THE DEVELOPMENT AND TESTING OF A PURCHASING POWER PARITY METHOD FOR COMPARING CONSTRUCTION COSTS INTERNATIONALLY

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for the award of Doctor of Philosophy of the
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CERTIFICATE

I certify that this thesis has not previously been submitted for any degree nor has it been submitted as part of the requirements for a degree.

I also certify that that the thesis was written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged.

I also certify that all information sources and literature used are indicated in the thesis.

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Eric A. Best

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ABSTRACT

Over the past fifty to sixty years there have been numerous attempts to compare the performance of the construction industries of different countries. In almost all cases the cost of construction has been an important, sometimes the single parameter Cost performance has sometimes been equated to productivity, and productivity measurement and comparison is attempted by governments and their agencies on a regular basis.

Fundamental to these exercises has been the necessity to bring construction costs in different national currencies to a common base. This is imperative as amounts in different currencies cannot be directly compared.

Money market exchange rates do not provide suitable comparisons as they are too volatile and do not represent true comparisons of the volume or value of construction. Additionally there are real differences in price levels between economies that hamper valid comparisons. Purchasing power parity, however, provides a theoretical basis for cost comparisons without the distortions caused by moving exchange rates and differences in price levels between countries.

Using the option of purchasing power parity and its supporting theory, the Law of One Price, a mechanism for bringing construction costs to a common base currency has been devised. It is based on a basket of construction materials and labour referred to as a BLOC (i.e. Basket of Locally Obtained Commodities) and is applied to a hotel project.. The materials and their respective quantities were derived by the analysis of a completed hotel. Labour hours associated with those materials and quantities were derived using published materials/labour ratios for the various items. In this way the basket or BLOC represented a mix of the most cost significant materials in a typical hotel project.

Input costs for the BLOC were obtained from six cities, three in Australia plus Auckland, Singapore and Phoenix. BLOC costs were then used to derive a set of purchasing power parity factors specific to the construction industry in each location. These factors were then used to assess the relative cost of construction in each location.

The BLOC also provides a straightforward method for comparing productivity between locations. Lower building costs, when expressed in BLOC equivalents, signify higher productivity. While not an absolute measure of productivity this provides a clear indication of relative productivity between locations.

The study described provides some interesting results. For example, while construction costs in Sydney are clearly shown to be higher than those in Phoenix the industry in Sydney is shown to be considerably more productive. Higher costs in Sydney are related largely to higher pay for tradespersons and other resources, however, the higher pay is offset by the improved productivity.

The method devised satisfies many of the requirements for regional and international cost comparisons. It is theoretically correct and relatively inexpensive to administer and thus provides the opportunity for the gathering data from more respondents in each location and at more frequent intervals.

The thesis concludes with suggestions for a number of research projects that would extend this work considerably and greatly expand the body of work devoted to this fundamental construction economics problem.