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Research Methodology In Economics

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INTRODUCTION

Research methodology is the most crucial and determining element for the soundness and reasonableness of research output in any field of study including economics. However, it may be equally true that there are diverse criteria for deciding what is *more reasonable*. The major concern in research is obviously the extent to which meaningful exercises adequately address the need for concrete recommendations through a series of interpretation of policy implications, as the outcome of a sound research.

Basic And Decisional Research In Economics

Research in economics as in other social science research, can be broadly categorized as *basic research* and *decisional research*. The methodology for these two kinds of research, however, are not much distinct, but rather complementary in their nature.

Basic Research

It generates information for the useful contribution to knowledge either through the enhancement of theoretical capabilities or creating reasonableness in making decisions regarding different aspects of scientific behavior in economics. The main purpose of basic research, therefore, is to increase the level of knowledge in the given area of economics with no necessary application to existing problems. Some examples of this research may be: *the analysis of consumer behavior in theory, first best criterion,* etc.

Decisional Research

It is basically an applied research addressing the problems in economics aimed towards producing some useful policy implications. In most cases, decisional research in economics is focused to generate concrete policy/strategy/policy instruments/action recommendations for a pending decision. For example, a study on *price subsidy on fertilizer in a country has to be closely examined in relation to its effects upon the national economy.* Another example may be of conducting a study on *the feasibility of a transport in relation to its impacts on employment, income and government revenue.*

The Table 1 presents the basic components and their nature of applications in basic and decisional research in economics.

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Table 1
Major Components of Basic and Decisional Research in Economics

Research	Basic	Decisional
1. Understanding	Essential	Essential
2. Prediction	Essential	Essential
3. Development of Alternatives	Optional	Optional
4. Choice of Alternatives	Optional	Optional
5. Policy Implications	Optional	Essential
6. Concrete Policy Recommendations	Optional	Essential

Source: Based on Robert Dubin's book, *Theory Building*, Free Press, New York, 1969.

The determination of the methodology for survey research depends on which area is particularly interesting under the four considerations: nature of the topic; the problem; the researcher and the respondent; and the client for the research. In this case, there may also be a mix of both basic as well as decisional research, or both the approaches may he dealing with the same problem. For example, *a consumer - motivation behavior* study is a potential area for research for both the basic as well as the decisional research in economics.

However, the level of allowable errors of basic and or decisional research and the ways in which they perform their activities in their respective area may be different. The client of a basic research project is the scientific community to which it is reported. It is typically a large group of audience which may not have commissioned the research nor will be considerably affected by its outcome. But in case of decisional research project, the researcher would always choose as little as possible the objective measurement of the residual potential errors if these options are available at no extra financial burden.

METHODS OF INQUIRY

As there are several kinds of research in economics, e.g. application of a certain economic theory to reality, hypothesis testing, empirical research with primary sources of data and information, etc., there is no rule of thumb about the use of a single universally acceptable methodology of research. Furthermore, the nature of research work, e.g. exploratory, descriptive, analytical testing of certain hypotheses, etc. guides the researcher towards selecting appropriate technique of collection of the qualitative as well as quantitative data - wise information. The size and the quality of available data determine the scope for the application of a particular method.

The methods of inquiry in the discipline of economics include certain essential interlinkages as explained in the Table 2.

As the sample survey is basically aimed at fulfilling the crucial objective of maximum representativeness of the universe under study, different sampling methods can he adopted under the categories of probability and non-probability sampling. Probability sampling includes random sampling, systematic sampling, stratified sampling, cluster sampling etc. Non-probability sampling includes techniques such as purposive sampling, quota sampling, accidental or change sampling, etc.

The usual technique in field data collection includes a pre-testing of the field instruments, e.g. *structured interview format* or the *questionnaire* to ensure the adaptability and relevance of the instruments in generating adequate field responses. For example, if a sample survey has to be conducted on *household income level*, the important point for the researcher is to identify those pointed but comfortable questions to be asked to the respondent so that the response is valid and useful. This requirement may need iterating or reiterating the questions several times before they are finally included in the structured format.

