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Knowledge Hub

The Role of Evaluation for Entrepreneur Support Programs



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Women Entrepreneurship Knowledge Hub (WEKH) is a national network and accessible digital platform for sharing research, resources, and leading strategies. With ten regional hubs and a network of more than 250 organizations, WEKH is designed to address the needs of diverse women entrepreneurs across regions and across sectors. In response to COVID-19, WEKH adopted an agitator role connecting women entrepreneurs and support organizations across the country and led network calls and training sessions. WEKH's advanced technology platform, powered by Magnet, will enhance the capacity of women entrepreneurs and the organizations who serve them by linking them to resources and best practices from across the country.

With the support of the Government of Canada, WEKH will spread its expertise from coast to coast, enabling service providers, academics, government, and industry to enhance their support for women entrepreneurs. Ryerson University's Diversity Institute, in collaboration with Ryerson's Brookfield Institute for Innovation + Entrepreneurship and the Ted Rogers School of Management, is leading a team of researchers, business support organizations, and key stakeholders to create a more inclusive and supportive environment to grow women's entrepreneurship in Canada.



The Evidence Network

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The Evidence Network Inc. (TEN), having conducted evaluations for notable organizations such as The Asian Development Bank, Business Finland, and the National Research Council of Canada, is internationally recognized as an industry leader in impact assessments by the US-based Center for American Progress. TEN measures the impacts that innovation support programs have on their clients (e.g., companies, researchers, other impact targets). By measuring the impact of innovation enablers, TEN equips managers, boards of directors, and funding agents with knowledge of the short-term effects of program services on clients' resources and capabilities, and the associated medium-term effect on company and researcher performance. Globally, TEN has evaluated more than 100 business and research support programs, including incubators, accelerators, economic development organizations, health sciences institutes, innovation funders, commercialization and technology transfer agents, university-based institutes, and research and development organizations.

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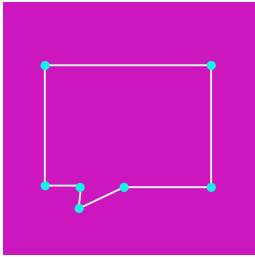
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Executive Summary

This report is provided by The Evidence Network Inc. (TEN) to the Women Entrepreneurship Knowledge Hub (WEKH) led by the Diversity Institute at Ryerson University. As part of the Government of Canada's Women Entrepreneurship Strategy, and with over 75 partners, WEKH is building a national network to address the needs of women entrepreneurs from across the country. TEN is a consultancy that provides design and evaluation services for organizations that support entrepreneurs, businesses, research, and communities.

Objective

The objective of this report is to draw on the literature pertaining to the evaluation of entrepreneur support programs to provide counsel to WEKH in the design of programs to support women entrepreneurs. The evaluation literature is an important resource to program designers because it not only describes programs and their participants but also distinguishes between programs that are successful in achieving their objectives and those that are not, and in many cases also describes the mechanisms by which outcomes are achieved. Further, this review is informed by the evaluation literature on entrepreneur support programs in general and literature on women's entrepreneurship support programs where possible. It should be noted that the literature on support programs for women's entrepreneurship is much less well developed than the literature on entrepreneurship support programs in general and as such represents a smaller portion of the studies included in this report.

Methodology

Through a broad review of more than 100 academic and non-academic publications, this report demonstrates the value of performance measurement and evaluation for designing programs to support entrepreneurs, the effectiveness and impact of programs, and what the broader implications of support programs may be on the economy, society, and the environment. This review will inform further work by WEKH to create a framework for program managers, funders, and policy makers to determine whether existing programs are effective and to provide insight into the design of future programs. The report is designed to answer the following research questions:

- > What approaches are available for the evaluation of entrepreneur support programs, especially those applying a gender and diversity lens?
- > How can evaluation be used to answer questions asked by program managers, funders, and policy makers in support of program understanding, development, or improvement?
- > What measures and data are relevant for an evaluation framework?

For the purposes of this report, support programs are broadly defined to include incubator programs, accelerator programs, business networks, investment funds, government support programs, government subsidies, and tax credits. These programs serve two distinct client groups: 1) individual entrepreneurs, with the goal of advancing the knowledge, skills, and networks of participants, and 2) firms, by building on the objectives for individuals and seeking to support firm-level growth.



Efforts to assess programs differ with respect to their purposes, methodologies, and access to data. Performance measurement assesses the nature of programs or their clients. Evaluations aim to isolate the impact of programs on client entrepreneurs or firms. Impact may be measured in terms of improvements to human or organizational capabilities, or in terms of improvements to organizational performance. In some cases, estimates of the impact of programs on society and the economy are sought, but these are difficult to obtain due to diffused effects and time lags.

Two Key Challenges of Evaluation

The first challenge is that evaluations of entrepreneur support programs rely on rich, client level data. At a minimum, data on treated clients and the nature of the treatment received is required. Studies that rely on control groups also require data on non-treated clients, and some assurance that non-treated clients did not benefit from alternative forms of treatment (substitution bias).

A second challenge is establishing causality, which is the link between program intervention and changed client capabilities. This is much more difficult than establishing the change in performance of client companies, because the change in performance may or may not be due to the support program. Each methodology described in this report seeks to isolate the effect of the program in question on client companies, eliminating selection biases that arise from the fact that superior companies (e.g., companies with better founders and managers) may be more likely to seek help from programs, and programs may be more likely to help such clients. This is the case when the assumptions associated to each methodology are satisfied. When

the assumptions are not met, we obtain in general only conditional correlation between the variable of interest and the outcome.

