Looking Out for the Little Guy: The Effects of Technical Assistance on Small Business Financial Performance

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Technical assistance has been shown to have a positive impact on new venture creation. This article seeks to determine whether technical assistance has a similar impact on the financial performance of new ventures and other small businesses. In addition, we examine whether some small businesses benefit more from technical assistance than others. In this study, the authors measure the effects of firm characteristics, management assistance and technical assistance on small business revenues and profitability. Building on previous research on technical assistance, we propose that financial outcomes for small businesses, such as market share, sales volume, cash flow, and profits, are a function of characteristics of the firm as well as characteristics of the technical assistance provided. In particular, we examine the effects of firm size measured in revenues, as well as technical assistance provider characteristics, such as the primary industry in which the firm operates. In terms of management and technical assistance, we test whether assistance with financial management, marketing strategy, human resources, obtaining capital, etc. have a significant impact on financial outcomes. Implications for practitioners, public policy and future research are discussed.

INTRODUCTION

Proponents of entrepreneurship programs in the practitioner, research and public policy arenas have had a longstanding interest in understanding the effects of management and technical assistance. Although these services are provided by a wide variety of private, not-for-profit, and public entities, public sector providers are the most common and the most scrutinized. Previous research suggests that public sector entrepreneurial assistance programs have an indirect, but positive influence on new venture creation (Gatewood, 1993). However, these programs may also positively affect the economic condition of the firm by enhancing survival as well as growth in revenues, employment, and profitability. In this study, we examine the effects of technical and managerial assistance on key economic outcomes, i.e., revenues, employment, and profitability, for their new venture and small business clients. We also seek to identify characteristics of firms that derive more economic benefits from this technical and managerial assistance.

Although there is disagreement in the literature on the value of technical and managerial assistance to existing businesses, a number of researchers have found support for the value and importance of managerial and technical assistance (Robinson, 1982; Chrisman, Nelson, Hoy, & Robinson, 1985;

Chrisman, Hoy, & Robinson, 1987;Chrisman & Carsrud, 1989, Chrisman ,1989). In fact, the general consensus is that entrepreneurial assistance programs improve the abilities and problem-solving approaches of individuals pursuing the venture creation process (Lang & Golden, 1989). Further, effective management and technical assistance (face-to-face counseling) has been found to help small businesses overcome weaknesses in the implementation of proper managerial functions (Chrisman, Nelson, Hoy, & Robinson 1985). Because public sector management and technical assistance programs for practicing entrepreneurs are expensive in terms of public funds appropriated and in terms of time for the delivery organization and the entrepreneurs, evaluation of these programs are common to ensure optimal use of Federal funds. In addition, U.S. federal government oversight agencies, e.g., the Office of Management and Budget, are required to provide analysis and policy recommendations pertaining to programmatic funding. This study builds on previous research in this area by examining the effects of technical assistance on small business financial performance, with a particular focus on the impact of firm size on these effects.

PREVIOUS RESEARCH

As suggested by Chrisman and McMullan (2000), the goal of entrepreneurial assistance programs is the creation of tacit and explicit knowledge that will lead to competitive advantages leading to the long term success of the business. The present study examines face-to-face counseling as the principal delivery mechanism for knowledge transfer and the economic impact of this assistance for present and potential small business entrepreneurs. This issue is complicated by the fact that managerial and technical assistance programs for entrepreneurs are usually funded either by the government or private foundations both of which are eager to see immediate payoffs from their investments. As a consequence, three measures are typically used to evaluate the impact of entrepreneurship assistance programs: (1) subjective assessments of client satisfaction; (2) clients' attributions of the impact of assistance on their subsequent performance; and (3) objective measures of growth in sales, employment, profits, etc. The rationale for the selection of these measures is the implicit assumption that these outcomes will not occur without management and technical assistance that leads to better decisions and competitive advantages (McMullan, Chrisman and Vesper, 2001).

