2018

IMPACT AUDIT

TechnoServe

Impulsa Tu Empresa

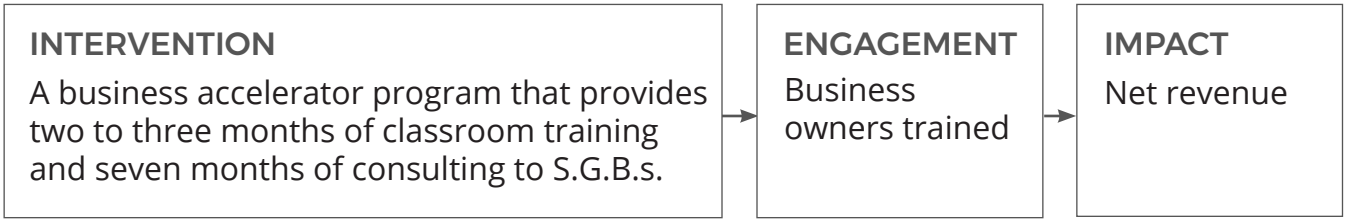
ImpactMatters

FINDINGS

Impulsa Tu Empresa

MISSION To increase the net revenue of small and growing businesses (S.G.B.s) in Central America.

PROBLEM S.G.B. owners cannot maximize their net revenues due to a lack of business management skills, financial literacy, professional networks and access to finance.



IMPACT AND COST

$31 in net revenue per $1 spent

IMPACT AND COST CALCULATION

A 31:1 benefit/cost ratio is exceptional. Costs include TechnoServe's expenses but do not include costs covered by business owners. If we include those costs, the benefit/cost ratio falls to 26:1. Data were last collected from business owners three years after the end of the program. We conservatively assume the benefits of the program continue an additional two years. Taking the perspective of businesses, net revenue rose $189 for every $1 that business owners spent because of the program.

QUALITY OF EVIDENCE

★☆☆

QUALITY OF EVIDENCE ASSESSMENT

Impulsa Tu Empresa's benefit/cost ratio is based on data collected by TechnoServe on businesses' gross revenues before and after participating in the program. We subtract from these figures the growth we assume businesses would have experienced had they not in fact participated in the program. However, only a small number of firms responded to TechnoServe's surveys conducted two to three years after they completed the program. TechnoServe also did not count businesses that had lower revenues after the intervention than before the intervention, biasing upward the benefit/cost ratio.

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EXECUTIVE SUMMARY

Program Description and Key Findings

TechnoServe's stated mission for Impulsa Tu Empresa (ITE) is to "increase the number and performance of small and growing businesses (S.G.B.s)." ImpactMatters estimates the mission-driven impact of ITE as the increase in the net revenues of S.G.B.s in Central America, net of the gains or losses they would have experienced had they not in fact participated in the program.

ITE, which stands for "boost your business" in Spanish, was designed to help S.G.B.s confront three key challenges: lack of business knowledge, connections to larger corporations and access to financial services. ITE addressed these challenges by offering the following services:

- **Business training**: two to three months of classroom training, with the aim of producing a business plan.
- **Consulting**: seven months of customized assistance from a business advisor hired by TechnoServe to help S.G.B. owners put their business plans into action, obtain loans and make professional connections, especially with larger corporations.

This impact audit reviews the ITE program implemented in El Salvador, Guatemala, Honduras and Nicaragua from 2013 to 2017. (TechnoServe also assisted another nonprofit to run ITE in Burkina Faso, but the program's design and implementation were necessarily different from ITE in Central America, so it is not included in the impact audit.)

ImpactMatters estimates each business owner earned an additional $148,000 in net revenue — defined as revenues less the cost of goods sold — over the course of five years, above what she or he would have earned in the absence of the program. From the point of view of TechnoServe — therefore counting only those costs incurred by TechnoServe to deliver the program — we estimate an impressive benefit/cost ratio of 31:1. Taking instead the point of view of the business owner — therefore counting only costs incurred by the business owner and not those of TechnoServe — we estimate a benefit/cost ratio of 189:1, meaning net revenues rose by $189 for every $1 that each business owner spent because they participated in the program. From a society-wide perspective, we estimate a third version of the ratio that takes account of all costs caused

by the program, including those of TechnoServe, business owners and outside organizations that hosted trainings in their facilities. The third benefit/cost ratio is 26:1.

We judge the evidence behind our estimates to be of low quality. TechnoServe tracked the gross revenues of participating businesses for up to three years, then calculated the difference in gross revenues before versus after the program. This "pre-post" comparison, if left unadjusted, would give TechnoServe undue credit or blame for counterfactual effects — changes over time that businesses would have experienced regardless of their participation in ITE. Though our calculation corrects for counterfactual effects using national surveys at the business level, it is a rudimentary solution in place of evidence better calibrated to the types of businesses that enter ITE. In addition, we use the results of the pre-post comparison from TechnoServe's corporate reporting system, which intentionally excludes any firms that earned lower gross revenues after the intervention than before it. This skews our estimates upward.

Impact and Cost

BENEFIT/COST RATIOS

We estimate three benefit/cost ratios, all with the same numerator: $148,000 in additional net revenue per business, earned over five years. The three benefit/cost ratios differ in the denominator, which changes depending on whose perspective defines the calculation. In the first, the denominator is TechnoServe's cost of delivering the program: $4,800 per business owner. The resulting benefit/cost ratio is 31:1, meaning every $1 spent by TechnoServe returned $31 in additional net revenues to business owners, net of counterfactual effects.

The second benefit/cost ratio is 189:1, taking as its denominator the costs incurred by the average business owner because she or he participated in the program: $780. From the perspective of the business owner, the program appears very cost-effective. Every $1 she or he invests by participating in the program yields a large $189 return in net revenues.

Finally, the benefit/cost ratio is 26:1 if we take account of all costs caused by the program, regardless of who bore them. In total, TechnoServe, business owners and outside organizations who contributed classroom space to the program spent $5,600 per business owner.

We think the above benefit/cost ratios overstate the true impact of the program, for reasons discussed below.

Our calculation of impact rests on a pre-post study conducted by TechnoServe, which compared the gross revenues of participating firms before and after the intervention. TechnoServe found large increases in gross revenues above pre-intervention levels. We adjust these values for counterfactual effects based on the results of nationally representative surveys of firms in El Salvador, Guatemala, Honduras and Nicaragua. Our adjustment attempts to net out the growth in gross revenues businesses would experience even in the absence of the program. We further adjust for the chance that businesses survive to see these gains in revenue. After firms completed the program, few responded to surveys to report their gross revenues. We suspect non-respondents were more likely to be out of business than respondents. As a result, TechnoServe's pre-post survey likely overstates the success of the average participating firm. Finally, we net out the change in costs brought on by ITE: registration fees and the opportunity cost of time spent in training and consultancy. We make the strong assumption, based on the research literature, that no other costs to the business changed because of TechnoServe's intervention.

DISPLACEMENT AND OTHER EFFECTS

TechnoServe has not measured displacement formally, but staff think it is possible that ITE firms put others out of business. There are two ways to consider the consequences of displacement. First, from an economy-wide perspective, any type of displacement matters. If ITE firms are succeeding at the expense of peer firms, the economy-wide effects of ITE might be lower than what we estimate in this audit or even zero. Second, if TechnoServe and its supporters are especially concerned about low-income households, we might allay their concerns if we can demonstrate that ITE firms are not displacing smaller, poorer firms. Indeed, according to staff testimony, firms displaced by ITE are likely very similar to ITE firms themselves. Though we cannot draw a conclusion based on this anecdotal evidence, we are encouraged by a recent experimental trial that found a somewhat similar intervention in Kenya caused no harm to competitors.

TechnoServe's support for S.G.B.s could have knock-on effects on job creation, greater use of financial services and innovation. However, with only 100 firms assisted each year in each country, the effects of ITE on economic growth are likely minimal.