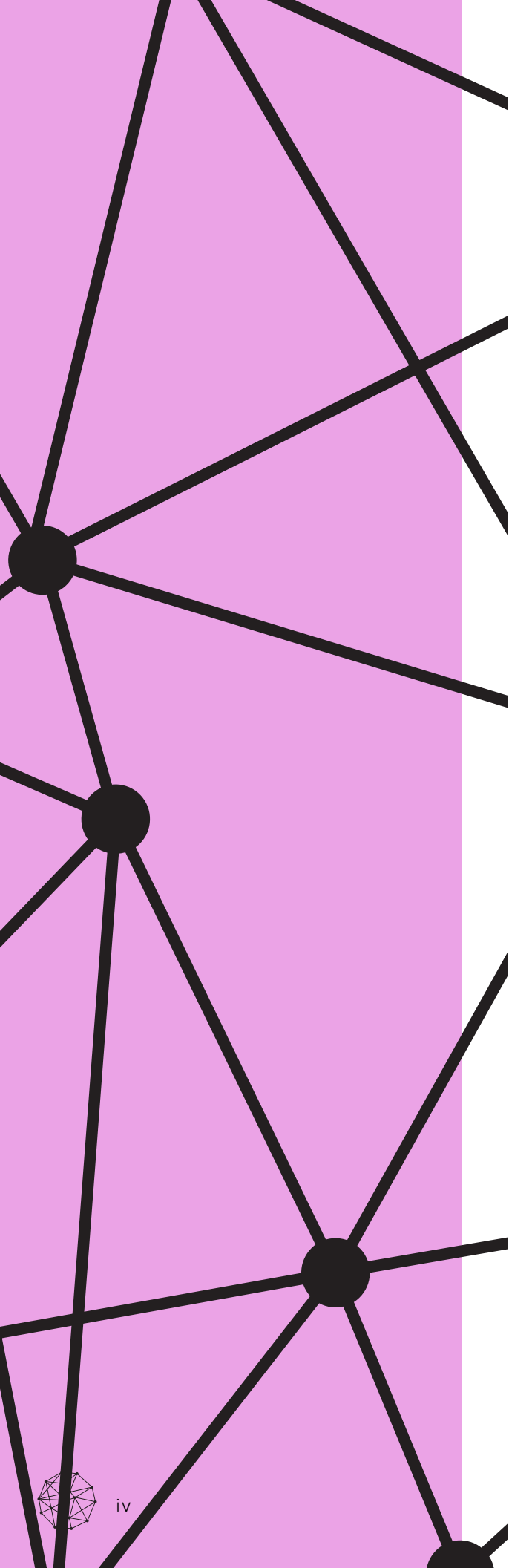
Key Findings

Existing literature provides evidence of the need for incorporating a gender and diversity lens in the design and assessment of programs. There is ample research demonstrating that the “one size fits all” approach of entrepreneurship and business supports may inadvertently perpetuate existing inequities, resulting in unequal outcomes. Gender is an important consideration for organizations supporting entrepreneurship, since studies have found gendered differences in access to support services as well as firm performance. In addition, support service delivery and effects on firm performance were also found to vary for racialized, immigrant, and Indigenous entrepreneurs. This signals the importance for nuanced programs designs which take into account the specific needs of these groups and improve accessibility.

This review demonstrates the need to better understand program participation on a population-specific level to allow program managers to understand who their programs are or are not supporting. Performance monitoring and evaluation can help service providers improve the delivery of their support services and its effectiveness in addressing actual needs of clients and to deep dive into more focused inspections of specific support services.

Evaluations demonstrate the link between program intervention and improved firm performance. Such assessments provide insight into 1) whether the intervention has had a positive effect, 2) the time required to generate the effect, 3) the magnitude of the effect, and 4) which sub-groups of participants benefit most.





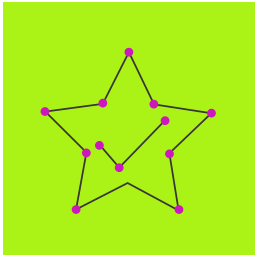
Not all clients of entrepreneur support programs will be successful launching a venture. Limiting the evaluation of a program to capture only impact on company performance may under-report the program's impact. Evaluations that go beyond capturing impact on company performance to also capture impact on company and entrepreneur capabilities enable programs to 1) capture short term impacts on capabilities in situations where there is a lag between impact on capabilities and impact on performance and 2) demonstrate their impact on the transferable skillsets of the entrepreneurs they serve. An understanding of direct impact on capabilities is also required to explain the means by which entrepreneur support programs have an indirect impact on company performance.

Conclusions & Future Implications

The evaluation of entrepreneur support programs is a continually evolving field, and work is advancing on several fronts. As the body of research grows, and as the expectations of support programs as an instrument of social and economic change increase, the role for evaluations is expanding. Both the methodological options and available data are expanding and improving, as researchers and practitioners seek to find evaluation strategies that are sufficiently substantive as to provide meaningful results while at the same time being sufficiently practical for use in existing programs.

Building on this report, an evaluation framework for entrepreneurship support programs across Canada will be developed which applies a gender and diversity lens. Additional studies of ecosystem-level evaluations and existing programs, and appraisals of existing datasets are all topics that, although outside the current scope, would complement the findings of this report.





Introduction

This report is provided by The Evidence Network Inc. (TEN) to the Women Entrepreneurship Knowledge Hub (WEKH) led by the Diversity Institute at Ryerson University. As part of the Government of Canada's Women Entrepreneurship Strategy, and with over 75 partners, WEKH is building a national network to address the needs of women entrepreneurs from across the country. TEN is a consultancy that provides design and evaluation services for organizations that support entrepreneurs, businesses, research, and communities.

The objective of this report is to draw on the literature pertaining to the evaluation of entrepreneur support programs to provide counsel to WEKH in the design of programs to support women entrepreneurs. The evaluation literature is an important resource to program designers because it not only describes programs and their participants, but also distinguishes between programs that are successful in achieving their objectives and those that are not and in many cases also describes the mechanisms by which outcomes are achieved. Further, this review is informed by the evaluation literature on entrepreneur support programs in general and literature on women's entrepreneurship support programs where possible. It should be noted that the literature on support programs for women's entrepreneurship is much less well developed than the literature on entrepreneurship support programs in general and as such represents a smaller portion of the studies included in this report.

A broad view of the evaluation literature was taken to encompass both the work done by evaluators as well as studies conducted by economists. Evaluators publish in journals such as the *Canadian Journal of Program Evaluation, Evaluation, and Evaluation Review*, while economists publish in journals such as *Research Policy, American Economic Review*, and *Small Business Economics*. Taking perspectives of both evaluators and economists into account provides a comprehensive review by bringing together two literatures across which there is little integration. The report encompasses a review of more than 100 journal papers and documents (e.g., white papers, working papers, reports), with authors from a diverse range of countries and regions (e.g., USA, Canada, UK, EU countries, Brazil, Israel, East Asian countries, Australia, etc.) and is designed to answer the following research questions:

- > What approaches are available for the evaluation of entrepreneur support programs, especially those applying a gender and diversity lens?
- > How can evaluation be used to answer questions asked by program managers, funders, and policy makers in support of program understanding, development, or improvement?
- > What measures and data are relevant for an evaluation framework?



This report focuses on the organizational level of the entrepreneurial ecosystem. The intent of the findings compiled is to encourage program managers, funders, and policy makers to embrace evaluation as a tool for understanding the accessibility of entrepreneur support programs, how those programs are (or are not) supporting entrepreneurs, and what the broader implications of support programs may be on the economy, society, and the environment.

As shown in Table 1, the ecosystem can be broken out into three broad categories: 1) individual (micro-level individuals and firms), 2) organizational (meso-level programs providing support and assistance to individuals and firms), and 3) societal (macro-level conditions and policies) (Cukier et al., 2013). For the purposes of this report, support programs are broadly defined to include incubator programs, accelerator programs, business networks, investment funds, government support programs, government subsidies, and tax credits. These programs serve two distinct client groups: individual entrepreneurs and firms. Programs that support individual entrepreneurs typically seek to advance the knowledge, skills, and networks of participants, whereas programs that support firms build on those

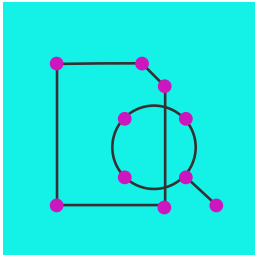
objectives and also seek to support firm-level growth (e.g., increased revenues, employment, etc.) through the provision of facilities, equipment, and advisory support. At the societal level, policies are designed to affect all of the constituent parts of the ecosystem. Examples of macro-level government policies include access to childcare and Canada’s universal healthcare policy. Evaluations of these types of policies are important for understanding the role of the institutional environment in shaping the social community and national economy. Full consideration of policies is outside the scope of this report.

