additional shift in spend from London to the target region).
- HS1b-2: Partial relocation with moderate shift (£44m OOL spend on content) and moderate location boost (£6m additional shift in spend from London to the target region).

The biggest impact modelled – associated with full relocation, a large shift in OOL spend and a further large location boost – delivers a total economic benefit (direct, indirect and induced GVA) to regions outside London of around £575m. The modelled employment impact outside London is around 7,400 jobs. The location boost makes the economic and employment benefits felt outside London 7-8% greater than the impacts of the Options considered separately.

The second most beneficial variant of this hybrid scenario would be C4C’s partial relocation outside London, coupled with a large increase in OOL spend, and delivering a further large location boost. This delivers a modelled GVA impact across all regions outside London of around £510m, and an employment benefit of 6,480 jobs. The location boost accounts for around 8% of these benefits.

Completing the analysis, modelling a full relocation with a moderate shift in spend and a moderate location boost delivers total economic benefit to regions outside London of around £395m and 5,290 jobs. Finally, modelling a partial relocation with a moderate shift in spend and a moderate location boost creates £330m GVA and 4,360 jobs outside London.

All variants of this scenario deliver a small positive benefit to the UK as a whole. When adverse effects on London are taken into account, the total GVA benefit (direct+indirect+induced) is at most around £27m, with a net employment impact of around 470 jobs. These figures relate to the most beneficial variant – full relocation, large shift in OOL spend, large location boost – and are lower in the other variants.

The following table summarises this range of outcomes, showing the average impact across all modelled regions. Modelled impacts for specific regions differ by less than ±0.5% from these averages:

Table 5.8

Hybrid scenario 1: option 1+ option 2 + location boost	**Change in GVA** *(all regions ex-London, direct, indirect + induced)*	**Change in employment** *(all regions ex-London, direct, indirect + induced)*	**Net GVA change** *(whole UK, direct, indirect + induced)*	**Net employment change** *(whole UK, direct, indirect + induced)*
HS1a-1: Full relocation, large shift, large location boost	£575m	7,410	£27m	470
HS1a-2: Partial relocation, large shift, large location boost	£510m	6,480	£24m	420
HS1b-1: Full relocation, moderate shift, moderate location boost	£395m	5,290	£19m	335
HS1b-2: Partial relocation, moderate shift, moderate location boost	£330m	4,360	£15m	270

As with the standalone Options, in practice these impacts could be affected by a number of factors. If C4C's commercial performance deteriorates, either because of exogenous market developments or because of any costs and productivity impacts resulting from the introduction of these policies, the economic benefits may be reduced. Similarly, the scenarios assume Channel 4 can make these significant changes in its OOL spending without incurring new costs or jeopardising its commercial effectiveness.

Just as we assessed the benefits of relocation to be most at risk from a combination of these circumstances, so the additional complexity of relocating C4C and achieving a substantial shift in the regional distribution of Channel 4's spend while also navigating a period of ongoing change in the wider media sector, would represent a significant risk. This risk could be partly mitigated by introducing changes in a phased way, over a number of years.

5.6.2 Hybrid scenario 2: relocation, wage effect and increased OOL spend

This scenario builds on hybrid scenario 1, to incorporate a relocation wage effect.

C4C's staff costs are likely to fall over time following relocation, for two reasons: first, when staff decline to relocate, C4C may be able to replace them at lower salaries than those staff cost in London. Secondly, for staff who do relocate, future wage increases may be lower than they would have been had they remained in London.[63]

For the purposes of modelling this scenario, we assume that the impact of this is a 20% across-the-board reduction in staff costs, in the medium-long term. This is based on estimates provided by DCMS sourced from analysis by C4C/Deloitte. We have validated these assumptions against regional media wage data

[63] In the case of the BBC's move to Salford, staff who relocated from London retained their London-weighted salaries, but received no pay increases until their salaries fell within the BBC's out-of-London salary band. National Audit Office, The BBC's move to Salford, 2013

from the ONS' 2016 Annual Survey of Hours and Earnings.[64] This data suggests that in occupations relevant to C4C, median wages in the types of regions under consideration are typically between 75-85% of the London median wage.

