

# INFORMATION ON THE CONSTRUCTION SECTOR: A WORLD-WIDE SURVEY

**Les Ruddock**

*Research Centre for Construction and Property Management, University of Salford, Salford. M5 4WT, UK*

The place of the construction sector in the overall economy of a country needs to be placed in perspective, if its function is to be fully understood. A necessary requirement for this understanding is the existence of a comprehensive information system for the sector. Yet, data on construction activity at the national level still appear to be, in many cases, of erratic and of varying validity even with recent changes in national accounting procedures. This research was designed to investigate whether there has been any significant recent improvement in the availability and usefulness of published statistical information available to the construction macroeconomist at an international level.

The paper presents an analysis of an international survey of experts from a variety of countries, in terms of both construction industry and economic development. The purpose of the study is not only to permit the production of a manual of data sources but also to elicit the opinion of local experts on the availability and usefulness of data. Based on the survey findings, conclusions are drawn and recommendations proposed regarding possible improvements.

Keywords: construction sector, macro economic data, international survey, information.

## INTRODUCTION

A decade ago, in a paper at the *1990 CIB Conference on Building Economics*, Ranko Bon wrote of the need for better data on the construction sector for those researchers concerned with construction economics on a global scale (Bon, 1990). To enable international comparisons of the construction sector or to obtain an overview of the global picture, reliable, detailed data are required but discrepancies between the data values of the statistics published by different bodies are still apparent ten years later.

The research described in this paper aims to determine whether there has been significant improvement over recent years in the usefulness of published statistical information available to construction macroeconomists at an international level.

### **Definitions of construction activity**

The United Nations in its Annual Yearbook of National Accounts draws concepts and definitions from the *International Recommendations for Construction Statistics* (United Nations, 1997). However, even in the industrialised countries of W. Europe, there may still be problems in international comparisons of construction output.

Partly this is due to difficulties in definition. Decisions on what to include and what to exclude and difficulties because it is intrinsically difficult to measure. As an example,

Meikle and Grilli (1999), in their study of European construction output, point out that construction output data are not consistent in content and there is no generally accepted standard international definition. The authors review construction output data for two European countries (Finland and the U.K.) and Table 1 summarises what is known to be included and excluded in the two countries' official construction output figures. There is evidence that Finnish output tends to be overstated and U.K. output understated.

**Table 1:** Comparison of the components of construction output

Components	Finland	U.K.
Contractors' output (including sub- and specialist contractors)	Included	Included
Direct works organisations' output	Included	Included
Unrecorded output	Not known	Not known
Construction services	Included	Excluded
Black economy in construction	Included	Largely excluded
DIY materials	Included	Excluded
DIY labour	Included	Excluded
Taxes (inc. VAT)	Probably excluded	VAT excluded

Source: Meikle and Grilli (1999) based on Euroconstruct (1997)

## INTERNATIONAL SURVEY

The main feature of this paper is the presentation of the findings of an international questionnaire survey on sources of macroeconomic data on the construction sector. The study has three basic objectives and the design of the questionnaire was determined with the following in mind:

1. An assessment of available data. Deficiencies in published statistical information have already been mentioned. The first part of the questionnaire survey deals with questions of data availability.
2. An appraisal of the accuracy of published data. There are two aspects to this problem – comparability of data and reliability of data. The first one is concerned with the definition of construction activity. The second aspect concerns the informal (or 'grey') sector. In their paper, Meikle and Grilli (1999) refer to a 1997 Report (Deloitte and Touche) suggesting that the informal economy accounts for 12% of GDP in the UK, 13% in France and Germany, 25% in Italy and Spain and 35% in Greece. The percentage of informal output in the construction sector is likely to be greater than in the economy generally. Assessments of the importance of the informal sector are requested in the survey. It is considered that local knowledge of the sector is vital in this assessment.
3. An examination of potential improvements to the quality of data collection and presentation. The important issue is that the views of the survey respondents are taken into account, when attempting to propose recommendations for the improvement of construction data.

