



Research Paper 26/09

February 2008

ECONOMIC MODELLING OF VALUE IMPACTS OF DCAL INVESTMENT

This paper outlines the decision of the Project Steering Group in relation to the PWC study and the abandonment of Phase 2 of the research into the economic modelling of quantifiable benefits of DCAL activity.

Research Papers are compiled for the benefit of Members of The Assembly and their personal staff. Authors are available to discuss the contents of these papers with Members and their staff but cannot advise members of the general public.

SUMMARY OF KEY POINTS

- Phase 2 of the PriceWaterhouseCoopers (PWC) study, 'Research into the Social and Economic value of Culture, Arts and Leisure in Northern Ireland (ValCAL) was intended to test whether the available data could be used to build an economic model of DCAL activities. The requirement of the economic model was that it be robust and capable of being expressed in monetary terms.
- Evaluations are often uncertain and subjective evaluation itself can prove to be a costly undertaking. Indirect costs and benefits can prove more difficult to value, particularly if they have no market prices.
- An alternative approach to valuation is required in order to quantify potential social, health or environmental impacts. It is often difficult to assess the reliability of estimates emerging from a single study using a single method.
- Areas that the project steering group has identified as problematic in relation to progressing to Phase 2 of the PWC report;
 - (1) The available data for the 4 DCAL business areas is not sufficient for the more stringent demands of economic modelling;
 - (2) The areas of Museums and Libraries are more straightforward in relation to DCAL intervention. However, Arts and Sport are more complex;
 - (3) Where data limitations were identified, assumptions from specialist literature would inform the economic model;
 - (4) Due to such data limitations, the economic model would be based on a high frequency of assumptions; and
 - (5) Only one of the 4 DCAL business areas, that of Libraries, would be suitable for economic modelling.
- The construction of a model inclusive of social benefits will rely heavily on assumption, which in turn undermines the robustness of the economic modelling itself. The PWC report states that this is due to the nebulous nature of social benefits.
- Libraries had the largest amount of available data for modelling; however this data varied in its ability to be quantified to the specifics of the economic model.
- The study states that a series of approaches could be taken in order to produce quantifiable benefits of DCAL activity. These include focusing on historical data, benefit ratios, the regional level and general themes rather than individual projects.

CONTENTS

Introduction	1
Phase 2: PriceWaterHouseCoopers Study	1
Background on Economic Impact Analysis	1
Valuing Non-Market Impacts: The Green Book	2
Concerns with Phase 2 and Economic Model development	2
Health Economic Model	3
Social Benefits of DCAL Activities.....	3
Potential Quantifiable Benefits of DCAL Activity	4

Introduction

The purpose of this paper is to provide an overview for the Culture, Arts and Leisure Committee into the abandonment of Phase 2 of the PriceWaterhouseCoopers, (PWC) study into Social and Economic Value of Culture, Arts and Leisure in Northern Ireland (ValCal). The paper details the background to economic modelling and valuing non-market impacts. Also included is reference to the availability of robust data to construct an economic model and a proposed change of focus in terms of producing potential quantifiable benefits of DCAL activity.

Phase 2 of the PWC study was to produce an economic model from available data of DCAL activities, expressed in monetary terms. However, progress to this phase of the project was rejected by the project steering group due mainly to concerns of data availability and the complex nature of intervention in the Arts and Sport business areas. The nebulous nature of social benefits makes the construction of any economic model rely heavily on assumptions; resulting in the robustness of the model itself being undermined. A number of different approaches are suggested in order to produce quantifiable benefits of DCAL activity, such as focusing on historical data, benefit ratios, concentration on the regional level and a focus on general themes rather than individual projects.

Phase 2: PriceWaterHouseCoopers Study

Progress to Phase 2 of the PWC study, 'Research into the Social and Economic value of Culture, Arts and Leisure in Northern Ireland (ValCAL) was intended to test whether the available data could be used to build an economic model of DCAL activities. Indeed, the purpose of phase 2 was to design an economic model to quantify the net direct and indirect social and economic impacts for each DCAL business area and to consider whether synergies between DCAL business areas are present and how this would impact the model¹.