Field enumerated data are expressed in certain units which may be converted into other units for analysis or final presentation. These units may be simple / local or standard / composite etc. Usually the final presentation of the data in the analysis are in terms of coefficients, ratios, rates. However, various statistical tests could be conducted to ascertain the validity and representativeness of the results of the survey, e.g., T test, F test, Chi-square test, etc., to be used to determine how well theoretical distributions such as normal distribution fit empirical distributions (sample data), or to understand the difference between expected or observed frequencies, etc.

Both sample survey and census can be carried out with the careful use of structured questionnaire consisting *closed response* as well as *open response* features. The informal discussion or complete openness, but guided by a checklist/directional approach, is often used for field investigation while conducting *focus group discussion* (FGD). The FGD is normally conducted by the economists to investigate certain socio-economic behaviours of the population under study. This is, in particular, relevant in cases such as exploring human behaviour-motivation, etc. in response to certain outside intervention. For example, a drinking water supply project has its costs and benefits. If the initial cost of establishment is met through government budget, the maintenance of the project may be assigned to the users of the drinking water. Here it is necessary to know the perceptions of the users about maintenance of the project for the benefit of the target population. Through FGD, it may be possible to understand the willingness and affordability of the users of the water supply project for the regular maintenance of the project. Other similar examples in this respect may be in the fields of irrigation, forestry, etc.

Table 2
Interlinkage Between Components of Inquiry in the Methodology of Research in Economics

Interlinking Aspect	Primary Data and Information	Secondary Data and Information
1. Explicitly Listed Objectives	Locations of Inquiry (selection of site, etc.)	Published Data Sources (financial institutions, budgets, economic survey, etc.)
2. Adequacy of Inputs for Analysis	Sample Size (statistical justification)	Treatment to Data Variation on Published Materials (several sources of data, e. g. trade statistics)
3. Fulfillment of Objectives	Precision, Objectivity and Intelligent Address to Field Inquiry (specific to field data collection techniques, e.g. use of enumerators)	Data accuracy and Representativeness (various statistical tests for accuracy)

Source: Based on Robert Dubin's book, *Theory Building*, Free Press, New York, 1969.

To adequately address the requirements of the investigator, certain universal techniques of information collection, particularly during field investigation, may be adopted which may include as presented in Table 3.

Table 3
Technique of Primary Data Collection for Field Research in Economics

Type of Survey	Specific Approach	Results
1. Sample Survey (cross section / representative units)	Selection of Certain Locations Households / Units	Representative Number of Households/Units/ Establishments
2. Census (survey)	Enumeration of Whole Universe / Units / Households	Total Number of Households/Units/ Establishments
3. Focus Group / Issue Oriented Discussion	Sample / Census Locations / Households	Cross Section/ Total Representativeness

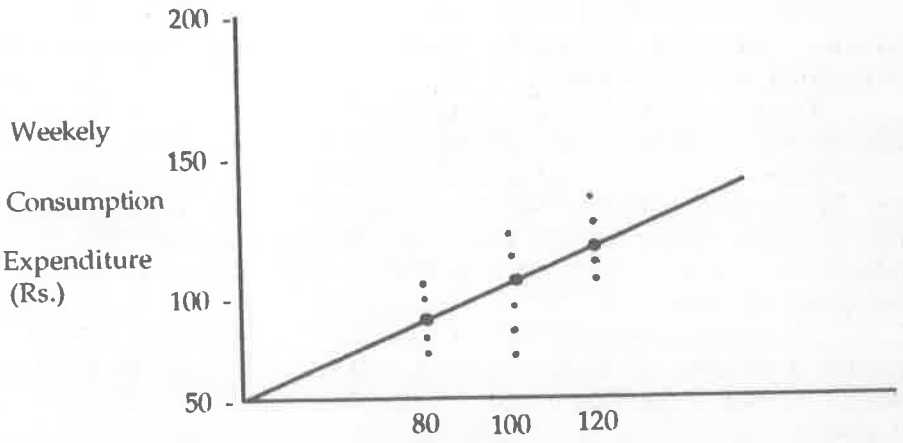
Source: Based on Robert Dubin's book, *Theory Building*, Free Press, New York, 1969.

There are several problems of measurement, aggregation, categorization and presentation of data and in the use of various analytical tools in the methodology of research in economics. There are problems of average representation, definitions, relevance of sample sizes and their empirical verification as well as stochastic nature of problems which create disturbance in analysis (Glujarati 1985).

