ECONOMIC AND FINANCIAL EVALUATION OF RESEARCH PROJECTS: A REVIEW

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INTRODUCTION

Economic and financial evaluation of research projects is of extreme importance in research management. This is vital in allocating scarce resources in a most productive manner in any research institute. Therefore, this type of analysis not only economizes the institutional spending but also enhances the contribution of research to the industry.

Inspite of this branch of study being vital in research management, no serious attempt has been made on this regard in Sri Lanka. Although very few studies have been conducted on estimating productivity of research on the economic growth, micro level economic and financial evaluations have not been carried out yet. Therefore, it is of paramount importance to develop an appropriate methodology to evaluate micro level applied research projects.

REVIEW ON AVAILABLE METHODOLOGY

The benefits of research can be numerous. Basically these benefits could be categorized as follows.

1. The cash benefits to the industry or others from exploiting applied research.
2. Other material benefits to the industry or others.
3. Humanitarian and social benefits associated with this.
4. Application in industry at a much later date. This may give rise to big industries or complete reorientation of existing industry.
5. The absorption into the infrastructure of science and the subsequent industrial application. This is common in fundamental research.

Thus, the benefits in scientific research could be twofold. That is either investment benefit *i.e.*, benefits accrue in the future or consumption benefit *i.e.*, benefits accrue at the same time as the expenditure.

Attempts made by Giriliches, Arndts, Ruttan and by Evenson and Kisler all suggest that by measuring the benefits of research, a very high rate of return on

research investment can be obtained. These findings often support claims for increased investment in research.

Basically there are several approaches to the measurement of research benefits. That are,

1. Production function approach - estimate the marginal productivity of research.

2. Cost-Benefit analysis - measure the average productivity of research. Most important part is the estimation of annual social surplus created by the downward shift in the long run supply curve. Further, Duncan and Tisdell have demonstrated that the nature of the supply shift is a key determinant of the distribution of benefits from research between producers and consumers.

3. An extensive literature on the evaluation of benefits from research supports the idea of evaluating the effect of different types of technical advances on the welfare of particular groups (Alston, Edwards & Freebairn). Thus, an approach suggested by Martin and Alston discuses the criteria of evaluating the welfare consequence of technical change. Here they utilize a modified balance of trade function. It is also suggested that particular form of technical change may have important implication for the size and distribution of benefits (Duncan & Tisdell; Lindner & Jarett; Rose, Norton & Davis).

DISCUSSION AND THE CONCLUSION

Out of the above mentioned approaches the production function approach is somewhat feasible in estimating research benefits in the natural rubber (NR) industry. However, the major drawback in this method is that the production of NR is determined by several variables *viz*, biological, environmental, socio economic and international trade. Thus, the effect of technical change *i.e.*, the research benefit may be dominated by the above variables. Similarly any inefficiency in the extension service may reflect negatively on the research benefit estimation.

Micro level economic and financial evaluation on research projects is extremely useful under the present context of restricted resource allocation in scientific research. A new economic development theory proposed by Paul Romer (1994) reveals that the technological innovations play a key role in determining development in a country. Thus, a study in the direction of innovating an appropriate methodology to estimate the research benefits is of extreme importance for a developing economy such as in Sri Lanka.

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