The report is organized as follows: Chapter 2 introduces evaluation design with a consideration of evaluation objectives and provides a model of a theory of change that applies to entrepreneur support programs, an overview of the methods used for program evaluation, and a discussion of the strengths and limitations of alternative data sources. Findings from the literature are presented in Chapter 3. Chapter 4 provides concluding remarks and is followed by an Appendix identifying the methodologies, metrics, and key findings of each paper included in the study.

TABLE 1
Focus of Study

Ecosystem Layer	Key Elements	Description of Interventions	Evaluation Practices	Evaluation Literature
Individual	Entrepreneurs and firms	Discussed in current report	–	–
Organizational	Programs supporting entrepreneurs and firms	–	Evaluation Framework to follow	Focus of current report
Societal	Policies for Societies	–	–	Highlighted in current report





Considerations for Performance Measurement & Evaluation

Determine analysis objectives

Analyses of entrepreneur support programs differ with respect to their objectives. Descriptive reports provide an understanding of the nature of clients and the nature of the services created to support those clients. Evaluations attempt to demonstrate causality, which is the linkage between program intervention and improved participant outcomes. These analyses provide program managers with valuable insights into their programming, enabling an understanding of existing programs and informing the development of future programs.

Key purposes for performance measurement

Collecting data on the nature of programs, their clients and their performance allows managers to determine whether their clients align with the target audience stated in their program mandate and whether the support services provided through their program(s) are meeting the needs of the clients. Performance measurement may be undertaken by entrepreneur support programs to:

> **Promote diversity and inclusivity**

Data can be collected to determine the diversity and inclusivity of a given program. Examining client demographics and applicant attributes can identify the nature of the clients served and subsequently provide an indication of those groups not served by the program.

> **Monitor operational process**

Program review and monitoring provide a detailed description of the program design and logic and the operational processes through which it is intended that desired outcomes will be achieved. It serves to indicate how well a program is functioning, how congruous services are with the goals of the program, and the extent to which a program adheres to pre-determined criteria, procedures, standards, or plans (Ontario Trillium Foundation, 2007).

> **Make implications about program success**

It is well known that the accelerator Y Combinator is very difficult to get into, with admission to applicant ratios lower than those of Harvard University. It is also well known that several of their graduates, amongst them Dropbox and Airbnb, have been extremely successful as measured by their market capitalizations. While neither statistic is derived through an evaluation, both statistics, especially when taken together, are suggestive of an impactful program (Cohen & Hochberg, 2014).

Key purposes for evaluation

To causally link interventions to changes in client performance, evaluations must be undertaken. Evaluation moves beyond merely documenting and reporting on inputs and activities, and instead seeks to determine the impact or additionality of a given program. Evaluations of entrepreneur support programs may be undertaken to:



> **Demonstrate program effectiveness**

Program managers, funders, and policy makers are interested in the effectiveness of specific programs and how effectiveness can be improved. For this purpose, evaluation provides compelling and objective insights into how well programs work, where improvements can be made, whether program objectives are being met, and what is needed to ensure that objectives are met in future.

> **Identify new knowledge**

In terms of learning opportunities for policy makers, evaluation of existing programs is fundamental to building an evidence base to gain knowledge of the design of effective interventions, identify best practices, and support knowledge transfer.

> **Facilitate decision-making**

Support programs compete for limited government resources and funding. Evaluations assist decision-making in terms of program renewal, modification, and termination with consideration of priorities, targeted clients, opportunities, and risks.

> **Track outcomes**

Governments make investments in entrepreneur support programs with the expectation that they will have a positive impact on clients and thereby contribute to long-term socio-economic impacts that would not otherwise emerge. Outcome tracking is an important part of government accountability, and governments are increasingly expected to demonstrate the results they achieve with taxpayers' money.

Develop a theory of change

Theories of change provide a visual representation of how program inputs are transformed to create program outcomes and impacts. The development of a theory of change model is an essential foundation for any program assessment as it provides a conceptually sound description of the program and outlines the pathway from inputs to activities to the various levels of impacts in a causal order. For the purposes of the evaluation of entrepreneur support programs the theory of change is comprised of five elements:

- > Inputs
- > Activities
- > Impact on client capabilities
- > Impact on client performance
- > Broader impacts

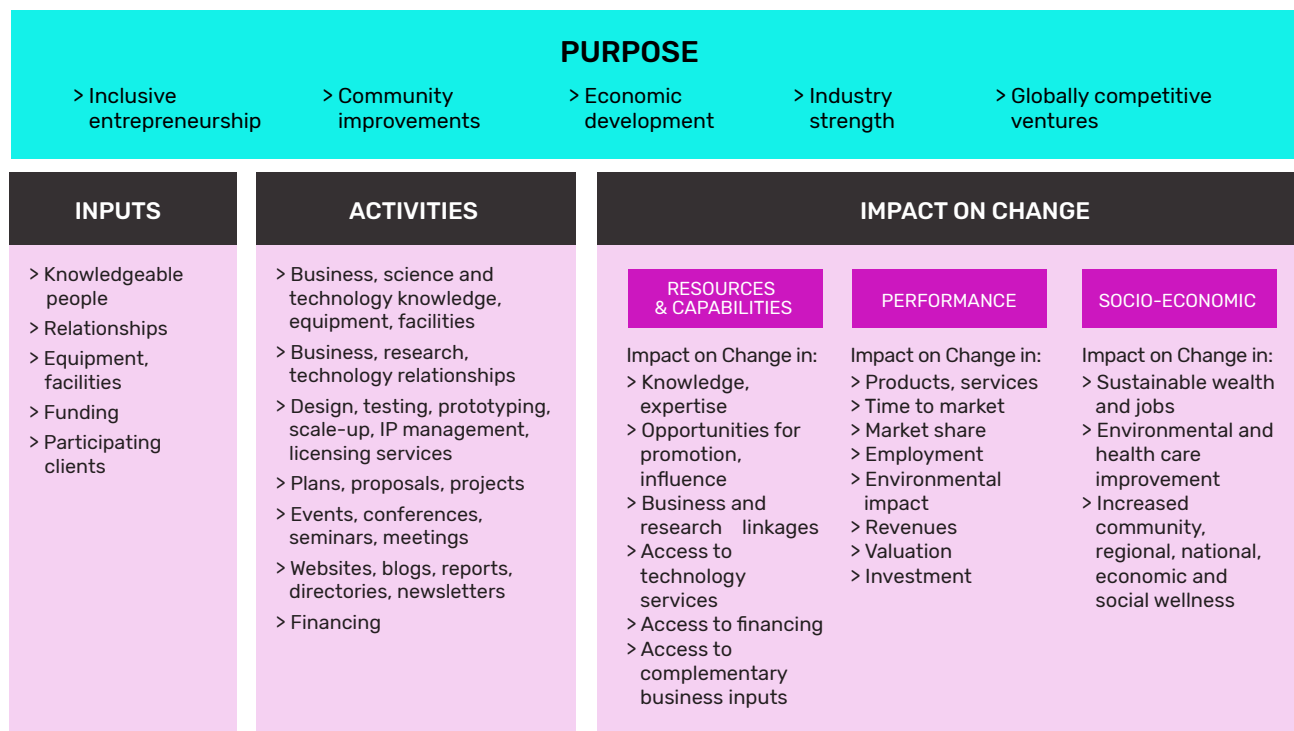
Figure 1 depicts a generic theory of change for an entrepreneur support program.