One simple explanation in this context could be the income - expenditure analysis. For example, as family income increases, family consumption expenditure also increases in average. But, how to deal with a situation in which consumption expenditure of an individual in relation to its fixed level of income, can be illustrated as follows (Figure I).

Figure I

Income and Conditional Distribution of Expenditure



Conditional Distribution of Expenditure for Various Levels of Income (Rs.)

For example, corresponding to the income level of Rs. 100 there is one family whose consumption is Rs 65. This amount is less than the consumption expenditure of two families whose weekly income is only Rs. 80. But the average consumption expenditure of families with a weekly income of Rs. 100 is greater than the average consumption expenditure of families with a weekly income Rs. 80. (Rs. 77 vs. 65). This is the conditional of expenditure for various levels of income.

There are also problem in aggregate representation, e. g. the difference between economic growth/per capita income and economic growth/income distribution, etc.

Case Studies

Some case studies relating to the application of different methodologies of research in economics are presented in this section in view of understanding the selection and application of certain specific methodological instruments and their relevance in deriving specific conclusions.

Case Study 1: The Poor and the Social Sectors During a Period of Macro-economic Adjustment: Empirical Evidence for Jamaica.
(by Jere R Behrman and Anil B Deolalikar, in the World Bank *Economic Review* Vol. 5 No.2 pp 291 - 313).

Analysis of the impacts of adjustment on the poor and on the social sectors is difficult because it involves a counterfactual situation in which households are affected by prices, incomes, and public services with the possibility of substantial substitution.

The authors have used time series data for Jamaica to examine whether macroeconomic adjustment initiated in the early 1980, but intensified in 1984/85 was associated with significant deterioration in various indicators of health, nutritional, and welfare outcomes, particularly among the poor.

In this study, due to exogenous factors, lags, feedbacks, and substitutions, simple correlation between economic adjustment policies and changes in the well-being of the poor was interpreted with much care. The authors tried to establish certain socio-economic indicators and their duration during the structructural adjustment period 1984/85. Each indicator's secular trend is estimated in a simple regression with linear and quadratic time.

However, the study suffers from lack of long term analysis and ignores a number of factors such a impact of change in market for Bauxite, Jamaica's leading export commodity, on those indicators. Their procedure was only to reveal whether the indicators of poverty, health, nutrition, and schooling deteriorated significantly, for whatever reasons, during the critical adjustment years.

The empirical result showed that, during 1984/85, there was an initial negative macro impact on percapita GDP and inflation, followed by medium term improvements. Also, the negative short-run effects on employment and distribution was limited. Moreover, decline in government expenditure on social service in real term during the period did not much affect the real per-capita food expenditure, partly due to success in food programmes. However, there was substitution from high to low cost nutrients. This shows small nutrient food intake loss.

However, adjustment programmes may have deleterious effects on the poor and the social sectors, but the empirical evidence presented to date is not very convincing as a result of data interpretations. More careful and thorough analysis to clarify the impact of alternative adjustment policies to the poor and on social sectors to identify policy

instruments to cushion the poor from the adverse effects of adjustment is recommended in the study.

Cash Study 2:Obstacles to Developing Indigenous Small and Medium Enterprises: An Empirical Assessment.
(by Brian Levy in the World Bank *Economic Review* Vol 7, No. 1 pp 65-83).

The research paper reports the results of field surveys conducted in Sri Lanka's leather industry and Tanzania's furniture industry. The research has attempted to outline a research method in economics to understand how small and medium enterprises (SMEs) perceive the impact of financial, regulatory, technical, marketing and other input constraints, and to evaluate the relation to other empirical indicators.

Field research was conducted in Sri Lanka and Tanzania during 1989/90 (liberal pro-private policies which were introduced in Sri Lanka in 1977 were virtually complete by 1990; Tanzania's policy reform started in 1994). All interviews combined open-ended and structured survey approaches. Interview protocols (revised after pre-test) were used to guide the discussion and to collect data usable in quantitative analysis.

As the sample size was small (30 firms in Sri Lanka and 24 in Tanzania) and measures were often qualitative and were limited to only two capital cities, cross tabulation was more exercised than the rigorous test of hypothesis. The surveys were focused on a narrow group of sub-sectors in which the country had some potential for comparative advantage. The sub-sectoral approach is useful and enable the interviewer to learn in some detail about the setting in which the SMEs operate and penetrate beyond superficial responses. Although the risk may prevail as the results revealed that the impacts of financial and regulatory constraints (non-sector specific) were broadly similar to those in the sectors analysed in more details.