The technical assistance literature suggests that the best methods for program evaluation are those that directly relate program outcomes to program objectives (Bartik, 1994; Reese & Fasenfest, 1997; Storey, 2000). It further indicates that the objectives of managerial and technical assistance programs while primarily economic should also include knowledge transfer and customer satisfaction. Appropriate measures for program evaluation should thus include: 1) businesses started or saved, 2) revenue generation and growth, 3) job creation and retention, 4) financing obtained, and 5) profitability. Evaluations of entrepreneurial assistance programs have primarily relied upon surveys of clients (for example, Nahavandi & Chesteen, 1988; Pelham, 1985, Solomon & Weaver, 1983). Using a survey-based approach, this study focuses on the impact of managerial and technical assistance on several of these outcomes measures, including revenue growth, job creation and retention and profitability.

There have also been a few studies that have used clients' attributions of performance separately (McMullan, Long, & Graham, 1986) or in concert with either subjective (Nahavandi & Chesteen, 1988) or objective measures (Chrisman, 1997, Chrisman & McMullan, 1996) with some success. However, as pointed out by Bartik (1994) and Storey (2000), evidence of growth or job creation without some control group comparisons does not provide a convincing case for economic impact. There have also been numerous studies, using control groups, by Courtney Price and colleagues that have reported significant start-up and expansion results from application of the FastTrack[ml] program (e.g., Price & Fleming, 1991: Price & Monroe, 1993; Price et al., 1994). Other studies on that program (e.g. Price & Monroe, 1993; Gillin & Powe, 1994; Robinson & Sexton, 1994; Gillin, Powe, Dews. & McMullan, 1996; Reitan 1997) have reported positive correlations between training and assistance programs and the subsequent performance of entrepreneurs, in starting new businesses and in expanding existing small firms. Studies of Small Business Development Centers (e.g., Chrisman & Katrishen, 1994; Pelham, 1985; Robinson, 1982,

Chrisman & Danforth, 1995) and Small Business Institute programs (e.g., Solomon & Weaver, 1983) have also assessed program effects using control groups, with encouraging results.

Unfortunately, none of these studies has addressed the issue of whether the three types of evaluation measures (subjective satisfaction, performance attributions, and objective performance) provide convergent validation. Brush and Vanderwerf's (1992) findings that owners' self-reported assessments of performance correlated with measures of actual performance provides some evidence of validity for self-reported business outcome data. To our knowledge, other than the present study, few studies, if any, have dealt with the relationship between different types of performance evaluation measures.

MODEL

The purpose of this study is to examine the effects of firm characteristics and technical assistance on small business revenues and profitability. We propose that financial outcomes for small businesses, such as market share, sales volume, cash flow, and profits, are a function of characteristics of the firm as well as characteristics of the technical assistance provided. In particular, we examine the effects of firm size measured in revenues and number of employees, as well as the primary industry in which the firm operates. In terms of technical assistance characteristics, we test whether technical assistance in different functional areas, such as financial management, marketing strategy, obtaining capital, and other areas significantly affects financial outcomes. Finally, we test whether larger versus small firms benefit from different types of technical assistance.

We examined these research questions by SBA ED Resource and by clients in two stages of business formation, including Start-Up businesses, defined as those who have been in business six months or less; and firms designated as In-Business, who have been in business more than six months and are classified as small by the SBA.

DATA

The largest, and perhaps most well-known of these entrepreneurial assistance efforts are provided by the U.S. Small Business Administration's (SBA) Entrepreneurial Development (ED) program, via three primary resource partner organizations. These include Small Business Development Centers (SBDC's), Service Corps of Retired Executives (SCORE) and Womens' Business Centers (WBCs). SBA's Entrepreneurial Development Resource Partners include full-service delivery programs that operate in all U.S. states and territories. These programs provide similar types of assistance across the country, and serve thousands of clients each year. Furthermore, performance data are regularly collected.