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FIGURE 1

Theory of Change Model for an Entrepreneur Support Program



As the figure depicts, the purposes of entrepreneur support programs are expressed in terms such as inclusive entrepreneurship, community improvements, and economic development. To achieve such purposes, programs contribute inputs (e.g., funding, staff, and facilities), and conduct activities (e.g., provide services and financial support). As a result of these activities, programs achieve direct impact on the capabilities of clients. This direct impact leads to indirect impact on client performance, which ultimately leads to long-term impacts in the form of socio-economic benefits for the broader community.

Impact on clients, as reflected by improvements to capabilities and performance, is at the core of program evaluation, contributing to the knowledge of program effectiveness, facilitating decision-making, and allowing policy makers to see how programs differ. Reporting actual performance or impact on performance (e.g., revenues, employment) is commonly used by governments to track the effects of their investments. However, impact on capabilities captures a program's impact on improvements to such things as clients' knowledge, skillsets, networking, etc., which are enduring and transferable skillsets. This is particularly important for entrepreneur support programs, as not all clients will successfully launch a company, and limiting the evaluation of the program to only capture impact on performance will under-report the program's impact. Broader



impacts on society and the economy are ultimate goals, but difficult and complex to measure in practice due to diffused effects and time lags.

Select an evaluation method

The methods used to evaluate entrepreneur support programs range from qualitative case studies and success stories to highly rigorous randomized controlled trials. Between these two extremes are approaches that balance rigour and feasibility. Ultimately the evaluation method chosen will depend on data availability, the nature of the entrepreneur support program that is being evaluated, and the purpose of the evaluation.

Randomized controlled trials (RCTs)

In experimental research designs and randomized controlled trials (RCTs), support is provided to a randomly selected subset of suitably qualified applicant firms and denied to the unselected firms, and the performance of the treated and untreated firms is compared. Selection bias is eliminated because firms neither self-select for participation in the program, nor are they selected on a competitive basis by program managers or their delegates.

Program managers are reluctant to undertake RCT-based evaluations because most entrepreneur support programs have been designed to serve high-potential ventures with the hope of creating very successful firms, and this selection of clients precludes the randomization of support (Dalziel, 2018). Furthermore, RCTs cannot be undertaken retrospectively, and under most circumstances, RCTs should not take place until the program has matured (White et al., 2014).

Quasi-experimental research designs

Quasi-experimental research designs—which

use econometrics to address selection effects when it is not possible to randomize firms to treatment and control groups—are more practical alternatives to experimental approaches. When they are feasible, quasi-experimental methods, such as regression discontinuity regression, difference-in-difference estimation, and multi-stage regressions using instrumental variables, control for selection bias. However, it should be noted that quasi-experimental research designs have significant data requirements as they necessitate the identification of a comparison group that is as similar as possible to the treatment group in terms of baseline (pre-intervention) characteristics. When entrepreneur support programs are specialized and customized to targeted participants, it becomes difficult to identify suitable control groups.

REGRESSION DISCONTINUITY (RD)

In a regression discontinuity (RD) design, program applicants are ranked to determine who receives treatment and who does not. Applicants above a threshold are selected to receive program support, while those below do not. The treatment effect is inferred from the size of the discontinuity in the performance of treated and untreated firms near the threshold, where selection into treatment is regarded as random.

DIFFERENCE-IN-DIFFERENCE ESTIMATION (DID)

Difference-in-difference (DID) estimation compares outcomes for treated and control group companies before and after treatment, as a solution to mitigate the effects of extraneous factors and selection bias.

TWO-STAGE REGRESSION WITH INSTRUMENTAL VARIABLES (IV)

Two-stage regression with instrumental variables is another approach to addressing selection effects. In the first stage, a new



variable that accounts for selection into treatment is created using the instrument variable(s). In the second stage, the model-estimated values from stage one are used in place of the actual values of the problematic predictors to compute an ordinary least squares model for the response of interest. Finding a good instrumental variable could be challenging. A major drawback of this design is that if the instrument is weak, the IV estimator is biased.

Matched sample approaches

MATCHED SAMPLES ANALYSIS (MSA)

The matched sample approach can demonstrate a difference between the performance of treated and control group firms, when firms are matched on a number of variables. But if treated firms differ from untreated firms in ways that are important but unobservable (e.g., motivation), matched sample approaches will not distinguish between effects that are a consequence of unobserved differences between treated and control group firms (selection effects), and effects that are the consequence of treatment.

PROPENSITY SCORE MATCHING (PSM)

The propensity score matching (PSM) approach matches treated companies to one or more control group companies based on their propensity score, which is a measure of the likelihood of being admitted to treatment (receiving support).

Judgment of attribution (JOA)

An alternative method of evaluating entrepreneur support programs is judgement of attribution (JOA) (European Commission, 2013; American Evaluation Association, 2015; Dalziel, 2016). JOA uses the expert judgement of survey respondents to distinguish between changes in client capabilities and performance that are a consequence of the intervention and those that are not. In the survey

design, respondents are asked about the change in performance since their first engagement with a specific program; then in the following question, they are asked about the proportion of the change in performance that is attributed to the specific entrepreneur support program.

The main strength of the JOA approach is that it eliminates the need for a control group because it measures the treatment effect directly, rather than inferring it from a comparison of the performance of treated and untreated companies. In addition, this method is always feasible and allows for the benchmarking of the effectiveness of a diverse range of programs that support business, research, innovation, and entrepreneurship. Furthermore, the JOA approach demonstrates causality, that is, the linkage between program interventions and improvements in firm performance. The main drawback to this approach is that survey respondents may over or under-estimate attribution when using the JOA approach. Therefore, care must be taken to design and frame the survey questions so as to minimize the cognitive burden of providing accurate responses.

Qualitative approaches

Qualitative approaches (e.g., interviews, case studies, etc.) have been used by researchers as a way to examine program processes and activities, demonstrate clients' perspectives, manifest program performance, and present success stories. In most academic papers, qualitative approaches are included as an add-on element to provide in-depth explanations and details, as a tool to demonstrate different perspectives, and as a mechanism to analyze human factors. However, there is an increasing trend for researchers to apply mixed methods which include both qualitative and quantitative data.



Identify evaluation data sources

All credible evaluations of entrepreneur support programs rely on rich, client level data. At a minimum, data on treated entrepreneurs or firms and the nature of their treatment is required. Studies that rely on control groups also require data on non-treated entrepreneurs or firms, and some assurance that those that did not receive treatment also did not benefit from alternative forms of treatment (substitution bias). The need for data to tease out the selection bias is also evident. Participation in entrepreneur support programs is subject to double selection: only some new ventures self-select to apply for such programs, and not all applicants qualify. There is also out-selection, as not all qualifying applicants complete the program (Autio & Rannikko, 2015). As a result, evaluations are enhanced through the systematic tracking of data on non-treated applicants, current clients, and graduates.