Quality of Evidence ★☆☆

We have low confidence in our estimates of impact, based as they are on flawed sources of evidence. Our primary source of evidence is TechnoServe's pre-post study of

participating ITE firms. The results of that study, as they appear in TechnoServe's corporate reporting system, systematically exclude any firms that earned lower gross revenues after the program than before it. One of TechnoServe's reasons for this exclusion is that ITE might cause lower revenues in the short run, but higher revenues in the years after data collection ends. We would advise against this practice, as the changes experienced by participating firms, whether negative or positive, ought to be counted if they would not have occurred but for firms' participation in the program.

We attempt to correct for two other weaknesses of the pre-post study. First, we net out counterfactual effects based on the World Bank's Enterprise Surveys in the four countries where ITE was implemented. Though we filter the results of the surveys by firm size, we are unable to confirm that they are a good match to ITE firms along other dimensions, such as age, industry and cost structure. Second, we correct for "non-response bias." Few firms responded to TechnoServe's surveys after they exited the program. If firms that did not respond were more likely to have failed, the pre-post results would overstate the true impact of the program. We therefore adjust our estimates for the probability that firms survive, based on the research literature on the death rates of small firms in low- and middle-income countries. Though our corrections are based on the best *available* evidence, they are second to replacing the pre-post study design with a more rigorous quasi-experimental or experimental design.

NONPROFIT COMMENT

[PLACEHOLDER FOR COMMENT FROM TECHNOSERVE ON THE REPORT]

PROGRAM DESCRIPTION

This section summarizes the program's mission and constructs a theory of change that describes the problem, TechnoServe's intervention and ImpactMatters' chosen measure of impact.

Mission

To increase the net revenue of small and growing businesses (S.G.B.s) in Central America.

TechnoServe's stated mission for Impulsa Tu Empresa is to "increase the number and performance of S.G.B.s across Central America."[1] ImpactMatters measures achievement of this mission as the increase in net revenues caused by the program for participating S.G.B.s.

Theory of Change

PROBLEM

S.G.B. owners cannot maximize their net revenues due to a lack of business management skills, financial literacy, professional networks and access to finance.

LACK OF KNOWLEDGE

Many owners of small businesses have not received formal training in business administration. As a result, they are not able to make well-informed decisions based on analysis of proper financial statements, market research and other fundamental business tools.[2] Instead, small business owners tend to depend on their business instincts, and trial and error.

Owners of medium-sized businesses tend to have good knowledge of basic business tools, but need professional development services for their employees.[3] In some cases, they need customized "technical assistance" — consulting to address specific challenges faced by the business, like redesigning a restaurant menu based on a detailed cost analysis.

LACK OF PROFESSIONAL NETWORKS

Multinational corporations have considerable demand for the goods and services that S.G.B.s offer, but S.G.B.s tend to operate outside the view of multinationals.[24] The multinationals, unaware they can source from neighboring S.G.B.s, end up sourcing from outside the region. If linkages could be established, both parties would stand to benefit.

LACK OF ACCESS TO FINANCE

Finally, S.G.B.s face barriers to accessing financial products from banks and microfinance institutions. Poor bookkeeping and accounting practices render S.G.B.s ineligible for loans. In addition, S.G.B.s are deterred by lengthy application processes, high interest rates and the requirement of many financial institutions to pledge their homes as collateral.

ACTIVITIES

Impulsa Tu Empresa (ITE), which means "boost your business," was a 10-month business accelerator program for S.G.B.s in Central America. Business accelerator programs often provide some combination of training; consultancy; access to potential customers, investors and mentors; and start-up capital. ITE provided the first two components, training and consultancy, offering two to three months of classroom training to all participating S.G.B.s, followed by seven months of consulting for the most promising S.G.B.s.

When ITE accepted its first participants in 2013, TechnoServe tested whether two program other components had potential for achieving high impact: (1) consulting provided by volunteer mentors (rather than paid mentors); and (2) seed capital awarded to S.G.B.s with the best business plan. In 2014, TechnoServe did away with both components. Instead, it narrowed its program model across Central America, including only consulting from a paid professional and no longer providing seed capital.[2] In this audit, we review the entire period of implementation from 2013 to 2016, capturing the impacts of both versions of ITE that TechnoServe implemented. If TechnoServe should implement the

program again based on one or the other version of ITE, the resulting impacts may slightly differ from our estimates.

BUSINESS TRAINING

Each year, TechnoServe conducted a training program lasting two to three months for 60 to 70 S.G.B.s, selected from up to 400 applicants. To be selected, applicants had to have more than five but fewer than 250 employees and more than $10,000 in annual sales.[3]

Up to half of those applicants were then accepted into the training program, a series of four workshops at two-week intervals. The total duration of all four sessions was about 20 hours.[5] The final product of the workshops was a business plan for each participating business.

CONSULTING

TechnoServe selected about half of the S.G.B.s to receive "aftercare," a seven-month consulting program. S.G.B.s were selected for aftercare based on the strength of the business plans they developed during training. During aftercare, business owners were expected to implement their business plans. Consultants provided advice on how to put the business plan into action, obtain loans and make professional connections, especially with larger corporations.[3,6]

MEASURES OF IMPACT

ImpactMatters measures the impact of ITE by the **increase in net revenue of participating firms above counterfactual increases** (the increase in net revenue participating firms would have experienced had they had not participated in ITE). Net revenue is defined as the difference between the value of sales of goods or services and the cost of producing and selling goods or services.[i] Both TechnoServe and academic researchers report difficulty measuring the latter for small businesses.[7] Our approach circumvents this difficulty by focusing on rates of change. We need only estimate the *change* in gross revenues caused by the program minus the *change* in all other costs caused by the program to arrive at the *change* in net revenues caused by the program.

> TechnoServe's mission as an organization is to create more competitive farms, businesses and industries. It aims to increase economic activity across market

[i] By contrast, we define profit as gross revenues less cost of goods sold, operating expenses, interest, taxes, depreciation and amortization.

systems, not limited to the market actors that participate directly in its programs. TechnoServe measures system-wide effects as the change in gross revenues of its program participants, reasoning that a share of those revenues is distributed to the farm laborers, financial institutions and other market actors with whom participants do business. As such, in TechnoServe's view, our chosen measure of impact (net revenues accruing to program participants) does not capture the full extent of its intended market effects.

We do not agree that change in gross revenue is a useful indicator, whether of benefits to the participant or to the market system. Focusing on change in gross revenue overlooks change in costs caused by the program. Further, the research community has yet to confirm the system-wide benefits of such programs as TechnoServe's. We believe our analysis of the change in net revenues accruing to program participants is an appropriate reflection of the impact of TechnoServe's programs. In the section on Displacement and Other Effects (in the Impact and Cost chapter), we also briefly discuss the potential benefits (and harms) to third parties.

ASSUMPTIONS

For ITE's intervention to deliver impact, several assumptions need hold. Trainers and consultants must be affordable to hire, capable and available for the necessary period of time.[6] Financial institutions must be willing and able to meet the needs of small businesses. Conversely, participants must be willing and able to accept the terms of financial institutions. Finally, the political, macroeconomic and natural environments must be relatively stable, or they may impede the growth of small and risky businesses.

RISKS

TechnoServe strengthened the ability of businesses to face market risks, but like any business accelerator program, it was impossible for TechnoServe to eliminate risk. Some assisted businesses will fail. To mitigate the risk of investing resources in too many businesses headed for failure, TechnoServe designed a comprehensive application process. Besides an online application and a registration fee, TechnoServe conducted hour-long interviews with each shortlisted business owner to evaluate their drive and potential for business success. The effective acceptance rate into the program was less than 20 percent.

Program Details

GEOGRAPHY

The program was implemented in El Salvador, Guatemala, Honduras and Nicaragua.