There is also substantial evidence that these programs are effective in meeting the needs of existing small businesses and pre-venture entrepreneurs in terms of start-ups, job creation, and sales growth (Chrisman, 1999; Chrisman, Hoy, & Robinson, 1987; Chrisman & Katrishen, 1994; Chrisman, Nelson, Hoy, & Robinson, 1985). Finally, there is evidence that the level of effectiveness does not appear to vary according to the entrepreneur's gender (Chrisman, Carsrud, DeCastro, & Herron, 1990) or ethnic background (Chrisman & Carsrud, 1991), or the industry in which the venture competes (Chrisman, 1997). This suggests that there will be fewer intervening variables to confound our analyses than might be the case for other programs.

The Small Business Administration's Office of Entrepreneurial Development designed a multi-year study to assess the effectiveness of the Entrepreneurial Development (ED) programs that it offers to small businesses. The initial study was part of the process of meeting the President's Management Agenda and subsequent evaluative processes. SBA ED resource personnel randomly selected clients served within a ninety day time period and mailed out surveys within and proportionate to the designated strata (Nascent, Start-up and In-business). The ED Resources included: Small Business Development Centers, Service Corps of Retired Executives, and Women Business Centers. All surveys were coded to ensure that addresses and contract information remained confidential and to ensure follow-up for non-response. Follow-up surveys were distributed to non-respondents 10 days after initial survey. In addition, telephone

surveys, distributed proportionately by ED resource, were conducted with non-respondents. An analysis of the telephone survey data revealed no significant bias due to non-response.

The overall response rate was 22.5 percent, which is consistent with response rates found in other surveys of entrepreneurs. For example, Aldrich and Baker (2000) found that nearly a third of surveys of entrepreneurs had response rates below 25 percent, and that the average response rate was approximately 30 percent. In another example, the National Federation of Independent Businesses (NFIB) typically achieves a response rate of 25 percent in its Survey of Small Business Economic Trends (Dennis 2003). The survey instrument measures attitudinal assessments, improvements in management/ marketing skills, and business growth for firms that utilized SBA's ED Resources during the two quarters prior to initiating the study.

ANALYSIS AND RESULTS

The dependent variable of interest in this study is financial impact, which we define as self-reported financial growth, and measure using a four-item summated scale. Survey participants were asked to indicate the extent to which technical assistance had the following impacts on a 5-point Likert-type scale: Increase market share; increase sales; improve cash flow; increase profit margin. This scale has a Cronbach's alpha coefficient of reliability of 0.948. This coefficient is a widely-used index of internal consistency or reliability of a scale. Cronbach's alpha coefficient measures the extent to which individual items that constitute a multiple-item scale correlate with one another or the total for all items in that measure. A coefficient alpha of 0.90 or higher is generally considered to be evidence of very good reliability.