Lack of access to finance emerges as the binding constraint for smaller, less established firms in Sri Lanka and for all the Tanzania's SMEs. Not only is informal financing limited for Tanzania's SMEs, even firms of adequate size and experience have difficulties in borrowing from the banks, and if they borrow, have difficult relations with their lenders. In Tanzania, regulatory tax constraints appear largest for the smallest firms, the bureaucratic burden of negotiating with government officials is great for the small firms. By contrast, in Sri Lanka, the regulatory burden rises with firm size, because enforcement is more stringent for the larger and more visible firms. Technical constraints were appraised as most significant by relatively educated entrepreneurs with some involvement in high quality market niches.

Case Study 3:Regional Sustainable Development and Natural Resource Use.

(by Peter Nijkamp, C.J.M. Van den Bergh and First J. Soeteman in the *Proceeding of the World Bank Annual Conference on Development Economics 1990).*

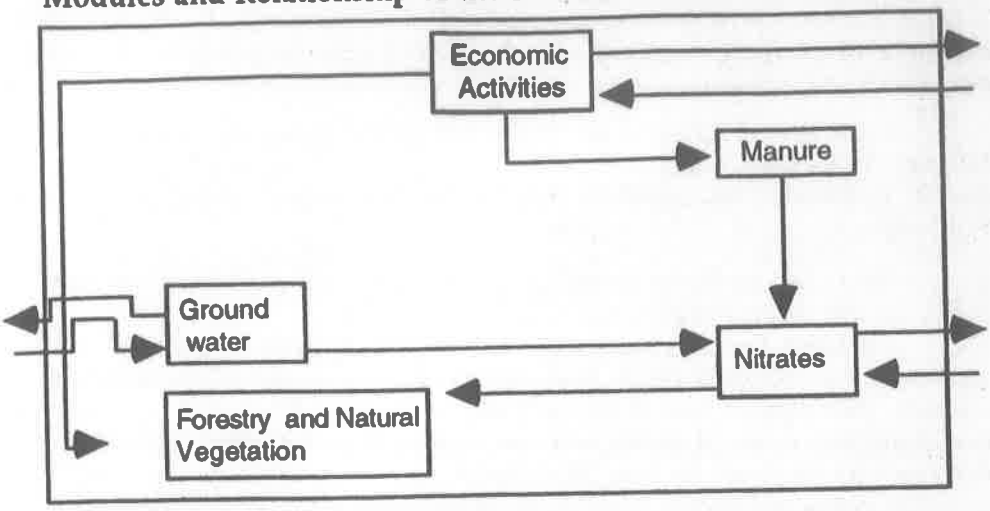
The Research work investigates sustainable development in a practical planning context by introducing and outlining the notion of regional sustainable development (RSD) —— a translation and operationalisation of sustainable development on a regional scale. Implicit assumption is that RSD should always be compatible with the global sustainability and that RDS of all regions of a spatial system implies sustainable development for the system as a whole. For a planning viewpoint, an identification of critical success factors (CSFs) is of crucial importance for RSD. In most cases, the notion of sustainable resource use (SRU) appears to provide a practical framework for identifying a CFS, because renewable stocks of natural resources are a key factor for RDS in most countries. CSFs may usually be found by investigating the regional supply of natural resources and using their features, exhaustible, renewable, accessible, multi-functional etc., to identity measurable indications for RSD.

For the analysis of sustainable development, the authors argue in their methodology that if simple dynamic models can ganerate behaviour with changes in qualitative characteristic of states, most structural changes result from forces outside a model, because they are uncertain in their nature and characteristic. Therefore, dynamic models for RSD can be used to anticipate various changes by combining several scenarios with simulation models.

Especially the complicated pattern of interactions within and between economic and ecological processes calls for a detailed description. Indirect, feedback, non-linear, time delayed and other kinds of relationships can be dealt with most appropriately in a formal logical framework. Simulation models are specially suitable for incorporating many theoretically and empirically obtained results of partial studies. In that sense, a model provides a tool for obtaining many valuable insights which can be tested and verified.