Sources of data available for the evaluation of entrepreneur support programs include government administrative data, firm-level administrative data, secondary survey data, primary survey data, interview data, and data scraped from the internet. The appendix to this report presents information on the data used for each paper cited. Researcher-designed surveys are the most commonly used data source. This is because other sources of data are typically insufficiently informative and difficult (or impossible) to access. Moreover, there is no relationship between the rigour of the research design and the data source. Some of the best studies (Branstetter & Sakakibara, 2002; Howell, 2017) and studies using RCTs (Bakhshi, 2015; Fairlie, 2015) rely on survey data. Conversely, there are studies that use

administrative data, reputedly the most reliable data, yet do not completely satisfy the requirement to eliminate selection bias (Lerner, 2000). In this section we consider the strengths and limitations of alternative data sources for the evaluation of entrepreneur support programs.

Government administrative data

Government administrative data, captured in the process of complying with regulations, paying taxes, and protecting intellectual property, is highly reliable and may also be longitudinal. The main limitations of this type of data are related to its availability and accessibility. Data on unincorporated ventures is typically not available, however most entrepreneur support programs target new ventures and SMEs. Conversely, when firms are large their corporate performance data may not reflect the effects of programs whose support is not commensurately significant. Patent data and data on new products developed are more sensitive to the effects of support programs than data on corporate revenues or market value, and have been used to evaluate the impact of research consortia (Branstetter & Sakakibara, 2002), basic science funding (Toole, 2012), and government subsidy through R&D grants (Le & Jaffe, 2017), respectively.

Company administrative data

Both government and private sector administrative data are increasingly being used by economists (Einav & Levin, 2014). Data on publicly-traded companies are widely available because publicly-traded companies have mandatory reporting requirements. However, most firms are not publicly-traded; less than 1% of firms in Canada are listed on stock exchanges (Cumming & Johan, 2013). Similarly, few firms receive venture capital financing.



Secondary survey data

Industry surveys on SMEs conducted by national governments collect general characteristics on businesses and their growth and financing activities (Statistics Canada, 2017). However, it is difficult to use such data for evaluation purposes because sampling is used, and so for small programs, a significant proportion of treated firms may be missing from the dataset. Also, it will typically be difficult to identify treated and untreated firms in datasets. Nevertheless, researchers have used such data for the evaluation of R&D tax credits in Canada (Czarnitzki et al., 2011) and credit guarantee policy in Korea (Oh et al., 2009).

Primary survey data

Researcher-designed surveys are the most frequently used data source. They have the benefit of being universally applicable and can be used when programs are small, client firms are ventures, and when fine-grained data on firm capabilities is sought. However, survey data may be susceptible to a number of biases. Care must be taken to avoid: 1) retrospective bias, a consequence of the difficulty respondents may have in recalling past events objectively, 2) confirmation bias, a consequence of the tendency to provide responses that are internally consistent, and 3) responses that are biased as a consequence of excessive optimism or confidence on the part of the respondent, or the wish to provide socially desirable responses. Another issue is that control group companies are less likely to respond to surveys than treated firms. In some cases, control group responses to surveys are so low that researchers have had to resort to exceptional measures, including payments, to elicit responses (Bakhshi et al., 2015).

Interview data

Interview data is the richest and most informative data; however, it is difficult to gather, so samples are typically small and may not be comprehensive. Nevertheless,

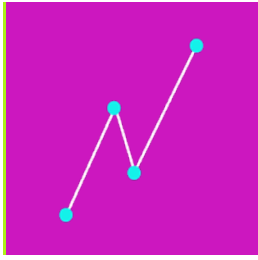
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studies based on interview data can make significant contributions.

Internet data

Web scraping is increasingly used to collect data on entrepreneurial ventures. Companies such as CrunchBase, OMX, and CB Insights use web scraping to identify companies and track financing and transactional relationships. Internet data is appealing in its comprehensiveness, granularity, and objectivity (Einav & Levin, 2014), but such data is generally unsuitable for program evaluation purposes. Nevertheless, website, email, or transaction data can be used as indications of firm resources, activities, social networks, or performance. Limitations of internet data include the fact that web scraping approaches to data collection will





Performance Measurement & Evaluation in the Literature

vary in terms of reliability, and that email and transaction data is confidential.

This chapter provides an overview of the types of findings program managers, funders, and policy makers may identify through performance measurement efforts and evaluations. Performance measurement and evaluations may be used by program managers to help to determine if today's programs are effective and to help design tomorrow's programs. Performance measurement differs from evaluation with respect to its objectives. Performance measurement is imperative for understanding program inclusion and diversity and can also be used to understand the nature of the services created to support those clients. Evaluations, on the other hand, attempt to isolate and understand the causal relationship between the support services provided by programs and their effects on participants.

How inclusive are entrepreneur support programs?

To understand the current state of diversity and inclusion in entrepreneurship support programs, studies have taken into account the demographic characteristics of entrepreneurs participating in support programs.

As explained by the Women in Employment Committee (2003), incorporating gender and diversity considerations in the design and assessment of programs will reveal

the effects of these programs on different groups of entrepreneurs. Diverse groups need diverse approaches; the "one size fits all" approach may inadvertently perpetuate existing inequities, resulting in unequal outcomes. A consistent and thorough analysis of gender and diversity "results in more effective programs and services, safer and productive workplaces, and enhanced social cohesion" (Women in Employment Committee 2003).

Gender

Studies have found gendered differences in access to support services and firm performance. For example, Cumming and Fisher (2012) found that female entrepreneurs receive fewer hours of advisory support services compared to their male peers. Cukier et al. (2012) highlight the fact that targeted training initiatives promoting self-reflexivity and the deconstruction of personal thought processes are needed in order to combat unconscious bias.

The value of supporting women entrepreneurs is demonstrated through a number of studies. Amezcua (2014) found that women-owned incubated businesses fail less often and grow more while in incubation than men-owned businesses in incubation. Another study by Amezcua (2010) suggested that the performance of incubated firms varies according to the owner. For example, women and minority-owned businesses appear to excel after graduating from a non-profit incubator as opposed to their peers who graduate from for-profit incubators. A study by Bates



(2005) of “successful”¹ business closures found that women-owned businesses are more likely to be successful closures than those owned by men.

Importantly, many studies have highlighted that gender-specific programming may in fact be advantageous. For example, Orser et al. (2006) found that men and women seek different types of assistance with respect to business development. Specifically, female business owners were more likely than males to prioritize intrinsic outcomes such as evaluation of entrepreneurial skills, building self-confidence, and improving strategic management skills, and they were less likely to need or to seek external capital such as commercial loans, leases, supplier financing, or external equity. Orser et al. (2012) found that women business owners perceive value in gender-segregated small business training services. Further, the same study found that female-focused programs allowed participants to feel empowered, understood, and comfortable seeking business advice in an inviting, low-risk learning environment, and that their needs as businesswomen were well met.

Reibe (2012) indicated that despite many of the qualities and practices of women entrepreneurs having been described in the literature as “hallmarks of a leadership model particularly suited to present business realities,” there is still a lack of incorporation of these particular learning and professional needs into conventional business programs. Riebe (2012) explained that using university-based women entrepreneur centres as an epicenter for women-focused educational

and outreach strategies may engender new ways to provide female learners with educational experiences that meet and nurture these particular needs.