We have assumed that any reduction in staff costs are spent on content, in line with C4C's stated strategy to prioritise delivery of its remit rather than to return profits. Some of this content would be produced outside London, and some in London. So there are countervailing effects of wage reductions: they tend to reduce C4C's economic impact in the relocation region (by reducing its investment in labour in that region), but increase impact across all regions (including London) by boosting its spend with content producers. We have assumed that any increases in content spend arising from lower staff costs are distributed between regions in line with C4C's new distribution of content spend, following the increase in OOL spend that results from implementation of Option 2.

The key finding of this analysis is that the *total* regional impact is greater in these scenarios than in hybrid scenario 1, albeit the economic impact in the relocation region is lower. This is true of both aggregate benefit across all regions outside London, and the net effect on the UK as a whole. In effect, the indirect and induced effects that arise in multiple UK regions as a result of increased content spend outweigh the indirect and induced impact of lower staff costs in the relocation region.

By way of illustration, the total regional economic benefit of relocation, a large shift in OOL spend, a large location boost and a 20% wage reduction is modelled to be £580m, and the regional employment impact is 7,490 jobs. The net impact on the UK, taking into account adverse effects on London, is a modelled GVA increase of around £77m and an employment benefit of 1,050 jobs.

This is shown in the following table, which summarises the results of the modelling for hybrid scenario 2, showing the average impact across all modelled regions (modelled impacts for specific regions differ by less than ±0.5%):

Table 5.9

Hybrid scenario 2: hybrid scenario 1 + 20% staff costs reduction	**Change in GVA** *(all regions ex-London, direct, indirect + induced)*	**Change in employment** *(all regions ex-London, direct, indirect + induced)*	**Net GVA change** *(whole UK, direct, indirect + induced)*	**Net employment change** *(whole UK, direct, indirect + induced)*
HS2a-1: Full relocation, large shift, large location boost	£580m	7,490	£77m	1,050
HS2a-2: Partial relocation, large shift, large location boost	£515m	6,550	£61m	840
HS2b-1: Full relocation, moderate shift, moderate location boost	£400m	5,360	£68m	890
HS1b-2: Partial relocation, moderate shift, moderate location boost	£335m	4,420	£52m	690

[64] See https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/bulletins/annualsurveyofhoursandearnings/2016provisionalresults#regional-earnings

5.6.3 Hybrid scenario 3: relocation wage effect in isolation

This scenario considers the effect of reduced wages on the economic impact of relocation, absent any policy-driven shift in OOL spend. Following relocation, C4C's staff costs are assumed to fall by 20% (as described in hybrid scenario 2), with these savings reinvested in content, split between London and regions outside London in line with C4C's current regional distribution of spend.

Again, we have modelled the aggregate effect on all regions outside London, to capture both the specific regional effect on the relocation region and the dispersed benefits of increased commissioning across a range of regions (and London).

This aggregate impact is slightly greater than in Option 1, relocation without any wage effect. As with hybrid scenario 2, the indirect and induced benefits of content production dispersed amongst a number of regions more than offset the relatively lower benefit to the relocation region resulting from reduced staff costs.

The net impact on the UK, however, is considerably bigger than in Option 1, since the adverse effects on London of relocation are partially offset by increased commissioning spend, some of which is spent in the capital.

