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# A Measurement Model of the Economic Impact of Small Business Institutes

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## INTRODUCTION

The initial intent of this paper is to present a measurement model of the economic impact of an individual small business institute (SBI), with the ultimate intent being the development and use of a standard model throughout the United States. A standard model would allow the analysis of collected data from many SBIs in order to encourage a review of the effectiveness as well as efficiency of the SBI program in areas such as research applications, management analysis, and program/agency comparisons (36, 40). This economic impact model involves impact evaluation, defined by Patton as:

These evaluations are aimed at determining program results and effects, especially for the purposes of making major decisions about program continuation, expansion, reduction, and funding (31).

In constructing the economic impact model, the needs of the model to satisfy information requirements of diverse groups such as SBI directors, SBI clients, and government funding agencies was the paramount concern. Therefore, the development of the economic impact model was guided by the following quotation from Connolly, Conlon, and Deutsch:

We argue that an answer to the question "How well is X performing?" is inevitably contingent on whom one is asking. That is, the evaluative criteria required to transform a descriptive into an evaluative statement flow from the individuals or groups to whom we are referring as "constituencies"...(10).

In the economic impact model to be presented, the paramount constituency are the SBI clients; the secondary constituency consists of outside reviewers who fund the SBI program as well as SBI directors. The ordering in terms of importance of these constituencies guided the selection of economic criteria for inclusion in this model.

## LITERATURE REVIEW

Due to the diversity of general management knowledge required of small business owners, they often must turn to outside management assistance such as the management counseling services offered by an SBI (2,17). Several empirical studies have looked at the overall

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effectiveness of the SBI program in terms of assisting small business owners (44). As examples, Hoy concluded SBIs were more effective than SBDCs in assisting new business owners, and that instruction in financial analysis, accounting, and marketing were perceived by the clients to be particularly effective (20). This reported utility of financial analysis as a specific type of management counseling assistance was buttressed by Elbert, Anderson, and Floyd, who surveyed SBI directors and found the SBI directors to believe the SBI teams could be of most assistance in providing help with financial analysis (11). In further support of the favorable view of financial counseling by SBI teams, Solomon and Weaver surveyed 166 SBI clients and found assistance in the areas of sales, accounting, and advertising were most often used (43). In contrast, Khan and Rocha noted SBI recommendations in the managerial functions of accounting and finance were not reported to be helpful to clients, while assistance in marketing and operations was perceived to be helpful (22). In a more general line of research, Roitman, Emshoff, and Robinson reported survey results indicating executives of small business firms "...view external managerial assistance positively" (35). In discussing the views of small business owners who had received assistance from SBIs, Rocha and Khan noted small business owners are often concerned about the costs and risks associated with the recommendations they receive from an SBI (34). Overall, these studies indicate small business owners view SBI assistance as beneficial.

Although the evaluation of SBDCs is tangential to this paper, it is enlightening to review several of the evaluations of small business assistance programs involving SBDCs, primarily at the state level. Chrisman, Nelson, Hoy, and Robinson found the economic advantages of the programs, as measured by increases in the taxes paid both on sales and income, to exceed costs in the two states studied (9). Using a recently developed approach called Data Envelopment Analysis as a technique to analyze the managerial efficiency of SBDCs, Lang and Golden studied three SBDCs and concluded each had been inefficient in terms of number of persons trained and number of counseling contacts at some point during the years studied (23). Chrisman and Leslie evaluated the financial performance of 86 firms which received consulting from SBDCs and concluded the consulting served more to reduce costs than to increase sales or revenue growth, a result which may have occurred due to the limited follow-up period of one year (8). Robinson studied 101 small firms that had received managerial assistance from SBDCs and found sales and profitability were significantly higher than two matched control groups (32). In a study of client satisfaction with assistance received rather than financial measures, Nahavandi and Chesteen analyzed 106 surveys received from businesses that had received assistance from the University of Utah SBDC (25). Their results indicated business owners sought assistance more for planning for expansion than for seeking help with an existing business problem. The most implemented recommendations were those in the accounting area, and satisfaction with the assistance received was quite high. Again, these studies involved SBDCs rather than SBIs, yet they can serve to assist in the development of a model to evaluate the economic impact of an SBI.

