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Estimating with Microsoft Excel Spreadsheet

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Abstract — *Computer- intensive resampling / bootstrap methods are feasible when calculating reference intervals from non-Gaussian or small reference samples. Microsoft Excel® in version 2010 or later includes natural functions, which lend themselves well to this purpose including recommended interpolation procedures for estimating 2.5 and 97.5 percentiles.*

The purpose of this paper is to introduce the reader to resampling estimation techniques in general and in using Microsoft Excel® 2010 for the purpose of estimating reference intervals in particular. Parametric methods are preferable to resampling methods when the distributions of observations in the reference samples is Gaussian or can transformed to that distribution even when the number of reference samples is less than 120. Resampling methods are appropriate when the distribution of data from the reference samples is non-Gaussian and in case the number of reference individuals and corresponding samples are in the order of 40. At least 500-1000 random samples with replacement should be taken from the results of measurement of the reference samples.

Keywords- *Reference interval, resampling method, Microsoft Excel, bootstrap method, biostatistic***s**

I. INTRODUCTION

1.1 Uses of the program

Almost every construction company has its own computer. It has become a powerful tool for those who use it. The problem is that many builders don't take time to use this great technology. Many large construction companies are set up with estimating programs and integrated systems that cost thousands or even tens of thousands of dollars to purchase – more money than most small-to-medium size builders can afford. However, there are inexpensive ways to do computer estimating. One way is to use computerized spreadsheets which have the power of programs costing thousands of dollars..

1.1.1 The benefits of having computer spreadsheets are

- They are inexpensive
- They are easy to use
- They can be customized to your style of doing business
- And they are very powerful.

Most builders have a spreadsheet program on their computer already. Computer spreadsheets Can be as simple or as complex as you want to make them. They can take the drudgery out of Doing estimates and will make you more efficient in your estimating and in many of your other Office tasks. Here are some helpful hints to get you started creating your own computerized Estimating spreadsheet.

II. OVERVIEW

2.1. Setting up a Summary Sheet

Setting up a computer spreadsheet is much the same as doing an estimate by hand. It takes a little longer to set up the first time, but once it's created, all of the estimates that you do afterwards can be done in a fraction of the time. Once your estimating spreadsheet is set up, you only need to enter quantities for materials and labor. Many quantities can be automatically calculated by formulas that you create. Line items on an estimate can be automatically extended, totals calculated, and summaries given. When price changes occur, they can be easily updated on your spreadsheet.

2.1.1. Summary Sheet

The summary sheet is a quick overview of all the costs of construction broken down into major work categories such as excavating, framing materials, framing labor, and roofing. The summary sheet is similar to the Cost Summary Breakdown Sheets that banks and mortgage companies give out with their construction loans. When creating your summary sheet on a spreadsheet, it should be organized the way you are accustomed to seeing it. Most summary sheets are divided into project overhead and hard costs. They are usually organized according to the sequence of construction. Information or formulas can be entered into cells in the spreadsheet. Cells are where the rows and the columns intersect. Each cell can be formatted. You can change the width or height of a cell, the style of font, currency, date, time, color, justification (left, center, right), and/or a number of other formatting options. The summary sheet can also be used for cost control. As invoices are paid or draws are taken, variances to the original budget estimate can be monitored and corrections can be made to control costs.

Table 1. Summary Sheet

Company Logo Here			*Plan* *Chateaux* *Job #* *512* *Buyer:* *Kurt and Mary Johnson* *Phone:* *637- 4565* *Address:* *312 S Aspen, Mapleton, UT*			
Code	*Description*	*Estimated cost*	*Draw 1*	*Draw 2*	*Total cost*	*Variance*

2.2. Creating Detail Sheets

Detail sheets are pages that contain the actual quantities and unit prices for each of the construction categories. Formulas can easily be entered to perform the calculations that typically take up so much of a builder's time in the estimating process. Once the detail sheets are created, the estimator need only enter the quantities for the different items. Line item totals, and category totals are automatically computed. Changes can easily be made and all calculations are instantly updated. The category totals on the detail sheets can be linked to the summary sheet so that it automatically copies the total from the detail sheet.

Table 2. Detail Sheet

	FOOTING & FOUNDATION				
Labour					
	Item	*QTY*	*LF*	*RS/UNIT*	*Cost*
Material					
	Item	*QTY*	*LF*	*RS/UNIT*	*Cost*
Total					

III. CONCLUSION

The possibilities for automating and controlling your estimating spreadsheets are unlimited. The examples shown here were done using Microsoft Excel. The same things can be done using other spreadsheets like Quattro Pro and Lotus 123. Some of the commands may vary slightly. The important thing for builders is to spend some time testing out these examples and exploring some of the other features that are found in computer spreadsheets. You will become more efficient and effective as you put your tools to good use.

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