Further studies have sought to explore the alignment of gender specific needs with the intended program purpose. For example, Braidford et al. (2013) conducted a systematic review and evaluation of four female entrepreneurship centres in the United States, Canada, Sweden, and England. Their findings suggested that the women’s centres in these countries are mainly targeting the more disadvantaged women, rather than focusing on women with greater potential as entrepreneurs. The overarching findings suggest that a more nuanced understanding of client needs is required, regardless of gender, and that such an understanding will affect the delivery of business support.

Reporting exercises can also be useful in the exploration of gendered perceptions of specific activities. Farr-Wharton and Brunetto (2006) examined women entrepreneurs’ perceptions of networking activities and of the government business development officers that plan and execute the networking activities. The study found that trust significantly affected women entrepreneurs’ perceptions of the potential benefits of networking activities, which in turn affects whether they take full advantage of the available networking and expose themselves to new business opportunities. The study also found that the government business development officers do not appear to positively affect the trusting behaviour of women entrepreneurs.

¹ Young firms are often shut down for reasons other than failure. In this study, if entrepreneurs departed from their business venture, this was not necessarily because it had failed or even lagged in performance expectations; departure requires only that a superior alternative had become available to the entrepreneur. A successful closure may represent the owner’s decision to redeploy the knowledge gained in the entrepreneurial venture in some other context, perhaps in another small business.



Diversity

As with gender, differences in support service delivery and firm performance also exist for specific racialized or immigrant populations. These differences are important to understand in order to frame program elements in a manner that makes them more accessible to, and useful for, these groups. Input from a diverse range of entrepreneurs into program design is considered crucial to the development of effective programs (Mangan & Trendle 2019; Sinclair & Pooyak 2007). Further, evidence from the research suggests that entrepreneurs from different racialized or immigrant groups cannot be considered as a homogeneous group. As indicated by Oc and Tiesdell (1999), much of the evidence suggests that there are diverse needs between groups, and that generalized approaches to programming often lack the subtlety to tackle these distinctions.

Evaluation and performance measurement can also inform program managers of the hurdles in encouraging diversity among entrepreneurship program participants. Young (2002) postulated that difficulties in identifying sources of assistance and working with faculty and staff, and slow institutional response times may be contributing factors to lack of diversity in support services provided by government agencies and university outreach programs. Buckley (2016) highlighted that there was a limited amount of managerial resources available to Irish indigenous firms, which contributed to a lack of effective strategic planning and project management, ultimately hindering firm growth. Furneaux and Brown (2007) indicated a lack of access to markets and financial capital, and a lack of education and skills within available human capital as contributing factors to the lower levels of entrepreneurial activity among Indigenous Australians.

Further studies suggest that networks play an important role for immigrant entrepreneurs. Kariv et al. (2009) noted the variations in transnational networking, and found that immigrant and ethnic minority entrepreneurs require “stable, enduring transnational networks of different types” in order to boost business performance (i.e., business revenues and survival [age]). Furneaux and Brown (2007) also indicated that the formation of partnerships between Indigenous communities, businesses, and government boosts Indigenous entrepreneurial initiative.

Assessments of programs that target specific diversity groups can also provide important insights into what does and does not work for a given group. Anderson (2002) found that economic development efforts in support of entrepreneurship (e.g., mentorship, funding, training, etc.) within Indigenous communities in Saskatchewan resulted in the creation of successful businesses and improved socioeconomic circumstances, and that the rates of change (improvement) for the Indigenous communities were comparable to those of the non-Indigenous communities.

Additional Inclusivity Considerations

Research has been conducted in an attempt to identify the characteristics of those entrepreneurs and firms that are more likely to be supported by programs. For example, Dalziel et al. (2014) examined the design of 65 of Ontario’s business support programs and found that established or large companies are more likely to receive support than companies that are new or small despite the fact that large and old companies are the least likely to be in need of support. Such reporting is useful because it allows program managers to understand who their programs are supporting and explore which clients have been (more)



successful, information that could ultimately lead to adjustments in their target audience, depending on their overarching program objectives.

Are the services provided by entrepreneur support programs meeting the needs of clients?

Clients' perceived value of the program's support services and clients' overall satisfaction with the assistance they received through the program provides program managers with an indication of whether the support services provided are meeting the needs of their clients. Specifically, performance measurement can help program managers with higher-level queries into the utility and delivery of their support services, with deeper examinations of the perceived versus actual needs of clients, and more focused inspections of their specific support services.

At a higher-level, performance measurement can help program managers query clients' views on the utility of the services provided. For example, a study conducted by Abduh et al. (2007) provided insight into clients' perceptions of the types of services provided by business incubator programs and clients' views of the utility of the services that were provided. In terms of satisfaction, the results indicated that client firms were generally more satisfied with facility related services (e.g., affordable space, flexible space in terms of size or rental payments, shared office services and equipment), than with counselling and business networking assistance services (e.g., business plan development and support, strategic planning support, sales or marketing advice, etc.). In terms of utility, the study found that clients generally considered support services to be useful, however they had a negative perception of the incubators' methods of delivery of these support services.

Digging deeper, performance measurement can help program managers examine whether entrepreneurs are receiving the help that they need, whether or not they are getting the help that they (initially) indicated they wanted. For example, Yusuf (2010) examined the value of an assistance program from entrepreneurs' perspectives using measures such as entrepreneur participation in the available activities, overall satisfaction with the program, and subjective assessments of overall program effectiveness. In terms of perceived program effectiveness, Yusuf (2010) found that nascent entrepreneurs place high value on the support provided by assistance programs regardless of the extent to which the programs addressed the entrepreneurs' needs, as determined through their stated rationale for having joined the program. Yusuf (2010) suggested this was because the assistance programs addressed the entrepreneurs' latent support needs rather than their expressed support needs, and that the programs may also have been effective in helping entrepreneurs identify their actual support needs (as opposed to their perceived support needs). These findings suggest that while policymakers and program managers should continue to ensure that assistance programs meet the needs of entrepreneurs, there is an opportunity to focus on making sure that the "right" needs of entrepreneurs are being met.

At a more fine-grained level, reporting can also help program managers inspect their specific support services. For example, Audet and Couteret (2012) investigated entrepreneurs' perspectives of coaching as a support measure. Most importantly, they found that a strong personal relationship, with a strong foundation of both trust and commitment, must be present between the coach and the entrepreneur in order to break down entrepreneurs' resistance to change and make the coaching 'successful'.



What effects do entrepreneur support programs have in producing or advancing viable firms?

Governments regularly resort to various interventions to promote and sustain entrepreneurial activities, with the expectation that doing so will create new jobs and stimulate economic activity. To determine whether or not such program interventions contribute to economic growth as expected, a vast number of studies have examined the role of entrepreneur support programs in producing and advancing viable firms. Based on an outcome approach, impact on firm performance is the most commonly used metric by researchers in the evaluation literature.

Evaluations that demonstrate the linkage between program intervention and improved firm performance provide insight into 1) whether there has been a positive impact (i.e., program effectiveness), 2) the time required to manifest impact, 3) the magnitude of the impact, and 4) which sub-groups of participants experienced the most positive impact.