The requirement of the economic model was that it be robust and capable of being expressed in monetary terms. The project steering group decided to abandon Phase 2 concluding that it would not represent value for money given that the work to develop the economic models alone would have cost DCAL at least a further £61,905 with no guarantee of the robustness of output; the model would likely have been open to criticism and challenge².

Background on Economic Impact Analysis

Economic impact analysis is concerned with identifying and measuring the changes that occurred, or be likely to occur, in an economy as a direct or indirect result of a new public and private sector initiative.

Indirect costs and benefits can prove more difficult to evaluate, particularly if they have no market prices. Evaluations are not purely scientific studies, although they may make use of scientific tools. Evaluations are often uncertain and subjective; by

¹ PriceWaterHouseCoopers, *Social and Economic Value of Culture, Arts and Leisure in Northern Ireland*, 2007

² PriceWaterHouseCoopers, *Social and Economic Value of Culture, Arts and Leisure in Northern Ireland*, 2007

focusing attention on quantitative measures evaluations may limit consideration of other issues central to the idea of economic development; evaluation itself can prove to be a costly undertaking.

A cost-benefit analysis attempts to determine the value of an activity to society as a whole. This economic methodology sees the social value of an activity as based on individual valuations of that activity, with a focus on economic efficiency.

The criticisms of cost-benefit analysis are concerned with identifying appropriate measures of the cost and benefits associated with an activity in situations where market prices do not provide a reliable guide. These situations include;

- (1) Market prices do not reflect social costs and benefits
- (2) Public activities themselves affect market prices
- (3) Outputs from an activity are not sold in markets, so that prices are unavailable
- (4) Substantial public goods or externalities associated with the activity

Valuing Non-Market Impacts: The Green Book

When valuing non-market impacts, the report entitled 'Appraisal and Evaluation in Central Government "The Green Book"' highlights that an alternative approach to valuation is required in order to quantify potential social, health or environmental impacts. It is often difficult to assess the reliability of estimates emerging from a single study using a single method³. When the value of a benefit or cost is uncertain then reference can be made to the costs of preventing the loss, or replacing, a non-market good (such as a recreational facility)⁴.

The Green Book states that in the absence of a reliable and accurate monetary valuation of an impact, a decision must be made to commission a study. Key considerations that may impact on a decision to commission a piece of research would include the following⁵:

- (1) Whether research is likely to produce a robust valuation
- (2) Range of application of results of a study to future appraisals
- (3) How much the accuracy of the valuation impacts any decision making process.
- (4) Scale of impact of the decision. Thus, a decision must be taken in relation to the allocation of resources to ensure that valuations of non-market benefits and costs are accurate.

Concerns with Phase 2 and Economic Model development

Below is a list of the areas that the project steering group has identified as problematic in relation to progressing to Phase 2 of the PWC report;

- (1) The available data for the 4 DCAL business areas (Sport, Art, Museums and Libraries) is not sufficient for the more stringent demands of economic modelling.

³ The Green Book: Appraisal and Evaluation in Central Government, <http://www.greenbook.treasury.gov.uk/annex02.htm>

⁴ The Green Book: Appraisal and Evaluation in Central Government, <http://www.greenbook.treasury.gov.uk/annex02.htm>

⁵ The Green Book: Appraisal and Evaluation in Central Government, <http://www.greenbook.treasury.gov.uk/annex02.htm>

(2) The areas of Museums and Libraries are more straightforward in relation to DCAL intervention. However, Arts and Sport are more complex due to the impact of private and public sector intervention.

(3) Where data limitations were identified, assumptions from specialist literature would inform the economic model.

(4) Due to such data limitations, the economic model would be based on a high frequency of assumptions.

(5) Only one of the 4 DCAL business areas, that of Libraries would be suitable for economic modelling.

