ANNEXURE 4: Description of simple method of interpolation using the compound interest method

The following method was used to interpolate between two end-values in the process of constructing the historic time series described in section 10.4 in Chapter 10:

- The two end values were regarded as the present value (PV) and future value (FV) in a conventional time value of money (TVM) compound interest calculation.

- The number of time periods (n) between the end values were equated to the number of time periods in the interest calculation.

- The percentage increase per time period was calculated as the interest rate (r), expressed as a decimal fraction, by using the following formula:

$$(1+r)^n = FV/PV$$

- The lower end value is then repeatedly multiplied by a factor of (1+r) to give the constructed time series between the two end values for the purposes of this study.

ANNEXURE 5: Notes on data handling and forecasting

Data handling

- Survey information was manually captured in an Microsoft Access™ database
- Manipulation of data took place in the database and customised data reports were produced by interrogation of the Microsoft Access™ database
- Further processing of data from customised Access™ reports and the construction of graphs were done using Microsoft Excel ™
- Presentation graphs were produced in Microsoft PowerPoint™
- Reports were produced in Microsoft Word™

Forecasting

- Short term (6 month) forecasts were done for the key indicators of employment, salaries and fee income.
- The actual gross income reported for the past 6 months and the corresponding predicted figure for the next 6 months (Refer to questions 3 and 4 in Section A of the survey questionnaire e.g. page 359) were used for forecasting fee income.
- The other key indicators, i.e. employment and salaries were forecast by applying the employment/income and salaries/income ratios established for the past 6 months to the predicted fee income for the next 6 months.
- Longer term forecasting models were investigated during this study, but were discarded due to the limited availability of official time series data. The SMIS survey questionnaires were however designed to ensure continuity of key indicator data so that future research could be undertaken into longer term forecasting.
- The consulting engineering confidence index (Refer to section 12.7) was used to forecast the tempo of activity in the consulting engineering industry (6 and 12 month forecasts) using responses to qualitative questions.