As before, the following table shows the average impact across all modelled regions (ranges are shown as impacts in specific modelled regions differ by more than ±0.5% from these averages):

Table 5.10

Hybrid scenario 3: Option 1 + 20% staff costs reduction	**Change in GVA** *(all regions ex-London, direct, indirect + induced)*	**Change in employment** *(all regions ex-London, direct, indirect + induced)*	**Net GVA change** *(whole UK, direct, indirect + induced)*	**Net employment change** *(whole UK, direct, indirect + induced)*
HS3a: Full relocation, no shift in OOL spend	£238 - 240m	3,450 - 3500	£58 - 61m	700 - 750
HS3b: Partial relocation, no shift in OOL spend	£174 - 176m	2,540 - 2,580	£43 - 45m	530 - 570

6. Conclusions

6 Conclusions

The government identified three objectives for the policy options considered in this report: contributing to regional economic growth; stimulating regional creative industries; better serving regional audiences. This report is primarily concerned with the first of these objectives, although we have addressed the others in our qualitative analysis. We have evaluated multiple scenarios and combinations of the two options under consideration.

Relocating an organisation of 800 staff, and with a staff cost of £80m, will inevitably deliver economic benefit to the new host region. We estimate this ranges from around £90m for the most limited modelled scenario, up to £230-240m for full relocation. There is relatively little difference to the impacts in absolute terms across the four modelled regions; agglomeration and network effects, which have not been modelled, will tend to be higher in regions with established TV and media sectors. C4C's potential to establish a new creative cluster in a region without such existing activity would be hampered by its lack of in-house production capability and relatively small creative workforce.

The modelled benefits would be lower if C4C's commercial performance and staff costs declined, whether as a result of these policy interventions or for a range of possible exogenous reasons.

The net benefit to the UK economy of relocation is marginally positive. It could be larger, if C4C benefits from lower staff costs in its new location, enabling it to spend a greater share of income on commissioning content from all regions. Equally it could be smaller, and possibly negative, if C4C's commercial performance, profitability and number of employees were to fall in future.

Finally, we have considered the effect of relocation on regional audience value. We note that both the NAO and KPMG found signs that perceptions of the BBC amongst audiences in the north of England have improved since its partial relocation to Salford. We also note that Ofcom has identified the potential for C4C to do more with respect to regional portrayal. While there is no robust evidence of a direct link between broadcasters' location and programme commissioning, it seems plausible that over time, relocation might result in different commissioning choices and new producer relationships that could deliver greater and more diverse on-screen regional portrayal.

However, relocation does not itself change C4C's incentive to deliver the most effective programmes (in remit and commercial terms), wherever they are made. We note that Channel 4's most popular programmes, with a few notable exceptions, tend to have little specific regional identity. Its commissioning strategy is driven by a remit that, while having regional elements, is arguably primarily concerned with nationwide impact and relevance to cross-cutting demographic groups, compared to other PSBs with specific regional programming obligations.

With respect to increased out-of-London spend, the impact on any single region is unsurprisingly less than under any relocation scenario. But the *aggregate* benefit across all regions receiving increases could be greater, depending how much spend C4C succeeds in moving. The modelled changes in spend represent a substantial shift in commissioning from London to the regions, and it is possible that this could have unintended consequences for C4C's commercial performance, which may tend to reduce the regional benefit of this option; phasing in quotas over time could mitigate this risk in part.

Increases in OOL spend would likely benefit existing creative clusters rather than establish new ones. This is likely to be beneficial for the total economic impact of this option, and support the growth of production centres outside London, although would not improve the dispersal of production between the regions.

With respect to audience value, we judge that increased OOL spend would likely have more direct and rapid effects on its regional portrayal than relocation, although these would still be likely limited to parts of Channel 4's schedule.

The greatest economic benefit is derived by combining relocation and increased out-of-London spend, but the risks to deliverability are also highest in these scenarios, given the substantial complexity of making both changes, at a time of revenue uncertainty and continued change in the wider media sector.

7. Annex

7 Annex

7.1 National I-O modelling

Most Input-Output analysis is based upon the static input-output system developed by Wassily Leontief in the 1930s. Leontief's model is based upon fixed, linear production functions and sets out the output needed from each industry in order to satisfy a given vector of final demand.

