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HOW RESILIENT IS THE ACTIVITY-BASED COST SYSTEM?

By

Wee Shu Hui

INTRODUCTION

The whole issue of cost allocation or absorption has always generated a lot of interest amongst accountants probably because no absoluteness of costs has emerged as yet. Would “true” costs ever surface? Historically, textbooks have emphasised methods for allocating costs to departments and products. Fixed costs have been divided by some standard measure to obtain a fixed cost unit (even though fixed costs are supposed to be “fixed”). Joint costs and other common costs have been allocated by some forms of reasonable but arbitrary measures. Miller and Vollmann (1985) have identified “overhead creep” in this present age of high technology. Previously, the ratios of overhead costs to direct labour costs were 100% to 200% or so but now the rates can well escalate to over 1000%. This arises because a small change in labour can cause a substantial change in the expected overhead. Miller and Vollmann (1985) stressed the need to understand and manage costs in the “hidden factory” rather than just knowing the mechanics of allocating overhead. The dichotomy of costs into fixed and variable provides an extremely useful and important basic concept in cost accounting. The definitions of fixed and variable costs are always made with respect to a specific time period. Ultimately, all costs become variable in the long run.

THE PROBLEM WITH THE TRADITIONAL APPROACH

The knowledge and understanding of product costs are essential for managers to make sensible decisions. Biased or wrong product cost information can lead to inappropriate strategy and change in profitability. Despite the fact that cost information is important, disagreement still rages as to whether product costs should be measured by full or by variable cost. Theoretically, marginal costs should be used since by setting marginal revenue to marginal costs, the maximum profit will be obtained. In practice, as Cooper and Kaplan (1987) discovered, in nearly all of the companies that they visited, management was not fully convinced of the adequacy of full-cost system in helping them make sensible decisions but they were also unwilling to adopt a variable cost

approach because of its short-term perspective. Most decisions to manufacture a product involve a long-term incubation period and therefore a long-term measure is required. Cooper and Kaplan (1987) identified two sources for the failure of fixed-cost allocations. The first problem arises from the use of a single base, direct labour hours. The conventional cost system assumes that all allocated costs behave the same way, that is, they increase in direct proportion to the volume of items manufactured. Hence, Cooper and Kaplan (1987) suggested that non-volume-related bases are needed. Secondly, many costs, however, are caused not by volume but by diversity and complexity, and they vary with changes in the complexity of the production process. These costs would be classified as fixed under the traditional cost system while they are actually variable in the short term.

Coopers and Kaplan (1985) discovered three major findings. First, traditional systems using a single-volume-related base for cost allocation misreport costs. Second, the misreporting consistently undercosts low-volume products and overcosts high-volume products. Third, second-stage allocation calls for an allocation base that varies with the complexity of production and not to volume of product manufactured. In the traditional cost system, the end product is always the costing element but in a transaction-related system, the costing element is that which consumes the activity that caused the transaction to be originated. The era of Activity-Based Cost System (ABC) has dawned! Cooper and Kaplan (1988) explained that the theory behind ABC is simple and that “virtually all of a company’s activities exist to support the production and delivery of today’s goods and services. They should therefore all be considered product costs. And since nearly all factory and corporate support costs are divisible or separatable, they can be split apart and traced to individual products or product families.”

UNDERSTANDING THE ABC SYSTEM

ABC system focuses on the variability of costs in the longer term. It is a two-stage allocation process that fully allocates costs to products (cost units). The first stage involves identifying different activities and grouping them to relevant activity cost pools, which are determined by examining the different activities that support the production and delivery of products such as setting of machines, supervision of work processes. These “cost drivers” give rise to overhead costs. The second stage involves analysing the cost drivers and determining the appropriate rates to allocate overhead costs to the product.

Common reasons for using ABC system are to estimate more accurately product profitability for pricing purposes, to determine whether to drop an earlier decision and to help reduce production costs in the design stage. Cooper and Kaplan (1991) claimed that an ABC system would not generate distorted information and misguided strategic signals. Hence, ABC can be an effective tool in corporate strategy. Implicit in this claim is the belief that ABC system is the system for this age. Managers would need accurate knowledge of product costs to enable them to make decisions about pricing, marketing, product design and mix. Initially ABC approach was viewed as a more accurate way of calculating costs but as Cooper and Kaplan (1992) pointed out that obtaining more accurate costs is only a means to an end — to increase profits.