As an example of students assisting a small business, Florin-Thuma and Boudreau studied a frozen yogurt firm which had three full-time and eleven part-time employees. The situation in this firm was indicated by the managers having "...inaccurately estimated utility parameters, underestimated the performance problem, underestimated the potential effectiveness of performance feedback, and considered several factors not present in the utility model" (15). Via utility analysis procedures, the students were able to show how they could decrease food costs by 15% and increase profits by 193%. It is this type of example of assistance by students that supports the SBI concept.

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## CRITERION DEVELOPMENT

It is disheartening but unarguable to agree with the statement by Hitt: "Unfortunately, research offers no consensus on the appropriate measure(s) of organizational effectiveness" (19). In the model to be presented, the criteria which have been selected serve as standards of performance by which the economic impact of an SBI or group of SBIs can be measured. Each of these criteria serve as "...a unit of measurement established to serve as a criterion of program performance" (13). As previously discussed, the necessity of serving the constituencies of SBI clients, SBI directors, and reviewers from government funding agencies all were taken into account during the development of this list.

The initial criteria are offered as a representative but admittedly not comprehensive list of standards. SBI directors are invited to add to or delete from the list of criteria those measures of economic impact they find to be valid in order to enhance the content validity of the list, although the ultimate intent of the model is to have a standard list of content valid criteria to be used across the United States. The call for involvement of SBI directors to modify the criteria is based on the following statement taken from Patton:

The stakeholder assumption is the idea that key people who have a stake in an evaluation should be actively and meaningfully involved in shaping that evaluation so as to focus the evaluation on meaningful and appropriate issues, thereby enhancing the likelihood of utilization (31).

In developing criteria by which to measure the economic impact of an SBI program, the "criteria of criteria" listed by Cascio (4, 5) and Patton (31) are pertinent and guided the selection of the performance measures. Specifically, such criteria need to be relevant, sensitive, reliable, acceptable, and practical. According to Cascio: "The principal requirement of any criterion is its judged relevance (i.e., it must be logically related to the conceptual criterion)" (5). Although relevance was the paramount concern during the development of the list of criteria, given the budget of the SBI program, the concept of "practical" was also given emphasis in terms of lessening whenever possible the amount of money that would be expended to collect any research data. Chew also emphasized that multiple criteria are necessary in measuring productivity, thus the use of a single criterion was avoided (6). The criteria selected include a review of records of levels of output and establish performance benchmarks which can be used to set goals, as suggested by Odiorne (27). Whenever feasible, the criteria have been selected so as to be quantitative and thus amenable to verification and statistical analysis (38).

The economic impact of an SBI will be based on more than the increase in the economic value of the firm, which is a commonly used measure of economic value of such activities by authors such as Steffy and Maurer (45). Such a measure may be seen as a necessary but insufficient criterion due to its overlooking relevant qualitative criteria (19).

One possible alternative approach to the development of a list of criteria would be to use standard costing procedures; however, such procedures are both abstruse and time consuming (45). As the purpose of this paper is to present a working model which can be used by SBI directors with a variety of educational backgrounds and levels of administrative support, the use of standard costing procedures was purposely excluded. This is not to say such measures are without value, rather the point is the development of a general and practical approach to the problem of how to measure the economic impact of the SBI program.

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## WORKING MODEL

It is important to understand that no widely accepted model of how to evaluate servicing performance and economic impact of an organization such as an SBI is available (19, 40). However, the development of such a standard model has been advocated by Elstrott (12). The economic impact model presented in this paper attempts to avoid esoteric terms due to the caution of Simon:

Communicability of performance information may be particularly important to publicly funded and other agencies which do not charge fees. Such organizations do not have the advantage of profit/loss terminology to communicate to funders and thus may be more dependent on less concrete forms of information to justify operating costs (40).