A variation of ITE was also implemented in Burkina Faso in partnership with another non-governmental organization. However, the Burkina Faso program was vastly different: it served microenterprises in a low-income country in sub-Saharan Africa rather than S.G.B.s in lower-middle-income countries in Central America, and it focused heavily on providing seed capital.[2] For these reasons, it is excluded from the impact audit.

STAGE

ITE reached the "scale" stage.[i] Over the first two to three years of the program, TechnoServe experimented with the design of the program, offering, for instance, seed capital to businesses. By 2014, TechnoServe had settled on a single program design to be implemented across all participating countries (Guatemala, Honduras and Nicaragua). In 2015, it expanded the program to El Salvador.

AGE AND SCALE

ITE accepted its first participants in 2013 and ended in 2016. Cumulatively, about 1,050 S.G.B.s have been trained and 670 have received consulting services.[8]

[i] ImpactMatters classifies programs on a continuum from "design" stage to "validation" and "scale." At the design stage, the program is focused on discovering the right way to implement intervention. Programs at the "validation" stage are focused on testing that the intervention is cost-effective, before expanding access to the program. Programs at the "scale" stage are focused on expanding access to the program.

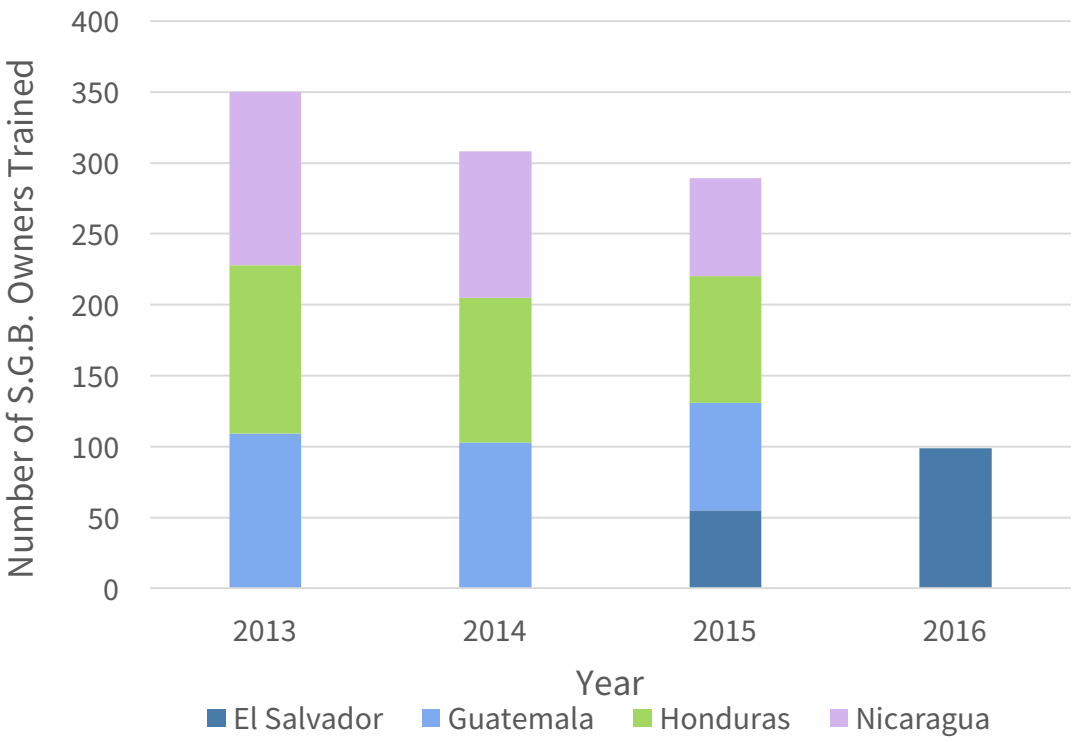

Figure 1. Number of S.G.B.s owners trained, 2013-16, by country

FUNDING

TechnoServe spent $8.3 million to deliver ITE, or an annual average of $1.4 million over its six years. By our calculations, it accounted for about 1 percent of TechnoServe's total annual expenses over that time period.

IMPACT AND COST

WHY WE ESTIMATE

Impact audits estimate the philanthropic impact and cost of a nonprofit's programmatic interventions. We base those estimates on best available evidence, however imperfect, drawn from the auditee (internal evidence) and research literature (external evidence). As such, our estimates are the best possible evidence-based gauge of philanthropic success.

HOW WE ESTIMATE

First, we identify outcomes that best capture the auditee's mission. We then settle upon ways to measure progress against those outcomes, relying on the tools of modern social science.

Second, we report our estimate of "impact," the change in outcomes that can be attributed to the auditee's intervention over a designated period of time. We take explicit account of counterfactual success — the change in outcomes that would have occurred without the program. And whenever possible, we take explicit account of third-party effects, especially unintended harm to vulnerable individuals because of the auditee's intervention. For benefits that accrue over time — for example, the increased earnings from high school graduation — we discount these future benefits (at a 5 percent discount rate). The length of time over which benefits are assumed to accrue is based on the specifics of the intervention under review and available internal and external data.

Third, we report total costs. Total costs include marginal costs (direct costs of delivering the intervention) and fixed costs (for example, administrative overhead) regardless of who bears those costs (nonprofit, public agencies, private funders or participants). For programs that generate commercial revenue, the revenue is treated as a subtraction of costs. For costs that kick in over time, we discount (as we do benefits). The length of time over which costs accrue depends on the specifics of the intervention under review and available internal and external data.

Fourth, we report the ratio of impact to cost (a benefit/cost ratio).

Finally, we analyze key factors — for example, stage of development, whether the nonprofit be in pilot phase or expansion phase — relevant for understanding the audit findings.

Typically, impact is estimated on a single outcome. However, if an auditee's intervention affects several outcomes, we report impacts on distinct outcomes separately. Concretely, suppose that a program seeks to raise incomes and improve health status. We do not, as yet, attempt to combine the impact on multiple outcomes into a single aggregate outcome — concretely, by combining the value of the income effects and health-status effects. To aggregate, we would need weights — the relative value of outcomes — that would reflect the nonprofit's or funder's values (not those of ImpactMatters as auditor).

Findings

ImpactMatters measures the impact of Impulsa Tu Empresa (ITE) as the increase in net revenues of small and growing businesses (S.G.B.s) in Central America, net of the gains or losses they would have experienced had they not in fact participated in the program.

ImpactMatters estimates that ITE increased the net revenues of the average participating business by $31 for every $1 that TechnoServe spent on the program (a striking benefit/cost ratio of 31:1).[i] Each business earned an additional $148,000 in net revenues over a projected five years, adjusted for the probability that businesses fail.

From the point of view of business owners, net revenues rose by $189 per business for every $1 that business owners invested in their businesses because they participated in ITE.

[i] All figures are presented in 2016 U.S. dollars. Figures originally denominated in Guatemalan quetzal, Honduran lempiras and Nicaraguan córdobas were converted at purchasing power parity.

Table 1. Impact and Cost Findings

BUSINESS OWNERS TRAINED	1,050
INCREASE IN NET REVENUES PER BUSINESS	$148,000
BENEFIT/COST RATIO, COUNTING ONLY COSTS COVERED BY TECHNOSERVE	31:1
BENEFIT/COST RATIO, COUNTING ONLY COSTS COVERED BY BUSINESS OWNERS	189:1
BENEFIT/COST RATIO, COUNTING ALL COSTS, REGARDLESS OF PAYER	26:1

We calculate benefit/cost ratios in three ways. The numerators are the same in all three benefit/cost ratios: the increase in net revenues per business, calculated as the change in the value of sales due to the intervention minus the change in costs due to the intervention.