## STAGES OF THE PROJECT

### Stage 1 Setting-up a 'Network of Researchers'

The *International Council for Building Research Studies and Documentation* (CIB) is the foremost international organisation concerned with research into the construction sector. The most appropriate medium for setting up an international network of

researchers concerned with macroeconomic aspects of the industry was considered to be one developed through the CIB.

Task Group TG31 '*Macroeconomic Data for the Construction Industry*' was set up in 1997 by the CIB. An initial aim of the Task Group was the establishment of a network of researchers in this field in order to engage in regular exchange of information, proposals and data. International co-operation involving researchers from developed, transitional and developing countries forms an essential element of the Task Group's work.

## Stage 2 The questionnaire survey

At its inaugural meeting, the Task Group determined that one of its first tasks should be to undertake a world-wide survey based on a network of construction industry economists to produce information on the state and quality of data. The intention of the survey was to obtain information from a wide range of countries at different stages of economic development. Members of the CIB database were told of the proposed questionnaire survey and asked to co-operate in the compilation of survey data. In total, sixty-two members from different countries were targeted with the questionnaire and the return was forty-three completed questionnaires.

*Who were the respondents?*

The breakdown of the respondents to the questionnaire is shown in Table 2:

**Table 2:** Respondents by title: Number of responses

Academic Researchers	14
National Building and Housing Research Institutes	22
Forecasting Institutions	7

The 43 countries in the survey ranged in size from the Cape Verde Islands to the Republic of China with a geographical spread of the countries as shown in Table 3.

**Table3:** Countries by World region: Number of survey responses

Western Europe	15
Central and Eastern Europe	7
Africa	6
Asia	8
Australasia	2
North America	2
South America	3

The 43 countries involved can be categorised according to stage of economic development and market development. This broadly corresponds to:

1. LDCs (Less Developed Countries): 7.
2. Newly industrialised countries: 7.
3. Countries in transition (Central and Easter European countries and S. Africa): 8.
4. AICs - Advanced Industrial Countries: 21 countries.

## ANALYSIS OF THE SURVEY QUESTIONNAIRE RESPONSES

There are two separate elements to the questionnaire. One is fact based and the other is opinion based. The nature of the study is such that the intention is partly that of producing a manual of data sources but also, more importantly, to fulfil the purpose of soliciting the opinions of practitioners and local experts concerned with the availability and usefulness of data.

The information from the completed questionnaires has been put together on a database and summary points from the questionnaire responses are shown here.

These relate either to general points, which were considered important in terms of the number of responses mentioning them, or to points having importance in the specific context. *The detailed results of the survey are presented in a report by the RICS, who partly sponsored the project.* The questionnaire is split into four parts, each dealing with a specific aspect of the study, as follows:

*Part 1:* The availability of macroeconomic data on the country’s construction sector.

*Part 2:* Market data systems for the construction sector.

*Part 3:* Evaluation of information.

*Part 4:* Setting up a comprehensive information system

**Part 1: The Availability Of Macroeconomic Data On The Country’s Construction Sector**

A major purpose of the survey is initially to investigate the availability of macroeconomic data and also consider its validity in the context of the accuracy of the reporting mechanisms employed.

Respondents were asked for information on official data collection agencies for output, employment etc. All 43 respondents provided the names and addresses of their national agency(ies). Additionally, the following questions were asked:

- *What is the method of data collection used?*

The normal method of data collection for employment and output is through a questionnaire survey of contractors. In most Western European countries, this takes the form of a mandatory survey of all organisations with more than 20 employees and a sample of smaller firms. Local authority building permit data is the normal source of output data in developed and developing countries. Additionally, the use of data on occupancy permits for completed dwellings is a common method of measuring output.

- *Are there any adjustments made to the collected data to allow for the ‘grey’ or unofficial sector of the industry?*

In several LDCs, the official figures are adjusted to make this allowance.

- *What is your assessment of the value of the construction activity that occurs in the unofficial sector compared to the official sector (in % terms)?*

In most developed countries, this is considered to be a minor issue with low assessments of the activity in the unofficial sector, as can be seen in Table 4.