For illustrative purposes, assume that the economy has three sectors: agriculture, industry and services. There are two factor inputs: labour and capital. The end uses for the products of each sector are summarised in one quantity vector called final demand (in a more complicated model, this would be broken down into household consumption expenditure, government consumption expenditure, gross fixed capital formation and net exports).

In this simplistic model, the production of any sector can be looked at by use – the produce is used as inputs by any or all of the three sectors, and is sold to final demand. The entire economy may be summarised in the following three equations:

$$
\begin{aligned}
X_{AA} + X_{AI} + X_{AS} + X_{AD} &= X_A \\
X_{IA} + X_{II} + X_{IS} + X_{ID} &= X_I \\
X_{SA} + X_{SI} + X_{SS} + X_{SD} &= X_S
\end{aligned}
$$

Here:

- Sectors are represented by the following subscripts: A = agriculture, I = industry, S = services;
- X_{ij} is the intermediate demand for the produce of sector i by sector j, where $i, j \in \{A, I, S\}$;
- X_{iD} is the final demand for the produce of sector i;
- X_i is the total production of sector i; and
- all units are in money terms.

The assumption of fixed coefficients is interpreted in the following way. Take the industry sector. It needs to use X_{AI} of the produce of the agriculture sector to produce X_I of final produce. Consequently, it needs $\frac{X_{AI}}{X_I}$ worth of the agricultural produce to produce product worth one unit of currency. The assumption is that a_{AI} is the fixed technical coefficient of intermediate consumption that provides one link between the industry and agriculture sectors – regardless of the amount that the industry sector produces this proportion would remain constant. Similar intermediate consumption coefficients may be calculated for links between each pair of sectors.

$$
a_{ij} = \frac{X_{ij}}{X_j} \; for \; i, j = A, I, S
$$

The system of equations can then be represented in terms of the fixed technical coefficients, the total production of each sector and the final demand facing each sector as follows.

$$
\begin{aligned}
a_{AA}X_A + a_{AI}X_I + a_{AS}X_S + X_{AD} &= X_A \\
a_{IA}X_A + a_{II}X_I + a_{IS}X_S + X_{ID} &= X_I \\
a_{SA}X_A + a_{SI}X_I + a_{SS}X_S + X_{SD} &= X_S
\end{aligned}
$$

Using matrix notation, this may be re-written as follows.

$$
\begin{bmatrix} a_{AA} & a_{AI} & a_{AS} \\ a_{IA} & a_{II} & a_{IS} \\ a_{SA} & a_{SI} & a_{SS} \end{bmatrix}
\begin{bmatrix} X_A \\ X_I \\ X_S \end{bmatrix} +
\begin{bmatrix} X_{AD} \\ X_{ID} \\ X_{SD} \end{bmatrix} =
\begin{bmatrix} X_A \\ X_I \\ X_S \end{bmatrix}
\Rightarrow \boldsymbol{A} \cdot \boldsymbol{X} + \boldsymbol{X_D} = \boldsymbol{X}
$$

With this set up, it now becomes possible to analyse the effects on the economy when the final demand changes for the produce of a certain sector. The problem is straightforward – we have a new set of final demands X_{iD} (contained in the vector $\boldsymbol{X_D}$) and a set of technical coefficients a_{ij} (which are contained in the matrix $\boldsymbol{A}$) that are known. We need to know what the total produce of each sector should now be, i.e. we need to find the X_is (contained in the vector $\boldsymbol{X}$). In terms of the three-equation set up, the problem is simple – there are three equations with three unknown variables to solve for. Simple algebraic manipulation leads us to the new final outputs.