The authors have selected three case studies for their investigation i.e. the Peel area in the Netherlands, the Sporades Islands in Greece and rural land in Botswana. The three case studies are platforms for critically evaluating the notions of RSD, CSFs and SRU and to demonstrate their operational characterstics. An explanation of the interlinkage of simulation model components in the Peel region of Netherlands is as follows (Figure 2.)

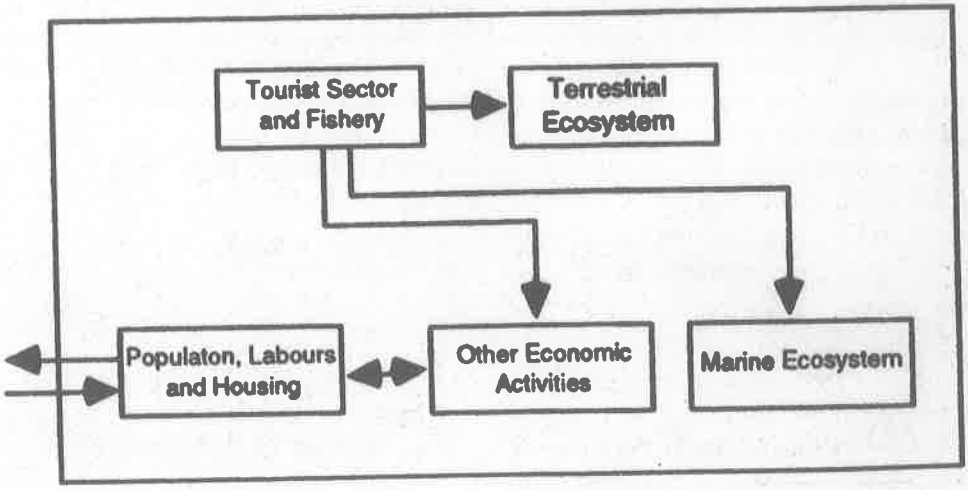
Figure 2
Modules and Relationship of the Peel Model:The Netherlands



In the model, external development and policy choices will be incorporated via scenarios. Each scenario that is used for a simulation run has effects that are evaluated regarding their RSD via the indicators. For example, the scenarios are: a) business as usual, b) present environment policy c) maximum technical efforts d) land use shifts.

Another case study interlinkage of structure sporades model of Greece is as follows (Figure 3).

Figure 3
Structure of Sporades Model:Greece



Simulation experiments leading to concrete evaluation procedures for RSD may be helpful analytical tool, particularly in view of identifying critical factors in a balanced regional development. Basically, the estimate of *carrying capacity* of a particular area or a region etc. also emerges as an outcome of exercises made with simulation models.

Cash Study 4:Appraisal of the Integrated Diary Project in Thana District, Maharastra, India.
(by R. L. Patale 1987, *Project Appraisal Technique*, Oxford and IBM Publishing Co. Pv. Ltd, New Delhi).

This case study is about the application of Cost-Benefit Analysis (CBA) in development projects.

To meet the demand for milk by the population of about 6.5 million in the city of Bombay and also to rehabilitate the cattle and stable owners, this project was proposed. Accordingly, a bankable project for financing 800 units of milch animals, with a financial outlay of IRs. 14 million was prepared by the CB analysts.

CBA is one of the most frequently practiced method in economic research. It is an ex-ante process directly linked to development activities e. g. production systems/units in agriculture, industry, etc. There are two universally accepted criteria for CBA, i.c. UNIDO method and Little-Mirrlees method CBA. The component for CBA are generally expressed as unit of measurement, cost benefit ratio, net present value (NPV), internal rate of return (IRR), etc. The basic instruments to derive these measures include adjusted or accounting prices, cost figures, benefit flow figures and an interest rate normally expressed as the discount rate. The main exercise is towards accepting or rejecting the project in question based on the above mentioned measures.

In the Integrated Maharastra Diary Project, the benefit cost ratio was calculated at 3:3 while the IRR was more than 50 percent. The project was accepted as the benefit cost ratio was high as well as the IRR. The project life was estimated for 10 years.