There is a general view that the unofficial sector is not so important in the civil engineering area, with its heavy dependence on public sector work and, thereby, reduced ability to produce unrecorded output.

**Table 4:** Percentage of construction activity in the ‘unofficial sector’

1-5 %	Australia, Belgium, Denmark, Finland, Japan, Netherlands, New Zealand, Norway, Singapore, Spain, Switzerland, U.K., U.S.A.
6-10	Brazil, Czech R., France, Ireland, Italy, Portugal, Slovenia
11-20	Canada, Cape Verde, Croatia, Estonia, Germany, Israel, South Africa
>20	India, Lithuania, Malaysia, Malta, Mozambique, Poland, Romania, Turkey

- *Would you assume that the official statistics on construction are ‘reliable’?*  
With the provisos concerning the ‘grey sector’, mentioned in the previous section, there is a degree of consensus on the reliability of the information published by the national statistical body

- *Do you know of any private organisation, which collects data on the national construction sector?*

In the industrially developed countries of Western Europe, North America and Australasia, it is not surprising to discover that there is often a plethora of private organisations producing such data.

## **Part 2: Market Data Systems For The Construction Sector**

The object of this part of the survey is to discover the current state of data, together with their sources, processes and availability. The extent to which the construction industry, professionals and client organisations utilise the available data is also assessed. The workflow method of data categorisation (see Eksteen and Langenhoven, 1997) is used, starting with clients, progressing to professionals, contractors and suppliers and ending with the property market. For each response on the existence of a source organisation, name and address details were given.

- *Information on construction clients.*

The first concern was with the availability of data sources on current work and output in the industry. Table 5 indicates the availability (in terms of ease of access) of the following information:

**Table 5:** Providers of data on current work and output

Type of information	Government	Private
Value of new construction output	33	5
Number and value of buildings completed	34	5
Construction work currently being undertaken	32	4
Government budgets on construction work	36	4

- *Information on construction professions.*

In all the responding countries, with the exceptions of China and Cuba, private organisations of construction related professionals (particularly design and engineering) are to be found. Some of these bodies are still fairly new in the transition economies and contrast with the well-established situation in Western Europe, where Switzerland has around eighty such organisations.

- *Information on contractors.*

*-Do contractors’ representative bodies exist?*

Contractors associations and bodies set up to look after contractors’ interests are prevalent in both industrialised and developing countries.

*-Is information on employment levels of contractors, wage costs, turnover levels and new contracts available?*

Such information, when available, often tends to come from central government or from an industry specific public body, such as the Construction Industry Development Board in Singapore. Alternatively, contractors’ organisations in the AICs of Western Europe, Australasia and N. America are the source of such information (see Table 6).

The main deficiency in the information was in the ease of access to information on new contracts, particularly so for private sector work if not public sector. Information

on turnover levels was more likely to be available for larger companies only and less accessible in the transition economies. Table 7 summarises the responses.

**Table 6:** Source of information provision on contractors' work

Source of information	No. of countries
Government	25
Private sector (mainly contractors' organisations)	16

**Table 7:** Availability of information on specific aspects of contractors' work

Information on:	Available	Not easily available
Employment levels of contractors	35	6
Wage costs	35	6
Turnover levels	29	12
New contracts	28	13

- *Are there any providers of tender leads or enquiries directing contractors to new work available?*

Table 8 indicates the main sources mentioned in responses.

**Table 8:** Sources of tender leads

Source	Number of responses
Business and trade newspapers	19
Contractors' association bulletins	18
Government bulletins	28
Private agencies	8

- *Information on suppliers.*  
-Do organised groups of suppliers exist for (a) building materials and (b) plant and equipment?

In AICs, the existence of, often numerous, organised groups of suppliers of materials was indicated but not so frequently for plant specifically for construction.

- *Financial information on building organisations.*  
-Is information on (a) ownership of organisations and (b) construction companies' financial data easily accessible in the public domain?

There seems to be considerable variation in the ease with which this type of information can be accessed. Thirty-one respondents indicated that a registry of companies would provide ownership information, yet seven of these also indicated that other financial information was not in the public domain.