For computational reasons, it is easier to work with matrices, as in actual models the number of sectors is much higher than three, and algebraic manipulation becomes harder. Thus, in matrix terms, the solution is given by manipulation of the basic set-up equation.

$$\boldsymbol{X} = (\boldsymbol{I} - \boldsymbol{A})^{-1} \cdot \boldsymbol{X_D}$$

Here:

- $\boldsymbol{I}$ is an identity matrix with 1 along the diagonal and 0 elsewhere; and
- $(\boldsymbol{I} - \boldsymbol{A})^{-1}$ is the inverse of the matrix $(\boldsymbol{I} - \boldsymbol{A})$

7.2 Regional I-O modelling

Regional I-O models are a variant of national I-O models where instead of national sectoral input multipliers, regional sectoral multipliers are used to estimate the indirect and induced effects of a direct change in demand in a given region. These regional multipliers are estimated using regional sector level data. The most commonly used method of estimating regional input multipliers is the use of location quotients which also accounts for some interregional trade and the exchange of production factors.

As data are not available on regional purchases and sales for all UK regions, regional I-O tables cannot be formed in a way similar to the national I-O tables for all the regions. In this case, to estimate regional coefficients, we use employment based location quotients (LQ) from the ONS to derive regional input-output coefficients from the national UK I-O table. These location quotients measure the intensity of the relative industries in the regions based on the employment in each sector in each region relative to national employment in that sector. Thus by construction, they reflect the relative industrial specialisation profiles of each region.

The regional input coefficient for sector j using input from sector i is given as follows:

$$\boldsymbol{rij} = \boldsymbol{LQ} * \boldsymbol{aij}$$

where aij is the corresponding national coefficient for sector i (supplying or input sector) and sector j (purchasing or output sector). The intraregional input coefficient, rij is thus defined as the regional amount of input i required to produce one unit of regional gross output of sector j.

The location quotient LQ can be seen as a regional trading coefficient measuring the proportion of regional requirements met by local firms. There are a number of location quotients which can be used to estimate the above relationship. However, for the purpose of our research we have used the most commonly used location quotient, the CLIQ which is the relative ratio of the following two ratios— the ratio of regional to national employment in the supplying sector (the sector that supplies the output of C4C, i.e. the media-relevant sectors) and the ratio of regional to national employment in the purchasing sector (the sector that provides inputs to the media-relevant sectors).

The CLIQ allows us to estimate the regional multipliers in a similar manner to national multipliers discussed below in 7.3.

Once the regional multipliers are estimated, they can be used in a way similar to the national multipliers to estimate the economic impact (direct, indirect and induced impact on GDP, employment and taxes) of moving C4C or different outputs pertaining to C4C to different UK regions.

7.3 Estimating the direct, indirect and induced effects

For the purpose of this study, regional IO tables were constructed from the latest available national UK IO table.[65] To estimate the impacts on the macroeconomic variables (GDP, employment, tax), in effect the IO model undertakes the following calculations:

7.3.1 GDP effects

The direct effect on GDP stems from the change in output of the sectors under consideration (e.g. the media relevant sectors as a result of the relocation of Channel 4). This direct effect feeds into the IO model to give us combined direct and indirect effects on GDP as follows.

We first calculate the proportion of output in each sector that represents additional value creation. We then multiply that by the increase in output in each sector as a result of the increase in the sectors of interest (media-relevant sectors). As GDP is simply the sum total of all goods and services produced in the economy, the new GDP is obtained by summing the increased value added in each sector.

The induced effect on GDP is estimated using income multipliers. To do this, we first estimate income multipliers based on savings and import rates. We then multiply the direct and indirect GDP effects (excluding induced effects) by the income multipliers to arrive at the total effects (including induced effects). It should be noted that this analysis is conducted only at the whole economy level, not at the sector level.

7.3.2 Employment effects

Similar to the direct GDP effect, the direct effect on employment is the number of employees employed by Channel 4 in the region. In option 1, the direct employment effect is determined by the number of Channel 4 employees involved in the activities that would move to the target region and the proportion of existing C4 employees who would be expected to relocate.