Noreen (1991) assumes that the ABC system fully allocates costs to products and establishes the conditions under which those costs are relevant to the above decisions. He establishes that the ABC system is useful for product discontinuation decision and product design, if and only if,

- (1) there is no overlapping of cost pools;
- (2) costs in each pool behave linearly; and,
- (3) each activity can be divided among products in such a way that the portion attributed to a product depends only upon that product.

The last two conditions rule out joint processes which are “the classic conundrum of cost accounting”. The old problem still lies unsolved. Implicit in the above analysis is the notion that not every cost is strictly proportioned to its activity measure. Cooper and Kaplan (1992) argue that there is a distribution between the costs of activities used and the cost of supplying the capacity of an activity. Therefore according to this argument, the cost of activity usage is separated from the cost of unused capacity.

$$\text{Activity Availability} = \text{Activity Usage} + \text{Unused Capacity}$$

Knowledge of unused capacity can enhance understanding the changes in demand and their impact upon costs but this also raises the problem of measuring capacity. The arbitrariness of measuring available capacity still remains.

IS ABC THE ANSWER?

Noreen (1991) points out that the number of potential cost pools that can be practically accommodated in the cost system is limited. Under the traditional cost system the single activity rate is easy for data gathering, storing and processing even though it may be highly erroneous. In contrast, the use of multiple bases in minute detail under the ABC system may be more accurate but the data for the multiple bases are enormously costly to collect, store and process. The process of transferring and merging of data into the total product cost may also be a costly and complex process. In addition, errors of data collection, reporting and estimation of sources and also inconsistencies between different cost drivers due to different systems may occur. Too many cost drivers would not give rise to an effective or efficient planning and controlling of production costs. Babad and Balachandran (1993), who examine the trade off between precision and information processing costs, discover that cost pools with drivers that are perfectly correlated can be combined without loss of accuracy. However, if cost drivers are not perfectly correlated, accuracy would be lost when such cost pools are combined. They have also developed an algorithm that avoids the need to try out every possible combination of cost drivers to find the optional cost/accuracy combination. However, the algorithm requires full information on how all cost drivers affect all cost pools and information processing costs. The information requirements for the model are relatively high and, needless to say, information does not come cheap nor easy. It would be totally unrealistic to assume that managers possess such knowledge. Choosing optional cost drivers then, does have its own set of problems.

Using multiple regression, Banker and Johnston (1993) and Datar *et al* (1993) demonstrate empirically that non-volume cost drivers do have a significant impact on overheads and that these drivers do reflect management strategies to improve productivity and reduce costs. However, Foster and Gupta's (1990) works suggest otherwise that there is no strong correlation between non-volume drivers and overheads. As yet, there has been no conclusive empirical evidence on the relationship between non-volume drivers and overheads.

Merchant and Shields (1992) argue that the emphasis placed on the accuracy of cost measurement might be misplaced because there might be valid behavioural reasons to bias costs. Costs may be biased upwardly so that salesmen can offer discounts whilst maintaining profitability at the same time. Similarly, costs may be biased downwardly for target costing or to encourage

the use of internally provided goods and services. Gietzmann (1991), in his case analysis study, finds that the benefits from ABC are from the “improved behavioural incentives consistent with strategic objectives chosen by the company”. He finds that there is “little or no direct empirical evidence that profits for ABC companies have increased”. He further elaborated that even if profits did increase with ABC implementation, the reasons for that could be other exogenous factors apart from the magic of ABC. Given the option of increasing prices for ABC unprofitable products, a company under study felt that prices if increased by more than inflationary adjusted figure would cause customers to react unfavourably. Hence the company did not use ABC to reduce total overhead cost but rather to identify where best to use support services without the intention of reducing overhead. The pursuit of profitability has been rendered invalid!

CONCLUSION

Theoretically, it may seem that ABC system can be used to trace all overheads, but in practice there will be some costs which cannot be traced to the products. Therefore, some arbitrary allocations will remain. The ABC approach provides no panacea for solving such arbitrariness but it does help to reduce such arbitrary allocations to a minimum. Noreen does not see the ABC system as being very radically different from the traditional system. The only difference is that the ABC system can be seen to be more sophisticated and the traditional system as a “primitive” ABC system. The ABC system cannot be wholesaled on a blanket basis. It is now accepted that ABC may not necessarily be appropriate for every situation and it is not that necessary to apply ABC to all costs, or to the entire system. ABC can be operated side by side with the traditional cost system. ABC is definitely not the panacea to the lack of competitiveness of Western companies. That would be too simple a solution for too complex a problem. Implementation of the ABC system also presents a challenge. In Malaysia, the companies are still cautious toward the implementation of the ABC system.

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