FIGURE 1

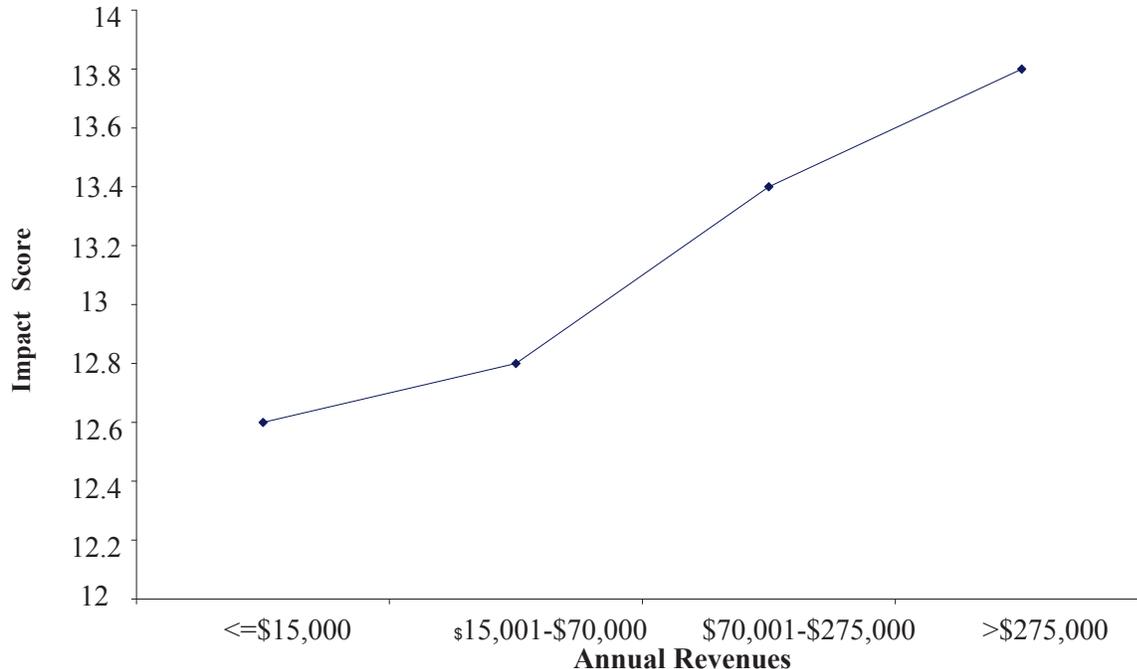**Financial Impact of Technical Assistance Increases with Firm Size**

Figure 1 depicts the relationship between firm size and financial impact. This relationship is positive and these variables are significantly correlated at the 0.05 level. Thus, it appears that larger firms benefit more than smaller firms from technical assistance. However, this simple analysis does not take into account differences in industry or in the types of technical assistance received.

Table 1 shows the results of a multiple regression model in which financial impact is regressed on the following categories of independent variables: characteristics of the firm and characteristics of the technical assistance received. Firm characteristics include technical assistance provider, whether the firm is a Startup business, firm size, and industry. Indicators of the ED Resource providing assistance include SCORE, WBC, or SBDC, where SBDC serves as the omitted category. Startup businesses that have been in business for less than 6 months are indicated by a dummy variable. Firm size is measured as the log of annual revenues and also as the number of employees. Type of business or industry is a series of dummy indicators for the following areas: construction; manufacturing; consulting; wholesale; finance, insurance and real estate; entertainment; retail/ restaurant; engineering; publishing; education; service; heath care; day care; transportation; computer systems and design; and other. Other serves as the omitted category.

TABLE 1
FINANCIAL IMPACT OF TECHNICAL ASSISTANCE-REGRESSION RESULTS
N=447

Variable	Parameter Estimate	Standard Error	t Value	Pr > |t|	Standardized Estimate	
Intercept	4.44565	1.7532	2.54	0.0116	0	
SCORE	0.00911	0.2835	0.03	0.9744	0.0014	
WBC	0.04193	0.4579	0.09	0.9271	0.0037	
Startup	-0.22938	1.0197	-0.22	0.8221	-0.009	
LogRevenues	0.29216	0.1466	1.99	0.0469	0.1949	**
Financial Mgmt	1.1108	1.3754	0.81	0.4198	0.1743	
Promotional Strategy	-2.41257	1.4824	-1.63	0.1044	-0.35	
Human Resource	4.65284	2.426	1.92	0.0558	0.5064	**
Obtaining Capital	0.40696	1.5898	0.26	0.7981	0.0573	
Marketing Strategy	4.28303	1.5892	2.7	0.0073	0.6671	***
General Mgmt	1.72654	1.4625	1.18	0.2385	0.2605	
International Trade	5.75764	3.6473	1.58	0.1152	0.318	
Financial Mgmt*Revenues	5.73E-05	0.1212	0	0.9996	0.0001	
Promotional Strategy*Revenues	0.3264	0.1324	2.47	0.0141	0.529	**
Human Resource*Revenues	-0.40797	0.2002	-2.04	0.0422	-0.546	**
Obtaining Capital*Revenues	0.02523	0.1383	0.18	0.8553	0.0414	
Marketing Strategy*Revenues	-0.30295	0.1368	-2.22	0.0273	-0.538	**
General Mgmt*Revenues	-0.12495	0.1269	-0.98	0.3255	-0.221	
International Trade*Revenues	-0.3663	0.3063	-1.2	0.2324	-0.242	
Employees	0.01767	0.0183	0.97	0.3347	0.0474	
Usefulness-Problem Identification	0.23095	0.2115	1.09	0.2754	0.0737	
Usefulness-Problem Correction	1.0001	0.2098	4.77	<.0001	0.334	***
Usefulness-Starting Business	0.20852	0.1412	1.48	0.1406	0.0701	