For the direct and indirect employment effect, we multiply the change in output in each sector as a result of change in output in the media-relevant sectors by the number of employees it takes to produce one currency unit worth of produce. The latter is a fixed coefficient, and has been calculated using initial production and initial employment. Initial employment is generally available from Eurostat, ONS and other sources based on the same SIC categories as the IO tables. The sum total of this multiplication gives us the total direct and indirect effect on employment.

The induced effect on employment is estimated by multiplying the induced effect on GDP by the ratio of employment to GDP in the UK.

7.3.3 Tax effects

The direct effect on tax revenues is the corporate tax collected from Channel 4. The indirect tax effect captures the additional tax revenue generated by the indirect employment effects and indirect GDP effects on associated businesses. This is expected to vary by region because of the regional industrial specialisation/profile and the varying profitability of the businesses in that region. It will not however capture differences in tax revenue resulting from regional wage differentials. The indirect tax effect has been estimated by applying the UK's average tax revenue — 35.7 per cent[66] — to the indirect GDP impact. Similarly, to estimate the induced tax impact, the induced GDP effect is multiplied by the average tax revenue of 35.7 per cent.

7.4 Assumptions and limitations of IO modelling

The key advantage of the IO analysis is its ability to reflect inter-relationships and inter-dependencies across sectors in the economy. The inter-relationships reflect the production of intermediate goods (inputs),

[65] See https://www.ons.gov.uk/economy/nationalaccounts/supplyandusetables/datasets/ukinputoutputanalyticaltablesdetailed
[66] 37.5 per cent is the UK tax revenue as a percentage of GDP for the year 2015.

which are further used in the production of final goods (outputs), thus constituting a major part of economic activity. Ultimately, these mutual relationships result in equilibrium between demand and supply.

However, despite its inherent advantages, the IO analysis relies on specific assumptions which may impede the accuracy of complex impact assessments, in particular:

- **Relocation assumptions** — the IO analysis assumes that all of the staff employed by Channel 4 in the relevant area(s) live in the same area. As such, in the Channel 4 move scenarios in Option 1, it does not allow for employees remaining in London and commuting to the new site.
- **Technology assumptions** — while estimating regional coefficients, the Location Quotient methodology described above assumes that national and regional technologies are the same.
- **Constant input coefficients** — the IO analysis is based on the assumption that the input coefficients are fixed, which implies constant returns to scale (i.e. increasing the number of inputs leads to an equivalent increase in output). This assumption, although it may hold in the short run, appears unrealistic as increases in output do not always require proportionate increases in inputs.
- **Input Substitution** — a firm or an industry is likely to be able to substitute one input for another to some extent. However, the assumption of fixed coefficients of production in IO modelling ignores the possibility of input substitution.
- **Restrictiveness** — IO models emphasise the production side for the economy and, as such, do not explain why the inputs and outputs are of a particular pattern. In this respect, phenomena such as production bottlenecks (i.e. a situation where overall production is jeopardised by one sector as its ability to provide inputs to downstream sectors is impeded) would be tough to model within a static IO framework with constant input coefficients.
- **Lack of supply-side constraints** — multipliers assume that extra output can be produced in one area of activity without taking away resources from other activities. Actual impacts would be dependent on the availability of appropriate labour and capital and other productive inputs. This is particularly important at the regional level.
- **Difficulties in incorporating final demand** — IO models often consider purchases by the government and consumers as given (i.e. final demand is regarded as an independent or exogenous variable). This means that changes in household or government consumption occur without affecting demand elsewhere (i.e. the producing sectors' demand for inputs). In practice, the level of consumption expenditure by households and government would be budget constrained and interact with producing sectors.
- **Accounting for price changes** — if the prices of inputs change, the prices of other inputs and outputs are also likely to change. However, IO modelling ignores price changes. This means that the effects of relative price changes do not affect the allocation of resources. In reality, this would not be the case due to constraints on the availability of labour, capital and other inputs.
- **Labour skills** — closely related to the price change issue, IO modelling does not assume different types of labour (e.g. reflecting divergent skills) with a different respective price of labour. In this respect, employment effects in an IO framework refer to the aggregate impact on employment without distinguishing across potential drivers of the total effect (e.g. wage effect or job creation effect)
- **Inter-regional trade** — regional IO tables are usually derived based on the application of location quotients (LQs) to the national IO table. In this regard, inter-regional trade and labour flows cannot be accurately incorporated in the analysis.
- **Tax effects** — since the model does not account for wage differentials across different regions, the tax effect estimated by the IO analysis will be limited as it will only capture the additional tax from the indirect and induced effect on employment and GDP, these will vary depending on the industrial specialisation/profile of each region.

