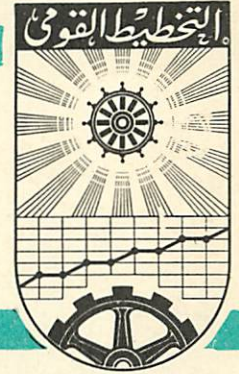


UNITED ARAB REPUBLIC

THE INSTITUTE OF NATIONAL PLANNING



Memo. 437
Outline of Course
Operation Research Techniques
& Investment Criterion

by

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The purpose of this course is to train the participants to use quantitative methods of appraisal rather than ad hoc methods of evaluation. Whatever criterion to be used in designing the order of investment priorities, the aim is by no means to attain perfection but it is to minimize imperfection.

Beside the quantitative methods of appraisal constituting the subject matter of these lectures, an element of good judgment, based on a host of factors not subject to quantitative evaluation, is a necessary and important component of the decision making process.

Seriously speaking the main purpose of an investment criterion is to help decision - making authorities to use quantitative tests of preferredness to select the best project set which maximises whatever one wants to maximise, subject to the main restraint that capital expenditure over the period of the plan shall not exceed its predetermined level.

1. General introduction :-

- 1.1 On the problem and its setting.
- 1.2 On the need for private and social evaluation criteria.

2. Private profit - Oriented decision criteria :-

- 2.1 Introductory note.
- 2.2 On the private profitability criterion as a method of investment project appraisal and selection in a developing economy.
- 2.3 On the limitations of the net rate of profit method of assigning investment priorities.
- 2.4 On the need for social evaluation criteria.

3. Social evaluation criteria : General review :-

- 3.1 Social criteria for evaluating the productivity of a single factor.
- 3.2 Criteria relating to the productivity of the input complex .
- 3.3 Other combined Criteria.

4. On the social marginal productivity (SMP) method of allocation as worked out by Chenery :-

- 4.1 Approach.
- 4.2 Formulae.
- 4.3 Numerical illustrations.
- 4.4 Appraisal.

5. Further development of the SMP criterion and the balance - of - payments effects.
6. On the benefit - cost criterion : -
 - 6.1 Definitions of primary and secondary costs and benefits
 - 6.2 Forms of the benefit-costs criterion
 - 6.3 Calculation of the coefficient.
 - 6.4 Indirect effects and social pricing in the calculation of the coefficient.
 - 6.5 Appraisal.
7. On the Philippines investment priority system :-
 - 7.1 Introductory note.
 - 7.2 The priority system and its mathematical exposition.
 - 7.3 Theoretical appraisal.
 - 7.4 Concluding remarks.
8. Building-up investment priority model: Reflections based on Tinbergen investment appraisal method.
 - 8.1 Introductory note.
 - 8.2 The model and its mathematical exposition.
 - 8.3 Basic conceptual and operational difficulties .
 - 8.4 Concluding remarks.

9. On the marginal per-capita re-investment criterion, (MPCRIC) : -

- 9.1 Introductory note.
- 9.2 The MPCRIC Criterion and its mathematical exposition as worked out by Galenson and Leibenstein
- 9.3 The re-investment criterion and the population factor.
- 9.4 The re-investment criterion and the choice of the technical form of investment.
- 9.5 Theoretical appraisal.
- 9.6 Numerical illustrations.
- 9.7 Concluding remarks.

10. On the Time Series Criterion, (T. S. C.)

- 10.1 Introductory note.
- 10.2 What does the time series criterion connote ?
- 10.3 The period of recovery concept.
- 10.4 The mathematical formulation of the criterion.
- 10.5 The use of the criterion in technological choices over time.
- 10.6 Theoretical appraisal.
- 10.7 Concluding remarks.

- 11. 11.1 Introductory note.
- 11.2 Why we need such a criterion ?
- 11.3 The mathematical exposition of the criterion as worked out by Eckstein.
- 11.4 Theoretical appraisal.
- 11.5 Numerical illustrations.
- 11.6 Concluding remarks.

12. The role of accounting prices in project evaluation:-

- 12.1 Concepts and definitions.
- 12.2 Valuation of targets of economic policy .
- 12.3 Valuation of production factors and products .

13. Investment criteria : Further Analysis and Data problems:-

- 13.1 Over - all appraisal of the earlier investment methods as a whole.
- 13.2 Operational difficulties involved in their practical applicabilities.
- 13.3 Possibilities of application.

14. Suggestions For The Future :-

- 14.1 Has the investment criteria discussion produced any enlightenment so far as the U.A.R. is concerned ?
- 14.2 Assuming that one or other criteria were to be tried out in Egypt, which one would be most suitable ?
- 14.3 Are there further statistical problems of implementation ?

Each candidate has to think objectively about the above mentioned questions and to prepare a short thesis embodying the results of his own work .

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(To be continued)