Evaluation can demonstrate the effectiveness of an entrepreneur support program, with the purpose of informing program managers, funders, and policy makers of the circumstances that promote such effectiveness. Noting that job creation and revenue growth are the most commonly used performance measures in evaluation literature, measures such as profitability, patents, investment, and survival/exit rates are also used to measure programs' impact on participant performance.

A study by Lerner (1999) examined the performance of high-technology firms receiving funds from the SBIR Program in the U.S. and found that awardees enjoyed substantially greater employment and sales growth. More recently, Howell (2017) explored the effects of the same program and indicated that a Phase I award improved firm performance in terms of patents, financing, revenues, survival, and successful initial public offerings. Le and Jaffe (2016) found that the receipt of an R&D grant significantly increased the probability that a firm would apply for a patent and doubled the probability that a firm would introduce new goods and services. Cumming and Fischer (2012) determined business advisory services are positively associated with firms' sales growth, patents, finance and alliances, and further indicated that mentor hours are consistently positively associated with a greater percentage change in sales, and angel financing.

As a by-product, evaluation can also indicate the ineffectiveness of a program, which can provide useful information for making decisions regarding program renewal, modification, expansion, or termination. For example, Lukeš et al. (2019) investigated the effect of business incubators on enhancing entrepreneurial growth and found a significant negative effect of incubator tenancy on sales revenues and no significant effect on job creation. The findings suggested that the effects of business incubators have been over-stated and public policy makers may need to lower their expectations regarding the business incubation support. Additionally, Wang et al. (2017) found that receiving a grant has no effect on firm survival, patenting, or venture capital financing. The study further presented evidence of institutional deficiency and corruption since firms with political connections were more likely to receive the grant.



Evaluation not only answers the “if” question on whether or not a program has an impact, but also answers the “when” question, identifying the point at which impacts occur. The impact of an entrepreneur support program on the performance of participants, measured in monetary terms (e.g., revenues, profitability, etc.), may not be immediate. For example, firms that have achieved product innovations through a support program will need some initial investment and time to market their products before measurable results in terms of revenues are realized. This means a delay will occur between project completion and the first signs of the support program’s impact on firm profitability. Czarnitzki et al. (2010) analyzed the impact of R&D tax credits on Canadian manufacturing firms and found positive effects on the number of new products developed and the sales of new products, but no effect on more general firm performance indicators such as profitability or market share. It is possible that the economic contribution of the improved innovations may not yet have fully materialized when the study was conducted. Bayona-Saez and Garcia-Marco (2010) found that manufacturing firms started to see positive effects appearing after the first year following program completion, and non-manufacturing firms began to see the effect within that same year of program completion. These findings demonstrate that the timing of evaluation is an important step in developing an evaluation strategy for a given program.

Evaluation can further estimate the magnitude of impact, if supported by feasible methods and available data. Such evaluations provide statistical estimates of the positive effects of programs and create opportunities for program benchmarking and comparison among similar programs. Identifying the magnitude of impact can subsequently inform policy makers on how programs differ in terms of their

effects on client firms. This is helpful for jurisdictions that want to compare and improve the effectiveness of their portfolio of entrepreneur support programs.

Using propensity score matching, Autio and Ranniko (2016) identified an average positive impact of a Finnish program over a two-year period on revenues of 1.20 (i.e., indicating that the firms in the treatment group had grown their sales 120% as fast as their peers in the untreated group), which increased to 1.3 over three years. Bertoni et al. (2019) assessed the impact on government-supported participative loans on the growth of entrepreneurial ventures in Spain and showed that the effect on growth is significant and stable, and participative loans increase their beneficiaries’ annual growth by 10.6% for employment and by 18.0% for sales. A study based on seven EU regions evaluated the effect of innovation support programs on SMEs in the traditional manufacturing industry and indicated that the programs increase firms’ innovation and commercial success by around 15% (Radicic et al., 2015). Where possible, an exploration of magnitude can provide additional insight into how impactful a program truly is for the clients served. Based on data from a randomized controlled trial in Mexico, Bruhn et al. (2018) observed a positive impact of consulting services on SMEs’ productivity and return on assets. However, despite the statistically significant positive treatment effect of the consulting intervention, the magnitude of impact was found to be only 10%, implicitly indicating that the effect is negligible or ambiguous (Bruhn et al., 2018). In the absence of the discussion of magnitude, programs with minimal positive impacts may be expanded and opportunities for improvement may be overlooked.



Evaluation can identify the groups for which a program has had the greatest impact, which will improve its efficiency and effectiveness. As the nature and magnitude of the impact may differ across intervention mechanisms, market contexts, and participant groups, evaluation can enable entrepreneur support programs to target the right clients and to optimize services. An inclusive program is expected to provide support services to a diverse range of clients, however, as mentioned earlier, it is unrealistic to have a “one size fits all” program, since clients seek varied and specialized services due to business stage, barriers to growth, social networks, financial situations, operating industries, and entrepreneur or management attributes. The findings presented below have important implications on program evaluation in terms of the heterogeneous nature of treatment effects even within the same program and the role of evaluation in informing the public debate about efficient designs of entrepreneur support programs.

Many studies indicate that smaller firms and younger firms have experienced the greatest positive impact of innovation and business intervention, compared to larger and older firms. This has been shown by Bronzini and Piselli (2016), Dechezleprêtre et al. (2016), and Bronzini and Iachini (2014), who demonstrated that the receipt of R&D grants had a greater positive impact on patenting for smaller firms. Mole et al. (2009) assessed the effectiveness of business support services in the United Kingdom and found that younger firms that received intensive assistance reported a significant employment boost, consistent with the findings from Howell (2017) that the treatment effects of the SBIR program are more pronounced for young companies and for companies in emerging sectors.

Amezcu (2014) examined the effect of incubation on new ventures and the results showed that survival rates of the incubated firms were marginally lower than those of their unincubated counterparts. However, the study demonstrated positive effects of incubation on both sales and employment growth for participating firms. The findings further imply that growing firms are more likely to benefit from the support provided by business incubators, while start-ups and young entrepreneurial firms may not achieve any benefits.

An empirical study by Hünernmund and Czarnitzki (2019) found that the treatment effects of R&D grants differ depending on the quality of firms’ projects. Their estimates suggested that R&D had no average effect on job creation and sales growth when the grants were provided to a pool of projects with lower average quality scores, but treatment effects were positive and significant for a selected pool of high-quality projects which experienced more jobs and higher sales.

Are there effects of entrepreneur support programs beyond the production or advancement of viable firms?

Although the majority of the academic literature explores the relationship between entrepreneur support programs and the survival or success of participating entrepreneurs and firms, a small number of studies investigate the intangible outcomes of program participation which are not commonly measured. These intangible outcomes, also described as soft outcomes or capabilities, include knowledge, skills, and attitudes gained by program participants through the support provided or enabled by entrepreneur support programs.



Performance measurement and evaluation that capture impact on capabilities enable programs to 1) broaden their definition of success beyond firm performance and survival, and 2) demonstrate their impact on the transferable skillsets of the clients they serve. As mentioned earlier, this is particularly important, as not all clients will successfully launch a company, and limiting the evaluation of the program to only capture impact on performance may under-report the program's impact.