Despite these reservations, demand-driven IO analysis does provide an understanding of the backward linkages between industries and, in the short-term, it allows us to infer the likely effects of policies, such as stimulus programmes.

7.5 Channel 4 cost categorisation

For the purposes of modelling, we assumed that the activities, and associated costs, of Channel 4 fall into four sectors defined by SIC codes (as described in section 4.2.2). We apportioned the staff costs that we assume move outside London in each relocation scenario into these sectors based on C4C's latest financial statements, current employee headcount by function and our knowledge of C4C's activities. The results of this apportionment, in terms of the percentage of relocating staff costs, can be seen in the table below:

Table 7.1

SIC categories	Full relocation	Partial relocation	Limited relocation
SIC59-60: Motion picture, video and television programme production, sound recording and music publishing activities; programming and broadcasting activities	39%	52%	22%
SIC62-63: Computer programming, consultancy and related services; information services	7%	10%	10%
SIC73: Advertising and market research services	30%	6%	10%
SIC82: Administrative and support service activities	24%	32%	58%

7.6 Results of limited relocation (Option 1)

As described in section 5.4, we also modelled the economic impact of a limited relocation scenario which assumes only operations and consumer insight teams move outside London. Limited relocation would deliver a smaller impact than full or partial relocation; the GDP benefit in the target region would range from £94-96m, and the employment impact would be between 1,390-1,420 jobs. The full results of our limited relocation analysis are shown in the table below:

Table 7.2

Option 1: limited relocation	Region 2		Region 3		Region 4		Region 6	
Direct	*Actual impact*	*Net change in the UK*	*Actual impact*	*Net change in the UK*	*Actual impact*	*Net change in the UK*	*Actual impact*	*Net change in the UK*
Change in GVA (£m)	32	-	32	-	32	-	32	-
Change in employment	344	-	344	-	344	-	344	-
Direct + Indirect								
Change in GVA (£m)	49	1	49	1	49	1	49	1
Change in employment	638	20	639	22	637	20	635	17
Direct, Indirect + Induced								
Change in GVA (£m)	95	4	96	4	95	3	94	3

Change in employment	1,405	66	1,414	74	1,402	62	1,391	51

7.7 Sensitivity analysis

Whenever we carry out modelling it is good practice to conduct what we call “sensitivity analysis” to test how sensitive our results are to the assumptions we have made. A key assumption in our model is the effect of relocation of C4C on the location of content production arising from its commissioning decisions (see section 4.2.2). We therefore examined how robust our results are to changes in these assumptions, by modelling scenarios in which we discounted 80% of the modelled impact on SIC59-60 (Motion picture, video and television programme production, sound recording and music publishing activities; programming and broadcasting activities) and 20% of the modelled impact on SIC62-63 (Computer programming, consultancy and related services; information services). This is different from the assumption in the main body of the report where we discounted 80% of SIC59-60 and 10% of SIC62-63.

Overall, the estimated impacts of full and partial relocation under these altered assumptions are broadly consistent with those in the original model. The impacts vary a little, but not significantly, for the different region types and, as expected are a little greater on regions with high TV and media intensity and low unemployment; and fractionally smaller in regions with low TV and media intensity, and high unemployment.