- *Price trends.*  
-Indicate sources for: Production price indices; consumer price indices; salary and wage trends and building cost indices.

Generally, indices on production and consumer prices are provided by national statistical offices and/or construction departments but in many AICs and increasingly in transitional economies, private organisations provide industry specific data on wages and building costs. Eighteen respondents mentioned the latter.

### **Part 3: Evaluation Of Information**

The usefulness of available data for potential users is the major issue for consideration in this section.

- *Have there been any significant improvements in the availability of industry data in recent years?*

In the AICs, there is some consensus that the data have been reliable for a long time. Very recently, the accessibility of data on the Internet has improved dramatically. The availability of data electronically has shown an enormous improvement and has increased the amount of data available substantially and also made accessing this data far easier and quicker. Much of the data is also available on CD-ROM.

- *Do government agencies have a monopoly on the provision of construction related information?*

Generally, the view is that, with respect to comprehensive, reliable data, the government is the major source. Whilst the government dominates the scene, however, it is not always the sole provider and, in many countries, private organisations provide information. Yet, commonly, the government has no legal monopoly but little competition from the private sector due to the high level of expense, which a private organisation would have to incur.

- *Is construction company performance relative to other companies monitored?*

There is a range of responses, with some initiatives being provided by the government and others coming from the private sector.

#### **Part 4: Setting-up a Comprehensive Information System**

- *If a comprehensive information system does not already exist, what would be the most feasible option for setting up such a system?*

In those countries in which such a system remains undeveloped or under-developed, the preferred options for the financing of such a system are shown in Table 9.

**Table 9:** Preferred options for financing a comprehensive information system

Option	Number of mentions
Government financing through a public/private agency	18
A subscription applicable to users	10
A levy system on members of the industry	4

## **CONCLUSIONS**

The fact that construction industry output is often underestimated for various reasons has important repercussions on the perceived significance of the sector in a nation's economy. Consequent to this underreporting is the fact that the industry tends to be undervalued in national development policies and plans. As Ofori (2000) indicates, good quality construction data provide a basis for policy formulation and planning, both resource planning for the industry and planning for its resources.

### **Problems and recommendations**

The problems of data availability and reliability, referred to throughout this paper, do not have simple solutions. Meikle and Grilli (1999) and Ofori (2000) have reviewed such problems for European countries and for developing countries respectively. The authors have raised similar issues and *this research has attempted, in a sense, to consider the validity of the assessments of the problems and initiatives for improving the situation.* The findings of this survey are based on responses from a wide variety of countries, yet it is apparent that certain general conclusions can be drawn from the compiled information. Based on the findings, the following issues can be raised and specific recommendations made:



1. In order to demonstrate clearly the relative importance of construction output between countries, it is essential that a standard international definition is established.
2. Ensuring that all construction work is included means that care should be taken to allow for all work - formal or informal. The degree of 'economic sophistication' of an economy is the important factor here.
3. Recognising that value measures of construction are not necessarily good indicators of construction volume, more work needs to be done on international construction price and value comparisons.
4. The work on construction cost comparison methodologies undertaken in many AICs needs to be extended to LDCs and transitional economies.
5. The creation of a single agency responsible for construction data. This is a problem, which has already been visited. Ofori proposes the notion of a 'central data bank for construction'. The uncoordinated collection of data via several agencies leads to unnecessary processing problems, which could be eradicated by the setting-up of a central national agency.
6. The evolution of inexpensive, manageable IT systems for the collection, analysis and dissemination of data is a major issue. Considering the present analytical needs for detailed information about the whole economic system and the capabilities of modern computers, data on the national accounts should be constructed in a manner capable of integrating and accessing micro-data bases derived from administrative sources and large samples. If the national system cannot provide efficient access to such detailed data, both business and governments will increasingly come to depend on private proprietary data bases, and the advantages of an overall integrated system will be lost.

This paper has reported on the questionnaire survey of the CIB Task Group 31 and the work of the Task Group must now include the dissemination of the findings in order to monitor and assist the improvement process.

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