The reasons for the abandonment of Phase 2 appear to relate especially to two areas;

(1) data availability

(2) complex nature of intervention in Arts and Sports

Health Economic Model

'A Health economic model: The cost benefits of the physical activity strategy for Northern Ireland – a summary of key findings', this report is referred to in relation to health-economic benefits of investment in physical activity. The modelling of the economic benefits of physical activity in this report is based on data from the Northern Ireland Health and Activity Survey 1994. It was estimated in the latter report that 20% of the adult population in Northern Ireland could be classified as physically inactive. The study selected three diseases most closely associated with a lack of physical inactivity; the diseases selected were coronary heart disease (CHD), stroke and colon cancer.

However, the data used in this particular economic model is based on an up-rated 1997 Department of the Environment, Transport and the Regions (DETR) estimate and focuses on only one issue, that of physical activity. Much more complex modelling is required if DCAL wishes to comprise a model covering multiple issues⁶.

Focusing on only one issue, the Department of Health, Social Services and Public Safety (DHSSPS) model is very simplistic in terms of use of economic data. Thus, this approach to modelling would not be appropriate or useful to DCAL in relation to measuring the economic benefits of the four business areas of, Sport, Art, Museums and Libraries.

Social Benefits of DCAL Activities

The Executive Summary contained within the PWC report highlights the difficulties that are experienced when attempting to quantify the social benefits from DCAL activities. The report states that this is due to the nebulous nature of social benefits.

⁶ A health economic model: The cost benefits of the physical activity strategy for Northern Ireland – a summary of key findings,
<http://www.healthpromotionagency.org.uk/Resources/physicalactivity/pdfs/paeconomreport.pdf>

The construction of a model inclusive of social benefits will rely heavily on assumption, which in turn undermines the robustness of the economic modelling itself⁷.

This section of the report highlights 7 categories of social benefit in relation to DCAL activities. The seven categories were as follows;

- (1) Employment
- (2) Tourism
- (3) Health
- (4) Education/knowledge economy
- (5) Crime
- (6) Community cohesion/integration
- (7) Environment

The table, included in the PWC (ValCal) report (page 72), shows that none of the 4 business areas (Sport, Art, Libraries and Museums) had sufficient available data across all 7 categories. Overall, Libraries had the largest amount of available data for modelling; however this data varied in its ability to be quantified to the specifics of the economic model. Indeed, two of the four business areas recorded no available data in relation to the environment; with employment and tourism having the best quantifiable data across the 4 business areas.

Potential Quantifiable Benefits of DCAL Activity

The PWC report highlights a number of suggestions in relation to the modelling of DCAL activities. The study states that a series of approach could be taken in order to produce quantifiable benefits of DCAL activity, the information below details a number of focuses that could be employed to achieve potential quantifiable benefits⁸.

Firstly, a focus on data from 2005/06 funding year: use of historical funding data, for example 2005/06 funding period; instead of the use of projected funding or current funding activity. The outcomes of historical funding have been observed and recorded.

Secondly, a focus on benefit ratios rather than overall value of benefits: it is more appropriate to estimate the likely benefit ratios with respect to different types of project; it is more appropriate to provide benefit ratios (i.e. for each £1 spent in a certain type of project, DCAL can expect £x of benefit) for types of project/initiatives⁹.

Thirdly, focusing at the regional level: any attempt to estimate the value of DCAL activity, would need to be carried out at a regional level. It is not appropriate to estimate the benefit ratios of funding at the individual, community and regional levels. To do so would generate issues of double counting and in most cases the data is not available or does not lend itself to be analysed at these levels.

⁷ PriceWaterHouseCoopers, *Social and Economic Value of Culture, Arts and Leisure in Northern Ireland, 2007*

⁸ PriceWaterHouseCoopers, *Social and Economic Value of Culture, Arts and Leisure in Northern Ireland, 2007*

⁹ PriceWaterHouseCoopers, *Social and Economic Value of Culture, Arts and Leisure in Northern Ireland, 2007*

Finally, a focus on general themes rather than individual projects: to ensure that a model is useful across time, it is beneficial to look at general types of projects. Consequently, the model can be updated on an annual basis and an average can be estimated.