***Significant at the 0.01 level. **Significant at the 0.05 level   .*Significant at the 0.10 level

Results for the industry variables are presented separately in Table 2. A second set of independent variables measure characteristics of the technical assistance received. Type of technical assistance includes Financial Management; Promotional Strategy; Human Resources; Obtaining Capital; Marketing Strategy; General Management; International Trade; or Other. The 'Other' category is omitted to avoid linear dependence. This model also includes interactions between each of these types of technical assistance and annual revenues. In addition, we include three Likert-type variables that measure usefulness of technical assistance in three areas: Identification of problem(s), correction of problem(s); and assistance in starting a business.

TABLE 2
FINANCIAL IMPACT OF TECHNICAL ASSISTANCE-REGRESSION RESULTS
INDUSTRY VARIABLES

Variable	Parameter Estimate	Standard Error	t Value	Pr > |t|	Standardized Estimate	
Construction	-0.87368	0.5569	-1.57	0.1174	-0.077	
Manufacturing	-1.42167	0.5652	-2.52	0.0123	-0.124	**
Consulting	-0.32169	0.623	-0.52	0.6059	-0.024	
Wholesale	-0.57085	0.6407	-0.89	0.3734	-0.043	
Finance, Insurance, Real Estate	-0.48072	0.7778	-0.62	0.5369	-0.027	
Entertainment	-0.92893	1.0466	-0.89	0.3753	-0.037	
Retail	-1.07298	0.4789	-2.24	0.0256	-0.124	**
Restaurant	-0.08682	0.8645	-0.1	0.9201	-0.004	
Engineering	-1.61964	1.1182	-1.45	0.1483	-0.059	
Publishing	-1.22413	1.1165	-1.1	0.2735	-0.045	
Education	-1.19837	0.7096	-1.69	0.092	-0.075	*
Service	-0.83872	0.459	-1.83	0.0684	-0.102	*
Health Care	-1.82768	0.8004	-2.28	0.0229	-0.097	**
Day Care	-1.22459	0.8999	-1.36	0.1743	-0.057	
Transportation	-1.22755	0.8345	-1.47	0.1421	-0.063	
Computer Systems	-0.73817	0.7198	-1.03	0.3057	-0.045	

***Significant at the 0.01 level. **Significant at the 0.05 level. *Significant at the 0.10 level

The regression analysis is based on 447 useable observations; including participants who indicated that they are currently in business and who indicated that they had positive annual revenues. In terms of overall model fit, the F-value for this model is significant at the 0.01 level, and the R-square is 0.4077.