The three benefit/cost ratios differ in the denominator. The first benefit/cost ratio takes as its denominator TechnoServe's cost to deliver the intervention to the average business: $4,800. The second benefit/cost ratio takes as its denominator the cost incurred by each business owner to participate in the program: $780. The $780 figure includes registration fees paid by all businesses that applied for ITE, regardless of whether they were selected to participate, and fees to attend industry roundtables convened by ITE. We also account for the opportunity cost of business owners' time spent in training and meeting with business consultants, about 115 hours. We monetize the cost of that time by assuming it could have been spent earning more income from the business or earning income elsewhere.

The third benefit/cost ratio takes account of all costs caused by the program, regardless of who paid them. The denominator is the sum of costs incurred by TechnoServe, business owners and outside organizations that host trainings at their facilities, resulting in a benefit/cost ratio of 26:1.

We have strong reason to believe our benefit/cost ratios, though based on the best *available* evidence, overstate the true cost-effectiveness of ITE. Our estimates are based

on low quality evidence from TechnoServe combined with several assumptions we make based on the research literature, such as the rate of gross revenue growth businesses would have achieved even without ITE. We discuss these issues in detail in the section on Quality of Evidence. The annex of this impact audit report contains a supplementary analysis that presents more modest benefit/cost ratios, based on a recent systematic review of S.M.E. support programs.

STRATEGY FOR ESTIMATING IMPACT

We take five steps to estimate impact:

1. We use TechnoServe's data on the pre-intervention and post-intervention ("pre-post") gross revenues of a large sample of participating businesses.
2. Next, we subtract an estimate of counterfactual success, meaning what rates of growth in revenues would participating businesses have experienced had they not participated in ITE.
3. We then adjust impacts by the probability that businesses survive to enjoy them. It was very challenging for TechnoServe to convince businesses to participate in surveys after they had exited the program. We suspect non-respondents were more likely to have gone out of business. We adjust TechnoServe's survey results because we think they likely overrepresent high performing businesses and underrepresent those that failed.
4. As we lack data on the gross revenues of participating businesses past the three-year mark, we assume impacts dwindle gradually from year three to year six, when impact is zero.
5. Finally, we net out the costs that businesses incur from participating in ITE to arrive at impact on *net* revenues. This includes costs to register to participate in ITE and the opportunity cost of time spent in training and receiving consultancy. We assume business expenses did not rise or fall due to participation in the program.

Algebraically, our model of total impact per business is:

$$I = \left(\sum_{y=1}^{5} \left[\left(R_{t,y} - \left(R_{c,y-1} * (1+G) \right) \right) * \left(1 - D_y \right) \right] \right) - C$$

where:

I = Impact measured as the total increase in net revenues per business
$\sum$ = Sum of the bracketed equation from $y=1$ (year one) to $y=5$ (year five)
y = Number of years since the start of the program

$R_{t,y}$ = Annual gross revenues earned by the average participating business in year y
$R_{c,y-1}$ = Annual gross revenues earned by the average non-participating business in year $y-1$
G = Counterfactual rate of annual growth of gross revenues for non-participating businesses, constant in all time periods
D_y = Probability that the average participating business dies in year y (with probability equal to zero percent in year one ($y=1$) as survey response rates were high in year one)
C = Total one-time costs to the average business from participating in ITE (registration fees and the opportunity cost of time spent in the program)

TechnoServe collected data on a large sample, about half of all participating businesses. Gross revenues were reported for the year prior to their participation in ITE, the year of their participation and for up to three years after ITE.[9] Using this data, we calculate the pre-post increase in gross revenues over the years for which TechnoServe collected data.

Pre-post comparisons are flawed because they provide a poor estimate of counterfactual success. They assume that in the absence of the program, participants would remain "as is" and not experience any changes. We therefore correct for counterfactual success by subtracting the likely rate of growth in gross revenues that businesses would have experienced had they not participated in ITE.[i] The World Bank periodically conducts a firm-level survey, called the Enterprise Survey, of a representative sample of private-sector firms in an economy. We construct an estimate of counterfactual success using the rates of annual sales growth from Enterprise Surveys conducted in 2016 in El Salvador,[10] Honduras[11] and Nicaragua,[12] and in Guatemala in 2010.[13] We filter the Enterprise Surveys by firm size, using the results of only small and medium enterprises in our calculation.

We further correct TechnoServe's pre-post data to account for firms that go out of business because we think the data might overrepresent high performing businesses and underrepresent those that failed. Few businesses responded to TechnoServe's surveys after they had exited the program and we suspect non-respondents were more likely to have gone out of business. We use a World Bank study on deaths of small firms in low-income countries to calculate the "expected value" of increases in gross revenue: the

[i] TechnoServe does in fact correct for counterfactual success by attributing to the program 50 percent of the observed success of existing firms and 90 percent of the success to start-ups. In effect, this assumes existing firms would grow by half as much as ITE firms in the counterfactual case and start-ups by 10 percent as much. We commend TechnoServe for recognizing the importance of correcting for counterfactual success, but recognize the attribution rates they have chosen are ultimately arbitrary. Where possible, we would prefer to root assumptions in evidence. In our estimates, we reverse their attribution calculations and apply instead our preferred approach.

increase in gross revenue each year multiplied by the probability that the business will survive that year. The World Bank study authors compiled surveys conducted on over 14,000 firms from 12 developing countries and used that data to predict the death rate of firms in any given year.[14]

TechnoServe collected data on business owners up to three years after the program, showing the program had positive impacts. Those impacts likely did not fall to zero the next year, but we lack data to know how they changed. In the absence of data, we predict the likely trajectory of the revenues of ITE firms *after* the years for which TechnoServe collected data. One approach to do so is to use findings from the research literature on the long-term impact of similar programs. However, the literature offers conflicting answers, as we describe in the section on Quality of Evidence. Faced with these conflicting findings, we make a cautious assumption: after the period of data collection, impact gradually declines to zero, in a linear fashion, over the course of three years. This assumption lies between two unlikely extremes: that impact diminishes instantly after data collection ends or that impacts persist for as long as businesses stay alive. Our choice of three years reflects consistent findings that few social interventions see benefits persist in the long term. Without compelling evidence to the contrary, an assumption of a shorter period of benefits is appropriate.

A key challenge is that ITE collected data on gross revenues rather than net revenues. Gross revenues are not a measure of impact on business performance. If a firm's costs exceed its revenues, the firm would doubtless be worse off even if its gross revenues are much higher than before. We therefore attempt to estimate the increase in costs caused by participation in ITE to calculate increase in *net* revenues. We think the extra costs include the following:

1. Registration fees paid by all 1,680 businesses that applied to participate in ITE.
2. Fees paid by 1,050 participating businesses to attend roundtable events.
3. Opportunity cost of business owners' time spent attending training and meeting with consultants. This time could have been spent earning more income from their businesses.
4. *No increase* in business costs as a result of adopting changes encouraged by ITE

Point number four is a strong assumption, not to be made lightly. We base this assumption on the research literature. A recent randomized controlled trial of a similar business accelerator program for small and medium enterprises in Mexico found no statistically significant increase in costs for participating businesses.[15] A well-designed quasi-experimental study of a technical assistance program for small and medium enterprises in Peru attributed to the intervention statistically significant increases of 15

percent in sales and 32 percent in profits.[16] Since the increase in profits well exceeded that of sales, we infer that costs rose less than sales did over the evaluation period. These studies partially validate our assumption, but are not a substitute for real data on the changes in costs that ITE firms experienced.