Using generic terminology from systems theory, this model emphasizes measures of environment, outcomes and results. Although other aspects of systems theory, e.g., inputs and processes, may well be considered in an overall cost/benefit evaluation of the efficiency of the SBI program, a measure of the economic impact of SBIs needs to focus on the initial three terms. The justification for these classes of measurements involves their conceptual meaning and operational measurements. For the purposes of the following discussion, the reader is referred to the conceptual model presented in Figure 1.

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**Figure 1. A Measurement Model of the Economic Impact of Small Business Institutes**

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Environment	Outcomes	Results
Prime Interest Rate	Self-Appraisal	Direct:
Unemployment Rate	Self-Confidence	Financial Ratios
Tax Rates	Client Satisfaction	Tax Revenues
Factory Closings	Enhanced Realism	Sales Growth
Competitors		Costs
Technology		Indirect:
Regulations		Employment Growth
		Income Growth
		Failure Rate
		Financial Ratios
		Tax Revenues

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The first class of measures, environment, involves all factors which affect the economic impact of an SBI but which are not under control of the SBI director or program. Examples of this class include macro- and micro-economic factors such as the local unemployment rate, inflation, taxes, factory closings, and the prime interest rate. That a measure of these factors is necessary is suggested by the survey of 385 small business owners by Franklin and Goodwin, which reported "Small business ranks external factors as the major cause of its problems" (16). These external factors have an influence on economic impact of SBI and thus must

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be measured and reported during a case, but the maddening yet ineluctable fact remains that these environmental factors must be accepted as "givens" outside the control of the SBI program. In a quantitative sense, these variables are easily measured and reported. An intriguing line of research stemming from this model would be to determine the effect of environmental volatility as measured by Snyder (41) or Snyder and Glueck (42) on the small businesses assisted by the SBI program.

The second class of measures, outcomes, involves qualitative measures of the achieved status of a client (40). Examples of this class include having a client set realistic sales goals, increased self-confidence of a client, constituency satisfaction (26), and a potential entrepreneur having a more balanced viewpoint of what level of time and effort is involved in the administration of a small business. These variables are predicted to be difficult to quantify and translate into economic terms, yet the full measure of the economic impact of the SBI program would be inadequately described without such variables (Elstrott, 1987; Lang & Golden, 1989; Patton, 1980). Support for this contention comes from Hitt (1988), who noted financial measures of a business and its potential problems are often unrelated.

The third class of measures, results, are the final outputs of the SBI program and can be readily quantified. As these measures have high face validity to governmental reviewers as measures of the economic impact of the SBI program, two types of data, direct and indirect, need to be examined. The first type of financial data, referred to as direct financial data, involves internal financial ratios. The name direct has been selected due to these measures being more immediately affected by the management counseling provided by the SBI. The use of financial ratios is suggested due to the fact that "...executives and policy researchers rely almost solely on financial measures of effectiveness" (19). Examples of this class of data emphasize financial ratios which measure liquidity, leverage, activity, and profitability (e.g., return on equity, return on sales, current ratio, debt to equity, inventory turnover, return on net worth, fixed asset turnover, debt to total assets, return on investment) as measured both at the beginning of the providing of assistance and via two follow-up measures as well. The specific operational measures of these and other financial ratios may be found in Hisrich and Peters. While the use of financial ratio analyses in small businesses must be done with caution (47), a lucid discussion of financial ratio analysis for small businesses may be found in Patrone and duBois (29). This data is particularly valuable in the SBI programs due to financial ratios having been found to be useful predictors of insolvency by Rushinek and Rushinek (37).

As Bettis concluded, such financial performance measures as are being advocated as outputs of an SBI program are usually highly correlated, therefore data collection can be done in an economical and relatively unobtrusive manner (1). Of the financial ratios, Robinson has suggested return on sales is perhaps most valuable for small business research (33).