Sensitively analysis of a project under consideration is also carried out to examine the behaviour of the project if benefits decline / cost escalate to a certain level. In the above project, as the IRR was extremely high, 50 percent, at 16 percent discount rate, no sensitivity analysis was needed.

Cash Study 5:Evaluation of Rural Cooperatives.
(by R. Apthorpe and D. Gasper, 1979, *Public Policy Evaluation, Meta-Evaluation, and Essentialism: The Case of Rural Cooperatives*, Institute of Social Studies, The Hague, Netherlands).

This case study highlights the possible conflicts in methods of research in economics. The selected area for discussion is the rural cooperatives. The conflict in evaluation emerges from the paradigm of

internal and external methods of evaluation of development activities.

Immanent evaluation and transcendent evaluation relate to *service research methods* or internal approach and external approach respectively. The basic message in this methodology is that any activity has its basic features and the features should be carefully analysed by means of integrated approach, e.g. socia-economic/political/cultural, historical etc. This will help the researcher to become aware of his/her limitations imposed by the academic discipline itself.

Making judgements about success or failure of cooperatives need careful analysis. For example, cooperatives may sometimes fail, but in those circumstances so too would be the alternatives. Or the remark at one stance could be "cooperatives seldom utilize fully their potential for meaningful assistance to the poorer categories of the community", is entirely the resultant effect of the socia-economic and political fabric in which evaluation conclusions are reported. Also the economic evaluation methods become devalued currencies, simply selected or rejected according to personal predilection and convenience. Because at one stage, cooperatives may form an economic foundation in which subsequent economic growth with distribution will find its place. Also, a sustainable economic activity may not necessarily pay immediately as in physical investment. Economic activities with social nature are more like education which pays later. A deeper evaluation, in an integrated manner, will perhaps minimize the problem of inadequate methodology in evaluation.

SELECTED REFERENCES

Alagh, Y.K. (1977) *Research Methodology in Economics: A Survey of Research in Economics*, Vol. I, Allied Publishers, New Delhi.

Apthorpe, R and Gasper, D. (1979) "Public Evaluation, Meta-Evaluation and Essentialism: The Case of Cooperatives", *Occasional Papers*, The Institute of Social Studies, The Hague, Netherlands.

Behrman, Jere, R. and Deolalikar, Anil B. (1991) "The Poor and the Social Sectors During a Period of Macro-economic Adjustment: Empirical Evidence for Jamaica",*World Bank Economic Review* Vol. 5, No. 2, The World Bank, Washington D. C.

Dasgupta, P.K. (1972) A *Comparative Analysis of the UNIDO Guidelines and the OECD Manual*, Bulletin of the Oxford Institutes of Economics and Statistics, UK.

Dervis, K, Melo, J.D. and Robinson, S. (1995) *General Equilibrium Models for Development Policy*, Cambridge University Preas, Cambridge.

Dubin, Robert (1969) *Theory Building*, Free Press, New York, N.Y.

Festinger, Leon and Katz, Daniel (1976) *Research Methods in the Behavioral Seciences*, Oxford and IBH Publishing Co. New Delhi.

Glujarati, Damodar (1985) *Basic Econometrics,* Megraw-Hill Book Co., Singapore.

Jazairy, I., Alamgir, M. and Panuccio, T. (1992) *The State of World Rural Poverty,* New York University Press, New York.

Levy, Brian (1993) "Obstacles to Developing Indigenous Small and Medium Enterprises: An Empirical Assessment", *World Bank Economic Review,* Vol. 7 No. 1. The World Bank, Washington D.C.

Little, IMD and Mirrlees, J.A. (1974) *Project Appraisal and Planning for Developing Countries,* Heinemann Educational Books, London.

Nijkamp, P, Bergh, C.J.M. van den and Soeteman, First J. (1990) "Regional Sustainable Development and Natural Resource Use" *Proceedings of the World Bank Annual Conference on Development Economics,* The World Bank, Washington D.C.

Patale, R. L. (1987) *Project Appraisal Technique,* Oxford and IBH Publishing Co. Pv. Ltd. New Delhi.

Tull, D.S. and Album G.S. (1973) *Survey Research: A Decisional Approach,* Internal Textbook Company Limited, New York.

UNIDO (1984) *Proceeding of the Seventh International Conference on Input - Output Techniques,* United Nations Industrial Development Organization, United Nations.