CALCULATIONS

TechnoServe collected data on three cohorts of businesses that entered ITE in 2013, 2014 and 2015. After 2016, TechnoServe stopped collecting data. (TechnoServe's commitment to its funders was merely to collect data on businesses when they were actively in the program, not after they exited. We commend TechnoServe for continuing to collect post-intervention data on as many cohorts of firms as possible.) The 2013 cohort was the only cohort for which TechnoServe was able to collect three full years of data on changes in gross revenues relative to pre-intervention ("baseline") levels. The 2014 cohort had two years of data, so we fit a linear model to those data to predict results in the third year. The 2015 cohort had only one year of data, so we first fit a linear model to the *2013* cohort, then applied to the *2015* cohort the slope of that linear model. Figure 2 below shows the average increase in annual gross revenues for the three cohorts, using firms in Guatemala as an example. Note the linear trend-lines of cohort 1 and cohort 3 are parallel because they share the same slope.[i]

TechnoServe's data show large pre-post differences in gross revenues for participating firms.[9] In Guatemala, for example, firms with pre-intervention annual revenues of $185,400 made $52,400 more in sales during the year of the intervention. We subtract from that difference the growth we assume the average non-participating firm in Guatemala experiences, about $7,600. The result is an additional $44,800 in annual gross revenues earned after the first year by the average firm in Guatemala.

We repeat the above calculation for years two and three (i.e., one and two years after the conclusion of the program), except we further correct for "non-response bias." 24 percent and 71 percent of firms did not respond to TechnoServe's surveys in years two and three. We suspect a sizable portion of non-respondents performed worse than respondents or went out of business. Since the survey results assume that non-respondents stayed in business, they might overstate the impact of the program. We attempt to correct this non-response bias by multiplying pre-post differences in gross revenues by the probability

[i] We also include in our calculations the fourth cohort of ITE, made up of 99 businesses in El Salvador. No other countries participated in the fourth cohort. We apply to those businesses the results of the Salvadoran businesses in the third cohort.

that firms fail. In year two, the probability of firm failure is 11 percent and in year three, 19 percent, according to research literature on the death of small firms.

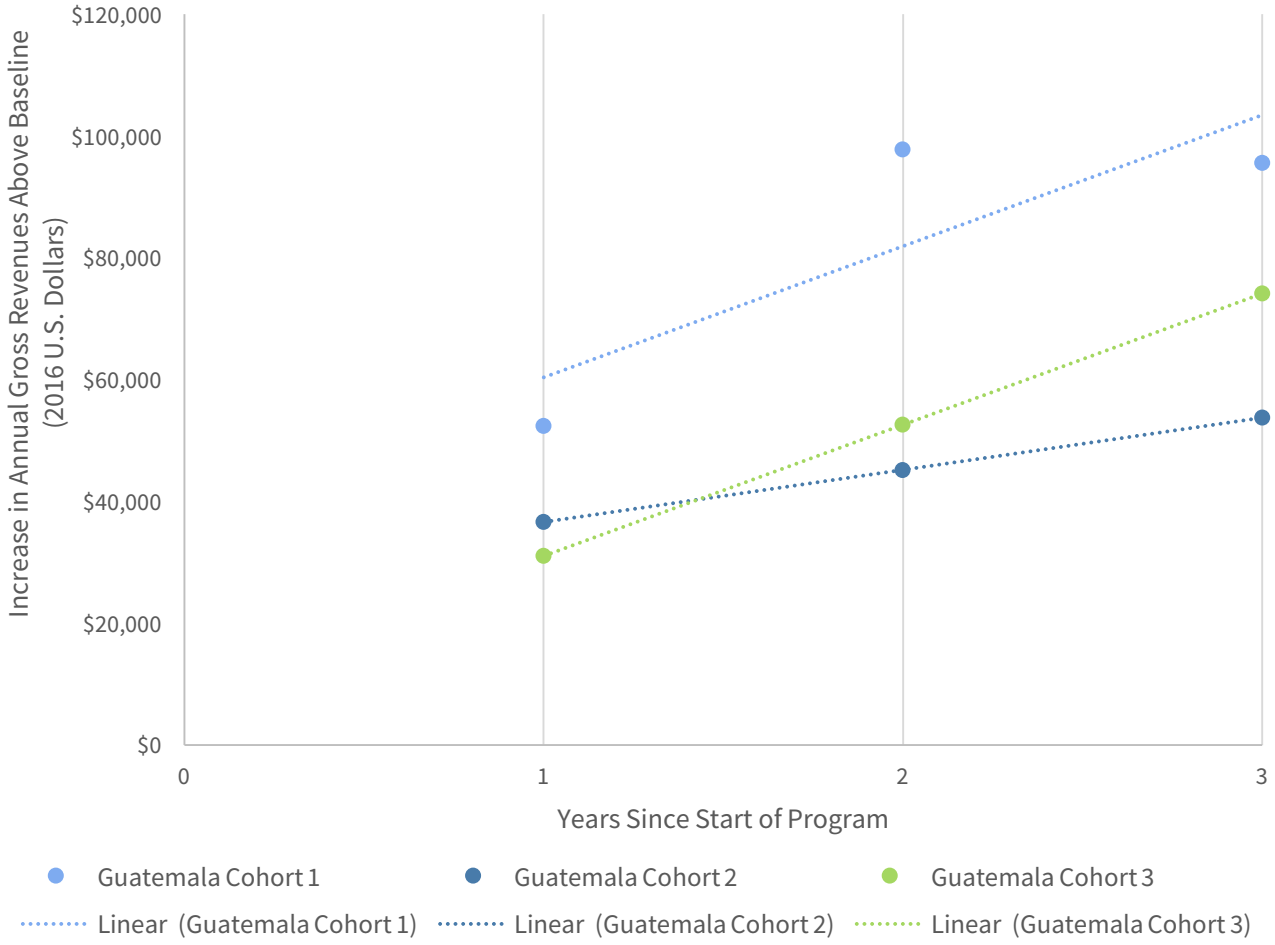

Figure 2. Increase in gross revenues with modeled predictions

After that, we assume a linear decay of impacts to zero in the sixth year. Summing up the annual increases in gross revenue over six years gives us the total increase in gross revenues per firm. We subtract from that sum the one-time costs that business owners incurred as a result of participating in the program: registration fees and the opportunity cost of the time they spent in training and consultancy. We assume business expenses did not change because of the program.

Below, we present the average changes, caused by ITE, in each firm's (1) gross revenue, (2) cost and (3) net revenue. Results are disaggregated by country.

Table 2. Changes in Gross Revenue, Cost and Net Revenue Caused by ITE

Country	Change in Gross Revenue	Change in Cost	Change in Net Revenue
EL SALVADOR	$113,100	$200	$112,900
GUATEMALA	$144,100	$800	$143,300
HONDURAS	$139,000	$1,000	$138,100
NICARAGUA	$182,400	$800	$181,600

The weighted average increase in net revenue per firm across all countries is $148,000. The weights are the number of firms from each country.

We calculate each participating firm's increase in costs caused by the program by adding up several types of costs. First, the registration fee for applying to participate in ITE (about $20)[5] and fees to participate in industry roundtables ($60 to $100). Second, we calculate the opportunity cost to the entrepreneur of about 44 hours spent in training and an hour-long interview to participate in ITE. Assuming business owners forwent earning more income from their businesses, we value this time at about $100 in El Salvador to $400 in Honduras. Our calculations are based on the minimum wage in each country, multiplied by a factor to reflect the wage level of entrepreneurs.[i] For those businesses selected to receive consultancy services, we also count the opportunity cost of about 70 hours spent meeting with consultants (valued at about $100 in El Salvador to $800 in Honduras).[5] We make the strong assumption, as explained above, that participants' business expenses do not rise due to the intervention. But if TechnoServe's advice and consultation did in fact cause businesses to make investments they would not otherwise have made, then our estimate of impact would be too high.

Finally, we calculate three benefit/cost ratios for ITE. All three take as the numerator the increase in net revenue per business, $148,000. The first benefit/cost ratio is calculated from the perspective of TechnoServe: what was TechnoServe's cost to deliver the program to one business? TechnoServe spent $5.1 million over the course of six years to deliver the

[i] We were unable to find plausible data on the average earnings of entrepreneurs or other "white collar" workers. Instead, we used data from the U.S. Bureau of Labor Statistics to calculate the ratio of minimum wage to an entrepreneur's wage. We scaled this ratio by another ratio: of the minimum wage in each of the ITE countries to the minimum wage in the U.S. To estimate entrepreneurs' wages in the ITE countries, we multiplied the minimum wage by this scalar.

program. We divide this cost by 1,050 businesses to arrive at $4,800 per business. The resulting benefit/cost ratio is 31:1.

