Dadansoddi ar gyfer Polisi
YMCHWIL GYMDEITHASOL Y LLYWODRAETH
GSR
GOVERNMENT SOCIAL RESEARCH
Analysis for Policy

UNDEB EWROPEAIDD EUROPEAN UNION
Llywodraeth Cymru Welsh Government
Cronfa Datblygu Rhanbarthol Ewrop
European Regional Development Fund

Llywodraeth Cymru
Welsh Government

SOCIAL RESEARCH NUMBER: 35/2023
PUBLICATION DATE: 25/04/2023

Evaluation of EU Funded Infrastructure: Phase Four

Summary

1. Research aims and methodology

1.1 This report provides the findings of Phase Four of the evaluation of EU funded infrastructure in Wales. The study includes all infrastructure that has been funded through the European Regional Development Fund (ERDF) during the 2000-06 and 2007-13 programme periods. This includes investments in digital infrastructure, learning infrastructure, research and innovation facilities, sites and premises, tourism infrastructure and transport infrastructure.

1.2 The purpose of Phase Four was to consider the feasibility of undertaking an impact evaluation of the infrastructure investments funded by the ERDF and to set out recommended methods. This was investigated through a desk based review of approaches used to assess the impact of different types of infrastructure investment (focusing on counterfactual impact evaluation[1] methods) and the feasibility of applying these retrospectively to the investments funded during the two ERDF programmes covered by this study.

1.3 The review uses the Maryland Scientific Measurement Scale (SMS) to assess the relative robustness of different methods based on the extent to which the control group is robust and has dealt with the issue of selection bias. This ranges from Level 1 to Level 5, with Level 5 approaches considered to be the most robust. The What Works Centre for Local Economic Growth minimum standard required for a study to be considered to be robust is Level 3.

[1] Counterfactual impact evaluation (CIE) is a method of evaluation which involves comparing the outcomes of interest of those having benefitted from a policy or programme with those of a group similar in all respects to the treatment group except they did not benefit from the intervention. CIE therefore represents the most robust way of attributing outcomes and impacts to an intervention (establishing causality).

2. Key findings

2.1 The findings for each of the different types of infrastructure funded by ERDF are summarized below.

Digital Infrastructure

2.2 It should be feasible to conduct a retrospective counterfactual impact evaluation of the investment in superfast broadband (SFB) infrastructure funded during the 2007-13 programme. This could use a similar approach to that used by the Department for Culture Media and Sport (DCMS) in its evaluation of the SFB programme. This used areas that benefitted from broadband in later phases as a control group for areas that received coverage earlier and a difference-in-difference analysis to measure the outcomes that could be attributed to the intervention. This is a quasi-random method which could potentially achieve a Level 4 on the SMS scale. However, this approach is dependent on:

- there being no systematic differences between areas that received coverage at different times that are correlated with economic outcomes (e.g. higher productivity). This would need to be tested by the evaluation.
- the detailed data on roll-out at postcode level still being available.

2.3 This would be a firm-level approach and therefore would not capture all of the displacement, spill-over and multiplier effects that affect additionality. The evaluation would therefore need to make some additional adjustments to estimate impacts for Wales as a whole, either using a separate business survey or by making assumptions informed by guidance and existing studies.

Learning Infrastructure

2.4 It would be very difficult to carry out an impact evaluation of investments in Further Education (FE) colleges that meets a minimum score of 3 on the SMS scale. The tried and tested approaches have all assessed impacts of infrastructure on the performance of colleges, however this would not be feasible in this case due to the low numbers of colleges that have received ERDF investment and the low numbers that have received no capital investment at all. This would make it difficult to construct a treatment and control group of sufficient size to give robust results.

2.5 The most robust option in this case is likely to be a matched control group approach, which compares completion and attainment rates for a cohort of students who enrolled after the investment with a cohort from before the investment took place. This would need to control for any variables which could explain differences in performance between the two cohorts, including pupil characteristics and time related variables. It is also important that the treatment group is made up of students from within the college catchment area to minimise the risk of selection bias. It would also be feasible, in theory, to assess differences in longer term outcomes such as employment rates and earnings, although this would be subject to matching data in the Individualised Learner Record with other employment datasets, which could be difficult in practice.

Research and Innovation Infrastructure

2.6 There are a number of well-established counterfactual methods for assessing the impact of R&I investments similar to those funded by ERDF. The most common involve linking beneficiary businesses to the Business Structure Database (BSD), identifying a control group of businesses using Propensity Score Matching and applying difference-in-difference methods to measure the difference in performance between treated businesses and the control group. However, the ability to undertake it successfully in this instance is heavily constrained by a number of factors:

- the very limited monitoring data available on the business beneficiaries which is necessary to allow successful linking to the BSD, as well as non-availability of other beneficiary level metrics on innovation activity pre and post support
- the considerable amount of time which has elapsed since businesses received the support, given the likelihood that innovation and growth orientated businesses are likely to have gone on to receive other forms of both free and paid for innovation and business support services Whilst the time elapsed does ensure that the impact of the ERDF will have been realised, it will be difficult to disentangle the impacts from other forms of support.

Sites and Premises

2.7 Spatial differencing approaches offer the best option for undertaking a counterfactual impact assessment of sites and premises interventions. These approaches focus on the change in outcomes (e.g. the number and performance of businesses) in a treated area compared to the change in outcomes in neighbouring areas.

2.8 As long as sufficient business beneficiary details can be identified through Geographical Information Systems (GIS) analysis of the BSD, these approaches would be technically feasible in theory. However, this would be an experimental and complex approach, with few examples of where this has been successfully applied. It offers greatest potential for large interventions which are more likely to have had a measurable effect at area level, however this risks further constraining the sample size of businesses. Further analysis and piloting would therefore be required to determine whether it is feasible to apply these methods to ERDF interventions.

Tourism

2.9 Counterfactual methods which score higher on the SMS scale do not lend themselves to tourism investments and would be very difficult (if not impossible) to apply retrospectively. This is due to limitations with the data, difficulties isolating the impact of ERDF investment from other public investment and challenges identifying control areas that have not benefitted from investment. As such, there is likely to be little value in undertaking an impact assessment.

Transport

2.10 As with sites and premises, the CIE method which offers greatest potential for assessing the impacts of transport investment is spatial differencing combined with difference-in-difference analysis. However, the same caveats as above apply here.

This would be an experimental and complex approach best suited to large transport investments, and it may prove difficult to control for the full range of variables which explain differences in economic performance in zones of differing distance from the transport infrastructure. Further analysis and piloting would therefore be required to determine whether it is feasible to apply these methods to ERDF interventions.

2.11 If it is not considered to be feasible, an alternative would be to scrutinise some of the larger transport investments funded through the ERDF through a case study approach. This could analyse secondary evidence on effects on journey times and land use and development alongside survey evidence and qualitative evidence gathered from local planning officers, project delivery staff and other local stakeholders.

Report Authors: Oliver Chapman and Neil Evans, Hatch Regeneris (2023).

Full Research Report: Chapman, O; Evans, N (2023). Evaluation of EU Funded Infrastructure: Phase Four. Cardiff: Welsh Government, GSR report number 35/2023
Available at: https://www.gov.wales/evaluation-eu-funded-infrastructure

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Mae'r ddogfen yma hefyd ar gael yn Gymraeg.

This document is also available in Welsh.

 Digital ISBN 978-1-80535-708-7