According to the regression results, there is a significant and positive effect of annual revenues on the financial impact of technical assistance. Larger firms are more likely to report increased market share, sales, and profits as a result of technical assistance than their smaller counterparts. Interestingly, however, the provider of the technical assistance had no effect on financial impact. In addition, financial impact was not affected by the firm being in business for less than 6 months. There was also no affect of the number of employees on financial impact.
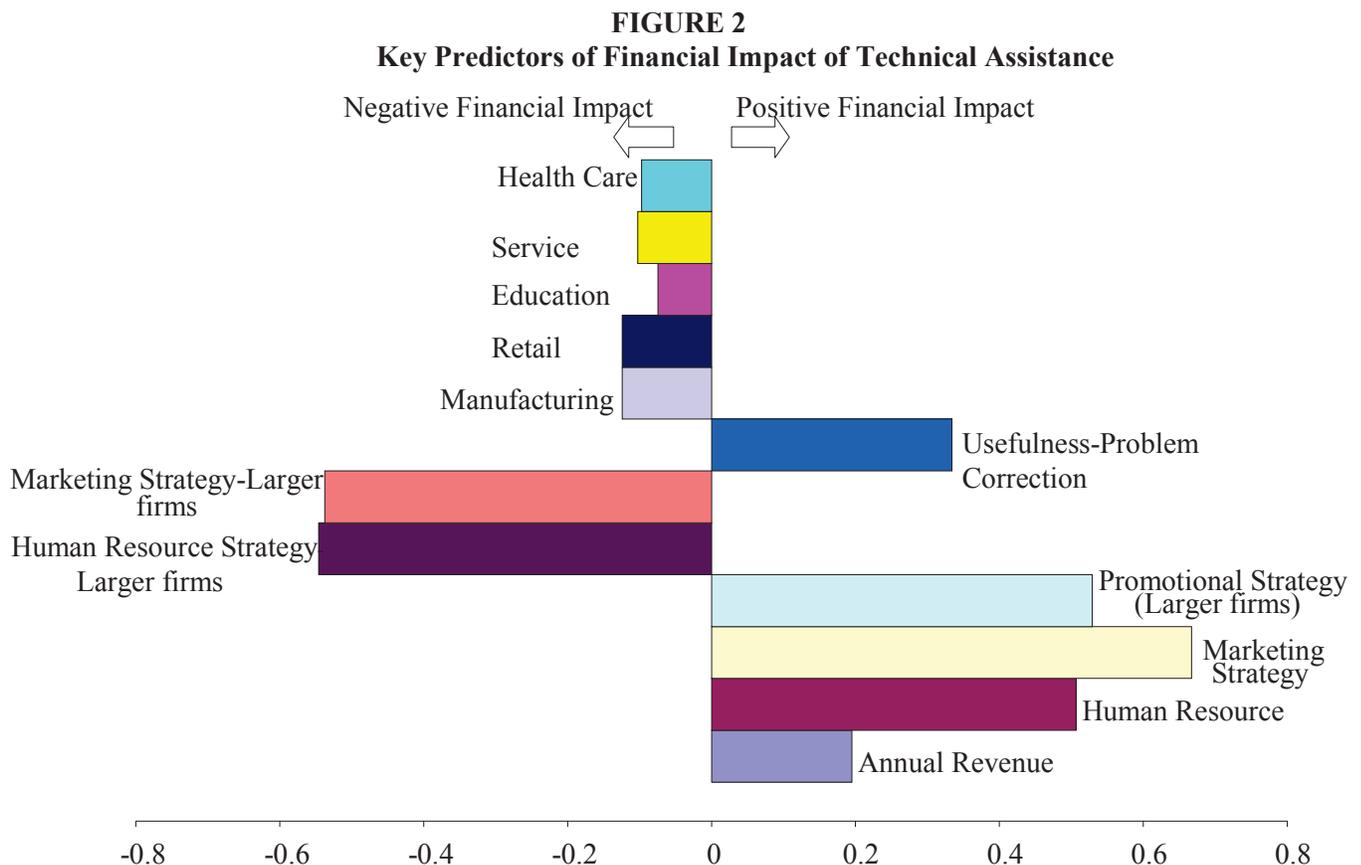
Out of 16 different kinds of businesses accounted for in the model, only five differed significantly in terms of financial impact. The coefficients on manufacturing, retail, healthcare, and to a lesser extent services and education were statistically significant and negative. Thus, holding firm size and other

characteristics constant, firms in manufacturing, retail, healthcare, services and education realized significantly fewer financial benefits from technical assistance than firms in other lines of business.