The second benefit/cost ratio is calculated from the perspective of the average business. Each firm spent $780 because of the program, yielding a benefit/cost ratio of 189:1. Unlike the change in each *participating* firm's costs presented in table 2 above, the $780 figure includes the registration fees paid by all 1,700 firms that *applied* to participate in ITE regardless of whether they were selected.

The third benefit/cost ratio is calculated from a societal perspective. It accounts for all costs spent to achieve program outcomes — by TechnoServe, the business and others. The third benefit/cost ratio is 26:1.

Displacement and Other Effects

DISPLACEMENT

EFFECT: NEGATIVE

TechnoServe has not measured displacement formally, but staff think it is possible that ITE firms put others out of business.[17] The firms being displaced are likely very similar to firms that participate in ITE: S.M.E.s earning between $10,000 and $2 million in annual gross revenues.[5] If ITE firms are succeeding at the expense of peer firms, the impacts of ITE might be lower than what we estimate in this audit or even zero. This may be of concern to TechnoServe, whose objective in implementing ITE was to stimulate entire economies.

We do not, however, think small and medium ITE firms are displacing microenterprises and leaving very poor families without income. According to program staff, firms displaced by ITE are likely very similar to ITE firms themselves.[17] Because the evidence is purely anecdotal, we cannot draw a conclusion. Nonetheless, we are encouraged by the results of a randomized controlled trial on a somewhat similar business training and consultancy intervention in Kenya, which found no harm to competitors.[18]

ECONOMIC GROWTH

EFFECT: POSITIVE

Besides increasing the revenues of participating businesses, support for S.M.E.s could also spur job creation, greater use of financial services and innovation.[19] ITE also created a

platform for participating firms to network and do business with each other, potentially across national borders.[5] With only 100 firms assisted each year in each country, the effects of ITE on economic growth are likely minimal.

QUALITY OF EVIDENCE

WHY WE RATE

Quality of evidence reflects our confidence in the impact and cost estimates. For programs with high quality evidence, the impact and cost estimates are more likely to accurately reflect the effectiveness of the program. Quality of evidence reflects only that data we used to construct the impact and cost estimate.

HOW WE RATE

Quality of evidence is rated using an adaptation of the GRADE methodology, a systematic approach to judging evidence. Initially, studies are ranked by whether they are observational, quasi-experimental or experimental. Then, each study is assessed against quality criteria: risk of bias, inconsistency of results, indirectness of evidence, imprecision, risk of publication bias, magnitude of effect, evidence of a dose-response relationship and attenuation bias.

In the ideal case, data from the program are solely used to estimate the impact of the program. However, external data can be used to identify quantitative and qualitative parameters or to link behavior change to outcomes. When the analysis is substantively based on data from multiple sources, the quality of each is assessed. If only very-low-quality internal data is available, high-quality external data may be substituted. In addition, external evidence can serve to confirm or contradict internal evidence.

Star Rating	Quality of Evidence
☆☆☆	Quality rating is “very low”; or
	Quality rating is “low” but high quality external evidence contradicts its findings
★☆☆	Quality rating is “low”; or
	Quality rating is “medium” but high quality external evidence contradicts its findings; or
	Quality rating is “very low” but high quality external evidence corroborates its findings

★★☆	Quality rating is “medium”; or
	Quality rating is “high” but high quality external evidence contradicts its findings; or
	Quality rating is “low” but high quality external evidence corroborates its findings
★★★	Quality rating is “high”; or
	Quality rating is “medium” but high quality external evidence corroborates its findings

Rating

★☆☆

From TechnoServe’s point of view, ImpactMatters estimates that Impulsa Tu Empresa (ITE) increased the net revenue of small and growing businesses in Central America by $31 per business for every $1 that TechnoServe spent on the program. From the point of view of participating business owners, ITE increased net revenues by $189 per business for every $1 that the owners invested in their businesses because of ITE. Taking account of all costs caused by the program, regardless of who bore them, the benefit/cost ratio falls to 26:1. Below, we conclude that these estimates are based on low quality evidence.

Our estimates rest on data collected by TechnoServe on businesses’ gross revenues before and after participating in the program. The data suffer from very low response rates in later periods and systematic exclusion of negative results by TechnoServe. Moreover, the before-versus-after comparison gives TechnoServe undue credit (or blame) for changes over time that businesses would have experienced regardless of their participation in ITE, known as counterfactual effects. Even though we attempt to correct this bias in our calculations, we cannot eliminate it.

Review

PRE-POST STUDY OF IMPULSA TU EMPRESA

Our estimate of impact rests on comparing data that was collected from businesses before TechnoServe's intervention began ("pre-intervention") and data collected after completion of the intervention ("post-intervention"). Below, we refer to such comparison as "pre-post." TechnoServe's staff collected data on about half of the 1,050 firms that participated in ITE.[9] The data included monthly gross revenues in the year leading up to their participation in ITE.[20] Business advisors, employed by TechnoServe to execute training and consultancy, then collected data on monthly gross revenues from businesses while they were in the program. Before the 15th day of each month, business advisors recorded the gross revenues earned over the previous month for each of the businesses under their care. Monitoring and evaluation assistants, employed by TechnoServe and closely supervised by managers, checked whether data were complete, in the correct currency and that any irregularities were accompanied by an explanation from the business owner. They also attempted to fill in any missing data by telephone survey. Based on the data collection manuals we reviewed, we expect the quality of data collected before and during the intervention to be good.

However, the pre-post research design has one fundamental flaw: It neglects counterfactual effects — what would have happened to participating businesses had they, counter to fact, not participated in ITE. Businesses might have experienced growth regardless of intervention, especially since the businesses that were accepted into ITE had to pass TechnoServe's thorough selection process and demonstrate high potential for growth. TechnoServe recognizes this flaw and is seeking a new methodology for adjusting for counterfactual success.[21] Below, we describe what data we used to correct for counterfactual success in our estimates of impact.

Staff reported great difficulty tracking down businesses after they had completed the intervention.[2,3] Taking as an example the first cohort of businesses that participated in ITE, about 24 percent of businesses surveyed before and during the program did not respond to data requests one year after the program. The rate of survey attrition rose to 71 percent and 82 percent in the second and third years after the program, respectively.[9] This raises concerns about selective attrition: that the group that answers the post-intervention surveys is unlike the group that falls away.

TechnoServe dealt thoughtfully with the missing data from non-respondents by imputing (substituting with) figures from previous years. If a firm reported gross revenues for more

than six months out of the year, the missing months were replaced with baseline values, effectively assuming zero change in gross revenues above baseline levels. The rationale: firms might have been selectively reporting their revenues to avoid the appearance of poor performance. However, if a firm did not report results for most months out of the year, TechnoServe imputed gross revenues from the previous year's corresponding month, effectively assuming as much change in gross revenues above baseline levels as was achieved in the previous year. TechnoServe believes those firms were likely to be skipping surveys for more innocuous reasons than poor performance.

A critical detail: the final results we received from the pre-post study excluded any firms that reported lower revenues after the program than what they earned before the program.[21] This reporting follows the corporate protocols that TechnoServe observes. TechnoServe reasons that some business owners might not take its advice, so the failure of those businesses should not be attributed to TechnoServe. In addition, external shocks like economic downturns might result in negative results in a pre-post comparison, even if TechnoServe's intervention was beneficial, because such a comparison does not take due account of how other businesses would have fared under the same circumstances.[22] Finally, TechnoServe states that interventions like ITE might, for instance, advise a business owner to reorganize her business, resulting in a short-term loss. In later years, after TechnoServe's data collection ends, she earns far higher revenues, but only her earlier losses get recorded.