Although such financial data may be seen as proprietary, SBI clients need to be informed at the start of consulting activities that such information will be requested and that confidentiality will be maintained. (For a suggested consent form, see Appendix A). This point was forcefully made by Elstrott:

No long-term counseling should be provided to clients unless they are willing to provide current financials to the counselor...All long-term clients should be informed from the beginning that they will be requested to voluntarily furnish pre- and post-counseling financial data (12).

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The collection of financial data is particularly important due to the recent research by Sapienza, Smith, and Gannon, who found no statistically significant relationships between subjectively estimated values and objective measures of performance in small firms (39). Therefore, a valid evaluation of the economic impact of an SBI should not be conducted via subjectively estimated values. By collecting such financial ratios data, perceptual approaches such as those used by Nahavandi and Chesteen in which SBDC clients were asked to estimate the impact of the services received, would be avoided (25).

A second type of results, indirect, involves external measures taken against industry norms and thus serves as the second data set in determining the economic impact of an SBI program. This analysis is suggested as it allows the contrasting of SBI clients' small businesses to other small businesses which have not received SBI counseling. The rationale for collection and analysis of this long-term data comes from Rossi et al.:

The critical issue in impact evaluation is therefore whether or not a program has produced more of an effect than would have occurred "naturally"; that is, either without the intervention or compared with alternative interventions (36).

In addition, Cascio (5) as well as Isaac and Michael (21) noted that the interrupted time series research design has the disadvantage of not controlling for history; the use of external norms as standards attenuates that disadvantage.

The term indirect has been selected in that these measures are relatively less immediately affected by the SBI counseling due to their interaction with environmental factors which serve to confound any cause-effect relationships of the SBI program. This longitudinal data would be collected across groups of SBI clients at time periods following the consultation process and contrasted with norms within the relevant industries. These external measures include employment growth, change in wage and salary, business failure rates as a measure of avoiding negative outcomes, and financial ratios such as net profit to total assets and/or net profit to net sales. As Simon has written, the interpretation of results based on these external standards must be done in a circumspect manner: "Comparison of ratios with a standard is slightly more complex, since a benchmark must be established" (40). For the purposes of this model, the norms for these external measures are readily available in publications such as *Handbook of Small Business Data 1988*, Osborne or *The States and Small Business: Programs and Activities* (18, 28, 46).

The collection and interpretation of the data may well be left to students using methods listed by Bruckman and Iman (3) and Mario and Schatz (24). Empirical support for this assertion comes from Ettenson, Shanteau, and Krogstad (14), who contrasted the judgments made by professional auditors and accounting students and concluded no significant differences in the number of significant dimensions used.

In addition, the model proposes collecting data on tax revenues paid to federal, state, and local governments, as this is an integral part of the economic impact of any small business assistance program (9, 7, 23). The operational measures of generation of tax revenue described by Chrisman et al., could be adopted, although their use will result in conservative estimates (9). The collection of data on sales growth is also advocated by Robinson (33); this is the most used performance measure in outsider impact studies (8). I would also add a measure of net operating cash flow, both as a financial measure itself and in relation to debt, as discussed by Hisrich and Peters (1989) and operationally delineated by Osborne (28).

## RESEARCH DESIGN

Specifically, the SBI economic impact presented in this paper uses the direct and indirect sets of data to determine the economic impact of the SBI. The model advocates an interrupted time series design using each client as their own control via the use of difference scores of financial ratios across time. These are the previously mentioned direct data. Although this is not an experimental design, due to the practical inability to have random selection and assignment of units of analysis, this method does provide a control for selection and mortality effects on internal validity (21). As Epstein and Tripodi noted:

Although the interrupted time series design does not control for all factors affecting internal validity...it does generate knowledge that is highly informative about a specific program (p. 118). Rossi et al., (1979) have also suggested the use of clients as their own controls: Another method of obtaining control observations is to take advantage of the fact that program participants can be used as their own controls...Particularly when substantial longitudinal (time series) data exist, this can be a powerful research design (36).