We find significant differences in financial impact depending on the type of technical assistance received. For example, the coefficient on the marketing strategy was significant and positive at the 0.01 level. The only other type of assistance that had a significant effect on financial outcomes was human resources, and this was only significant at the 0.10 level. The coefficients on financial management, promotional strategy, obtaining capital, general management, and international trade were not statistically significant.

In three cases, we found significant interaction effects of type of technical assistance with firm size measured in revenues. These interactions suggest that the impact of the type of technical assistance depends on the size of the firm. For example, the coefficient on the interaction of promotional strategy with revenues is significant and positive, suggesting that promotional strategy has a positive financial impact, but only for larger firms. In contrast, the coefficients on the human resources and marketing strategy revenue interaction terms are significant and negative. This suggests that technical assistance with human resources and marketing strategy only has a positive impact for smaller firms.

The final model including statistically significant variables and the magnitude of effects on the financial impact score is summarized in Figure 2.

FIGURE 2
Key Predictors of Financial Impact of Technical Assistance

DISCUSSION AND IMPLICATIONS

The x-axis shows the standardized coefficient value ranging from negative 0.8 to positive 0.8. These values indicate the change in the financial impact score associated with a one unit change in each independent variable. Values shown to the left of zero are negative and show that the financial impact

score declines due to the variables, while positive values indicate that the financial impact score increases due to these variables. The variable with the largest positive effect on the financial impact score was marketing strategy technical assistance, with a value of approximately 0.70. Promotional strategy technical assistance had the second largest financial impact, although only for larger firms. Technical assistance in human resources and marketing strategy had the largest negative financial impacts, but only for larger firms.

There are several important conclusions that can be drawn from the analysis described above. First, the impact of managerial and technical assistance on financial performance of small business increases with firm size. Financial performance, measured in terms of revenue growth, employment and profitability, is more likely to result from technical assistance when firms are larger, regardless of industry, type of assistance provided, i.e., marketing strategy vs. human resources, or other factors. One implication of this finding is that organizations and government agencies tasked with providing managerial and technical assistance need to rely on non-financial outcomes measures to assess their impact on less established or smaller businesses. These technical assistance providers also need to provide different types of assistance for smaller firms since they clearly have different needs.

These results also indicate that technical assistance in the human resources and marketing strategy areas have a significant impact on financial outcomes, but have a negative effect for larger firms. This implies that larger firms who seek technical assistance with marketing strategies or human resources may be in trouble, and may need this assistance earlier in their development in order for it to be effective. Although it is impossible to test with these data, this may also imply that larger firms do not benefit from these kinds of assistance, but other types of assistance may be more appropriate. Interestingly, there is no evidence of any significant impact of assistance with obtaining capital or financial management. One explanation could be that these kinds of financial assistance may have more of an impact on other outcomes, such as firm survival, which is not examined in this study.

The implications of the results related to industry effects are less clear. These findings suggest that in most cases, the financial impact of managerial and technical assistance does not vary by industry. However, firms in some industries (i.e., manufacturing, retail, education, services and health care) reported significantly lower financial impacts than other industries. This may reflect economic trends in these industries, although both high growth and slowing industries are reflected here.

There are several limitations that should be taken into account when interpreting these results. Firm age data were largely unusable and were omitted from the model. Thus, it is not possible to distinguish small firms from less experienced ones. An additional limitation is posed by the possibility that respondents varied in their interpretations of the labels used to describe types of assistance received. For example, there may be less variation in the interpretation of 'marketing strategy' than 'general management.' Additional limitations relate to the reliance on self-reported measures of performance.

Future research should measure the effects of types of managerial and technical assistance on other outcomes, such as firm survival. One component of the SBA's current evaluation research efforts involves collecting follow-up longitudinal surveys of firms in this sample. These data could be used for this type of analysis. An additional contribution would be to examine variations in the effects identified here under different economic conditions. Future studies should also test for variations in the impact of technical assistance based on owner characteristics.

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