We believe changes in revenue that would not have occurred but for ITE must be counted, whether negative or positive, in the short or long run. In effect, the practice of excluding negative results gives TechnoServe "credit" for any success, regardless of who caused it, but does not give "credit" for any failure. We infer two intentions behind TechnoServe's practice. First, the need to correct for factors, other than its intervention, that affect firms' performance, such as macroeconomic shocks or simply the normal fluctuations in the fortunes of businesses. To do so, we would recommend that TechnoServe net out of its estimates of impact a counterfactual rate of success, based on evidence. TechnoServe's current approach only nets out negative counterfactual effects, but does not do the same to positive counterfactual effects. Second, we infer TechnoServe's need to account for long term impacts. If TechnoServe believes impact is achieved over a long horizon, we would recommend continuing to measure or model effects into the future rather than selectively excluding negative data collected in the short term.

COUNTERFACTUAL GROWTH RATES

ImpactMatters estimates counterfactual success of participating firms by simulating a control group. We take the pre-intervention gross revenues of the average firm and apply to it the annual rate of sales growth observed in a representative sample of small and medium enterprises in the countries where ITE was implemented, El Salvador, Guatemala, Honduras and Nicaragua. The data on growth rates comes from the World Bank's periodic Enterprise Surveys,[10–13] which are conducted on a stratified random sample of businesses in the private sector of a given economy.[i]

We have moderate confidence in the quality of the Enterprise Survey data. The World Bank has decades of experience administering the survey and has developed good protocols for data collection.[23] However, the survey requires firms to report revenues from three years ago in order to calculate annual growth in revenues. Small and medium enterprises (S.M.E.) with poor recordkeeping might not report reliable data. Further, the firms selected to participate in ITE are not entirely comparable to the average firm in the Enterprise Survey, even after we filter for firm size. ITE firms are likely run by business owners that show initiative, passion and business acumen. ITE firms also tend to be about 10 years younger than the average S.M.E. in the four countries. We think the counterfactual growth rate for ITE businesses ought to be higher than the rates found in the World Bank's surveys, but we don't know precisely how much higher. We adopt the World Bank growth rates and acknowledge that as a result, our final estimates might overstate the true impact of ITE.

RISK OF FIRM DEATH

After modifying TechnoServe's the results of pre-post study for counterfactual successes, we make one further correction for the risk of firm death. As we discuss above, we suspect successful firms were most likely to respond to TechnoServe's post-intervention surveys. Firms that went out of business were likely underrepresented in the results of the pre-post study. To account for this bias, we incorporate in our calculations the probabilities of firm death over time, as reported in a World Bank study by McKenzie and Paffhausen.[14] The authors compiled the results of 16 surveys of over 14,000 firms in 12 countries. Four of the surveys were general, periodically conducted household surveys and 12 were panel surveys that tracked firms or individuals over several years as part of

[i] Businesses were segmented into strata by size, industry and geography and then randomly selected from each stratum in numbers proportional to the size of each stratum to ensure the sample was representative of all businesses in the economy

randomized controlled trials. (The study only used data on the control group from the randomized trials, not the treatment group.) McKenzie and Paffhausen fit a quadratic function to the large compiled dataset, which they use to predict the probability of survival (or death) of small firms in a given year. Their predictive model is consistent with other estimates of firm death in poor countries from past literature.

Though McKenzie and Paffhausen's study is of high quality, it is not entirely applicable to the ITE context.[i] McKenzie and Paffhausen focused on microenterprises and small businesses with fewer than one employee each, on average. By contrast, ITE served small and growing businesses with between five and 250 employees. And at about 12 years old, the average ITE firm had been in business three years longer than the average firm in McKenzie and Paffhausen's study. Larger and older firms have a slightly lower chance of dying,[14] so applying McKenzie and Paffhausen's predictive model directly to ITE might underestimate the survival of ITE businesses and therefore slightly underestimate the impact of the program.

DURATION OF BENEFITS

We extend the annual benefits of ITE by two years after TechnoServe stopped collecting data from participating firms, meaning impacts cease in the sixth year after the intervention began. We make this assumption, explained in the section on Impact and Cost, because the research literature offers no unified answer on the long-term impacts of similar training and consultancy programs. Evidence from Chile and Mexico suggests small and medium enterprises (S.M.E.) do not see statistically significant gains in sales until some four to seven years after the intervention, at which time sales grow dramatically.[16] By contrast, studies from Colombia found no statistically significant change in sales in any of the five years following intervention, and a systematic review of S.M.E. support programs concluded effects tend to fade as time passes after the intervention.[24] Importantly, very few of the programs we reviewed resembled closely the design of ITE, and those that did tended to measure outcomes other than revenue, such as productivity.[24,25]

COMPARISON TO THE RESEARCH LITERATURE

Piza et al.'s systematic review examined a wide range of support programs for small and medium enterprises (S.M.E.) including tax simplification, matching grants, export

[i] ImpactMatters uses a single quality rating summarizing several sub-criteria, including the "indirectness" of evidence to the impact audit in question.

facilitation and training.[25] Synthesizing 36 studies, they found S.M.E. support programs improve "firm performance" by almost 22 percent, where firm performance is defined as any indicator of the firm's success, such as revenues, profits and productivity. This is consistent with our analysis, which finds an approximately 24 percent increase in net revenues. However, we caution against making a direct comparison to Piza et al.'s systematic review, which included very few programs like ITE. Indeed, we find there is a general dearth of evaluations of training and consultancy programs targeted at S.M.E.s, in contrast to the larger literature on training and consultancy coupled with seed capital or loans and targeted at microenterprises.

Because of the differences between ITE and programs studied in the literature, comparison of general trends over time might be more sensible than comparison of specific percentage changes in outcomes. We find the trend in ITE firms' outcomes differs vastly from the results of well-designed "quasi-experimental" studies in Chile and Mexico.[16] Those studies, called quasi-experimental because they lacked random assignment of businesses to treatment and control groups, tracked businesses up to 11 years after intervention. They found no statistically significant effects of programs for S.M.E.s until about four to seven years later, when sales increased dramatically. In Chile, for instance, annual sales grew by 10 percent more than comparison-group businesses in year four and continued growing to over 30 percent more than comparison-group businesses when surveying ended 11 years after the intervention. In contrast, ITE firms experienced large growth in net revenues, above our simulated comparison-group levels, immediately after intervention. This inconsistency slightly lowers our confidence in our estimates of impact.

ANNEX

Nonprofit Information

NAME	TechnoServe
CHARITABLE STATUS	501(c)3 nonprofit
WEBSITE	www.technoserve.org
CONTACT EMAIL	info@technoserve.org
ADDRESS	1120 19th Street NW, 8th Floor Washington, DC 20036

Audit Information

RELEASED	
PERMALINK	www.impactm.org/a/technoserve/2
STANDARD	Version 0.3
ACTIVITIES	Literature review, document and data review, senior management interviews, field staff interviews and key informant interviews.
AUDIT TEAM	Tamsin Chen and Ben Mazzotta
REVIEW TEAM	Elijah Goldberg and Michael Weinstein
CONFLICT DISCLOSURES	None

Alternate Approach to Analysis of Impact and Cost

We think our benefit/cost ratios likely overstate the true impact of ITE because they are based on low quality evidence from a TechnoServe study that compared the (gross) revenues of businesses before and after the program, combined with imperfect corrections for counterfactual success.

Instead of using TechnoServe's study, we could use the results from a systematic review of small and medium enterprise (S.M.E.) support programs in Latin America.[25] We did not use the systematic review in our original estimates because the programs included in the review were not comparable enough to ITE. However, the review included higher-quality studies than TechnoServe's before-versus-after study of ITE, with lower overall risk of attrition bias.