One value of this approach would be that it obviates the criticisms made by Elstrott of prior evaluation paradigms which used statewide averages as a "control" group (12). The use of longitudinal data collection is necessary in any attempt to measure the economic impact of the SBI program due to the dynamic nature of the criteria (8). In addition, Simon has suggested: "Comparison over time is probably the most applicable method for most ratios" (40). Although this interrupted time series approach may be criticized by an empiricist as not taking into account all environmental threats to internal validity (5), it is my contention that environmental influences must be taken as given due to the lack of control over them.

The working model emphasizes criteria gleaned from the preceding literature review with allowance made for financial restraints on the ability of most SBIs to collect data. The process described emphasizes both the use of pre- and post-counseling internal measures of financial performance as well as the use of external contrasts with industry norms.

An initial example of how the model could be applied by an SBI director is shown in Figure 2. The data which would be listed in Figure 2 would serve both to show progress within the small business and to show comparisons with industry norms.

**Figure 2. Economic Impact of Case No. 17-1990**

	Start	Finish	One-Year	Two-Year
Return on Sales	_____ %	_____ %	_____ %	_____ %
Inventory Turnover	_____	_____	_____	_____
ROI	_____ %	_____ %	_____ %	_____ %
Income Taxes	_____	_____	_____	_____
Business Taxes	_____	_____	_____	_____
Sales	_____	_____	_____	_____
Number of Employees	_____	_____	_____	_____
Net Profit	_____	_____	_____	_____
Current Ratio	_____	_____	_____	_____
Profit Margin	_____	_____	_____	_____
Return on Net Worth	_____	_____	_____	_____

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## CONCLUSIONS AND DIRECTIONS FOR RESEARCH

A question which has arisen during the writing of this paper is the relationship of type as well as amount of assistance provided and the subsequent performance of the small business. For example, Bracker and Pearson surveyed 188 owners/managers of dry cleaning businesses and concluded strategic planning does not correlate with performance data (2). Although none of the sample in the study by Bracker and Pearson had used SBI services, does this indicate that assistance with strategic planning would be of little economic value to a small business owner (2)? Although this question is offered as a rhetorical one, the question deserves serious research.

Areas of research, which could support both the model which has been presented as well as the SBI program, include those discussed by Steffy and Maurer, namely time-related issues, dollar valuation, and system dynamics (45). If the model presented could be used throughout the SBI program using standard measures of performance and follow-up periods, the publication of collected measures of the impact of the SBIs would obviate the criticisms of prior research made by Bracker and Pearson (1985) in regard to small sample sizes and inappropriate financial measures (2).

Far more research needs to be conducted on the needs of SBI clients as perceived by the clients themselves. As Epstein and Tripodi stated: "In the context of budgetary constraints, it is even more important that administrators be able to describe program activities in relation to client needs" (13). The validity of surveys of SBI clients as to their needs could be supported by research on the economic impact of different types of assistance provided by SBIs, e.g., does providing accounting counseling have more of an effect on return on sales, net profits, or taxes paid to the federal/state/local government?

A final area of research suggested by this economic impact model involves the relationship of improvement within a performance measure and the ultimate success of the small business. For example, which is more predictive of increased net profit two years from now: an increase in return on investment or an increase in inventory turnover? If we find the answers to these types of questions, the economic impact of the BSI program will not only be empirically evaluated, but enhanced.

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## APPENDIX A

I, (NAME OF CLIENT), the owner and/or manager of the (NAME OF SMALL BUSINESS), am willing to present financial information as to the financial condition of my business to the Small Business Institute located at (NAME OF COLLEGE OR UNIVERSITY). I realize this information will be requested both at the initial contact and at follow-up periods. I understand that the Small Business Institute team will maintain the confidentiality of this financial information and will use it to evaluate their program.

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(SIGNATURE OF CLIENT)

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(SIGNATURE OF SBI DIRECTOR)