The systematic review found that S.M.E. support programs in Latin America increase the performance of a firm by 0.13 standard deviations. Recall there were four cohorts of ITE that entered the program in 2013, 2014, 2015 and 2016, and within each cohort, firms were grouped by country. We calculate the standard deviation of each country-cohort's gross revenues at baseline and apply the treatment effect of 0.13 standard deviations. We find that the first-year increase in gross revenues ranges from $1,400 (Honduran firms in the 2014 cohort) to $7,700 (Honduran firms in the 2013 cohort). We assume this treatment effect lasts for a total of three years, then assume a linear decay of effects over three years, such that impact falls to zero in year six.

Our benefit/cost ratios fall dramatically. Taking TechnoServe's perspective, therefore counting only TechnoServe's costs in the denominator, the benefit/cost ratio is 2:1 compared to the original estimate of 31:1. From the perspective of participating firms, therefore counting only firms' costs in the denomminator, the benefit/cost ratio is 11:1 compared to the original estimate of 189:1.

Benchmarking Impact and Cost Estimates

The research literature on support programs for small and medium enterprise would be greatly enhanced by more studies of the cost-effectiveness of such programs. The three key systematic reviews that we rely on in this impact audit — by Piza et al.,[25] Cho and

Honorati,[24] and Grimm and Paffhausen[26] — did not present any benefit/cost ratios against which to benchmark our estimates for ITE; rather, they too observed a general dearth of cost-effectiveness studies of interventions like ITE. However, studies of the Integral Quality and Modernization Program ("Calidad Integral y Modernizacion" or CIMO-PAC) in Mexico might be a starting point for benchmarking our estimates. The CIMO-PAC program provided partially subsidized training and consultancy to small and medium enterprises in Mexico. The evaluators found that benefits outweighed costs for medium-sized enterprises, but costs outweighed benefits for small firms and microenterprises.[27]

Glossary

Bias

Bias is a non-random error in a statistical estimate. Whenever estimates are based on a sample from a larger population, there will be random error in that estimate: no two samples will produce exactly the same estimates. An estimate is biased when those errors lead it to be consistently above or below the true value that is being estimated.

Comparison Group; Control Group

A comparison group, in contrast to the treatment group, is a group that did not receive the intervention. Comparison groups enable nonprofits and researchers to compare what happened to participants of their program to what might have happened if they were not in the program. ImpactMatters refers to comparison groups as “control groups” if they were constructed using probabilistic sampling, meaning if control-group members were chosen at random from the same population as the treatment group.

Counterfactual; Counterfactual Evidence

The counterfactual is what would have happened in the absence of a program or other event. Understanding the counterfactual is essential to understanding the impact of a program. Participant outcomes may change over time for many different reasons not related to the program. By comparing the difference between participant outcomes and counterfactual outcomes, the impact of a program can be estimated.

The counterfactual cannot be directly measured, as researchers cannot observe the same participant both participating and not participating in the program. However, it can be approximated by randomizing participants into an intervention group and a control group, and then comparing outcomes across the two different groups.

Discount Rate

People tend to value benefits in the future less than benefits in the present, for three primary reasons. First, benefits today can be reinvested and generate some return. Second, the future is uncertain, and we are often uncertain if future benefits will actually materialize. Third, most people are impatient, and prefer immediate gratification over future gratification. A discount rate captures this by discounting or reducing future benefits compared to current benefits.

Effect Size

How large the measured impact was on outcomes in the group receiving the program compared to a similar group that did not receive the intervention.

GRADE

Grading of Recommendations Assessment, Development and Evaluation (GRADE) is an approach to rating the quality (or certainty) of evidence and strength of recommendations. ImpactMatters' assessments of quality of evidence are inspired by the GRADE approach.

Impact

Impact is a change in beneficiary outcomes attributable to a nonprofit's intervention, net of counterfactual effects.

Independent Evaluator

An independent evaluator can include a research organization or academics engaged to analyze the impact of a program. Independent evaluators are not directly employed by the program, although they may be paid through program resources.

Intervention

An intervention is what researchers study and nonprofits implement. An intervention includes anything from a medical procedure to a conditional cash grant. ImpactMatters studies the intervention that a nonprofit implements, mapping that intervention to the evidence base on that particular intervention. Also referred to as the nonprofit's program.

Pre-post Comparison

Comparing the outcomes of a treatment group before and after receiving the intervention. The pre-intervention outcomes serve as a (poor-quality) estimated counterfactual. Synonyms: before-and-after comparison; reflexive comparison.

Purchasing Power Parity

The purchasing power of a currency is the quantity of the currency needed to purchase a common basket of consumer goods and services. P.P.P. equalizes the purchasing power of two given currencies by accounting for differences in the cost of living and inflation in the two countries.

Quality of Evidence

Quality of evidence captures ImpactMatters' confidence in our impact and cost estimates. For programs with high-quality evidence, the impact and cost estimates are more likely to accurately reflect the effectiveness of the program. Quality of evidence reflects only the data used to construct the impact and cost estimate. It is rated using an adaptation of the GRADE methodology, a systematic approach to judging evidence.

High-quality evidence under the GRADE rubric is the best scientific evidence that the program has its intended impact. Randomized designs are presumed to be in this category unless our analysts are concerned about flaws in the methodology or weak results.

Medium-quality evidence under the GRADE rubric has some flaws that might render estimates of impact inaccurate. Quasi-experimental designs are presumed to be in this category unless flaws are mitigated and results are convincing. Those designs can also be rated down to low quality if our analysts are concerned about the methodology or results.

Low-quality evidence under the GRADE rubric limits our confidence in the estimate of impact. Observational studies are presumed to be of low quality unless flaws are mitigated and the research shows very convincing results, such as with a large effect size and a clear dose-response curve.

Very-low-quality evidence under the GRADE rubric gives us very little confidence in the estimate of impact. Flawed observational studies, and even quasi-experimental or experimental studies with multiple, serious flaws, might fall into this category.

Quasi-experimental Design

A study with a quasi-experimental design tests a causal hypothesis, but lacks random assignment of test subjects to treatment and control groups, perhaps due to logistical or ethical constraints.

Randomized Controlled Trial (R.C.T.)

A randomized control trial is an evaluation design by which individuals (or groups) are randomly allocated into treatment and control groups, where the treatment group receives the program. The outcomes of the two groups are then compared in order to estimate effect size.

Sample; Sample Size

The sample is the portion drawn from a population for testing or analysis that is intended to enable statistical estimates of the behavior or attributes of the whole population. The

sample size is the number of units that comprise the sample; a large enough sample size allows inferences about the whole population to be made.

Social Costs or Societal Costs

Social costs include all costs incurred by society as a result of the nonprofit's program. Different from accounting costs, which include just the costs that appear on the nonprofit's accounting statements, social costs may include, for instance, the opportunity costs of participants' time spent in the program and the costs to other organizations and governments of helping to delivering the program.

Statistical Power

Statistical power is the probability that a test will correctly reject the null hypothesis (the hypothesis that there is no statistically significant difference between the samples being compared). An underpowered test will likely yield large p-values and confidence intervals, and will lack the evidence to reject the null hypothesis.

Statistical Significance

A statistically significant result (often a difference of means of the main outcome of interest) is a result that is unlikely to arise as a result of chance. This doesn’t mean the finding cannot be due to chance – just that it is very unlikely.

Systematic Review

A type of literature review that collects and analyzes multiple research studies in order to answer a research question. After a research question is defined and appropriate research studies identified, data from the studies are extracted, assessed for their quality, analyzed, sometimes statistically combined in meta-analyses, and reported in such a way as to address the research question.

Theory of Change

A theory of change connects the problem to the intervention the nonprofit runs to expected process and outcome metrics. The objective of a theory of change is to provide a testable hypothesis for why the intervention is solving some problem that will lead to positive changes for the targeted beneficiaries.

Treatment Group

In an experiment, the treatment group is comprised of experimental subjects that receive the treatment being evaluated.

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