In their 2005 assessment, Ramsden and Bennett demonstrated that external advice was perceived by SMEs to have had a greater impact on such things as the ability of management to cope with problems and their ability to manage, as compared to impacts on improved performance such as increased business turnover, increased profitability, and reduced business costs. Building on this as well as the earlier work of Dewson et al. (2000), Voisey et al. (2006) presented an argument for the inclusion of soft outcomes in the evaluation of entrepreneur support programs. Soft outcomes, which broadly align to the capabilities identified in the logic model presented in chapter two of this report, are achievements such as improved skills, altered attitudes, and advanced knowledge (Dewson et al., 2000).

The argument for the inclusion of capabilities in the evaluation of entrepreneur support programs was further advanced by Stephens and Onofrei (2012). Their study sought to assess the Business Incubation Centres in Ireland using four "hard benefit," or performance, measures (enterprise growth, improved sales turnover, increased profitability, and reduced reliance on incubation support) and seven "soft benefit," or capabilities, measures (increased confidence, increased peer network, increased business knowledge, cost savings, increased professionalism, increased range

of business skills, and increased positive publicity). The results indicated that the greatest percentage of participants reported impact on three soft benefit measures (confidence, networking, and business knowledge) and only one hard benefit measure (enterprise growth), with much lower percentages of respondents indicating impact on the remaining measures. These findings suggest the need for a holistic approach to the measurement and evaluation of business incubation (Stephens & Onofrei, 2012). Had the evaluation included only hard benefit, or performance, measures three of the four most frequently cited impacts of the incubation centres would have been overlooked.

In 2015, Halme et al. evaluated the impact of a Finnish funding agency for innovation on the capabilities of participating firms. The findings indicated that of the 15 capability measures included in the analysis, the support services and funding provided by Tekes had the greatest impact on the ability of firms to raise capital, design prototype and test innovations, and collaborate with other firms for the purposes of research, design, or innovation projects.

The inclusion of capabilities, or soft outcomes, in the assessment of entrepreneur support programs also proves to have explanatory power for understanding the impact mechanisms of the programs. Viewed as intermediate impacts, which typically occur more quickly than impacts on performance, which tend to occur in the longer-term, improvements to client capabilities can serve as leading indicators of a program's impact on client performance. In an assessment of the Global Access Program operating in Finland, Dalziel and Parjanen (2012) found a statistically significant relationship between the impact of the program on capabilities in terms of strategic information and advice and information and advice on new markets,



and longer term impact on firm performance in terms of revenue growth, exports, new international customers, and employment growth.

Choi et al. (2009) assessed the impact of R&D funding for science and technology on the national economy in Korea, using both shortand medium-term performance measures (e.g., technology, business, management, and manufacturing) and long-term impact factors (e.g. industrial development, national economy, and global competitiveness). The findings indicated that shortand medium-term improvements, such as an improved R&D environment and business capabilities, have a positive relationship to the long-term impact factors.

Evaluations conducted on large scale transactional interventions also provide support for the inclusion of capabilities measures in the evaluation of entrepreneur support programs. Using panel data from the Ewin Marion Kauffman Foundation longitudinal dataset on over 2,000 firms located in the United States, Pergelova and Angulo-Ruiz (2014) observed that the receipt of government financial support in the form of loans, guarantees, and equity by new firms had a direct effect on the competitive advantages of those firms (such as the capacity for innovation, marketing-related assets, and the knowledge and skills of employees), and only an indirect effect on firm performance. These findings suggest that improved competitive advantages are an intermediate outcome between the provision of support and the improved performance of firms. Given the time required for firms to build competitive advantages and subsequently translate those advantages into improved performance, the authors suggest that evaluations of support programs should incorporate metrics pertaining to the competitive advantage components such as innovation, marketing, and human resources, which are tantamount to capabilities measures, or soft outcomes.

The inclusion of metrics that capture improvements to the participants' capabilities can provide important insight into the particular areas of knowledge being influenced through mentorship processes. In their exploration of the role of mentorship for novice entrepreneurs, St-Jean and Audet (2012) found that mentees most frequently report cognitive learning improvements in terms of declarative knowledge, procedural knowledge, and their ability to link concepts, as a result of mentorship. Similarly, Kyrgidou and Petridou (2013) found that female entrepreneurs in Greece report that their knowledge and skills were positively influenced by their relationship with their mentor. Given that mentorship is frequently found as an element of entrepreneur support programs of all types, the inclusion of metrics that capture these types of intangible advancements in entrepreneurs' knowledge and skills results in a more accurate reflection of program impacts.

What are the broader outcomes of entrepreneur support programs?

In addition to the core mandate of providing support to entrepreneurs and firms, programs may also have long-term impacts on society in the form of environmental improvements, advancements in sustainable development practices, and improved social and economic welfare. These impacts typically occur over long time periods and the data required to substantiate claims of impact in these areas is difficult to collect. For these reasons, and the fact that entrepreneurship is traditionally viewed as an economic lever and subsequently evaluated on that basis, few entrepreneur support programs have been evaluated in terms of these broader impacts. In their analysis of 52 social impact focused accelerator programs, Lall et al. (2013) found that nearly one third of respondent programs did not track social or environmental



indicators. The authors noted surprise at this finding given the availability of standardized reporting frameworks available at the time such as IRIS and GIRS that capture social and environmental impacts. These frameworks have since expanded to include firm-level methods for verifying social and environmental performance such as B Corp certification and the Impact Dashboard developed by Carleton University's Centre for Community Innovation, and the Global Indicator Framework for tracking progress against the Sustainable Development Goals at a macro level.

Given the relative dearth of studies evaluating social impacts, in this section we highlight areas of analysis useful for the demonstration of the broader impacts of entrepreneur support programs.

Macro-level Economic Impacts

In keeping with the traditional motivation for the establishment of entrepreneur support programs, such programs are expected to contribute to the economy at the macro level in terms of sustainable wealth and jobs, industrial advancement, and global competitiveness. This impact is achieved through continuous improvements to firm performance at the micro level. There are a variety of ways to capture this impact, from analyzing the impact of a program on the GDP of its host country, to evaluating the role of a given program in altering the country's labour market. Three studies are included below to provide examples of evaluations of the macro-level impacts of entrepreneur support programs.

Researchers with an interest in studying long-term impact on the economy have used panel data involving measurements over time to capture the effects of entrepreneur support programs. For example, Barajas et al. (2011) measured the economic impact, as indicated by labour productivity, of research joint ventures supported by the

European Union Framework using 10-year panel data. They found that R&D cooperation has a positive impact on the technological capacity of firms, ultimately leading to improved labour productivity.

An economic impact study by the Air Force SBIR/STTR² (2014) was undertaken to quantify its overall contribution to the national economy and nation's defense mission. It was found that the nearly \$4 billion R&D contracts provided to small businesses generated a total of \$10.51 billion in economic output (i.e., direct effect, indirect effect, and induced effect) as measured by employment, labour income, and value added.

A cluster study conducted by Wonglimpiyarat (2016) indicated that the thriving high-tech clusters in Israel are the result of government-led policies, such as the establishment of the Yozma program, which was intended to seed venture capital (VC) funds throughout the country, creating the venture capital industry, ultimately leading Israel to become a high-tech powerhouse.

Social Return on Investment

For publicly funded support programs, an analysis of the social return on investment may prove to be a useful tool to augment traditional economic impact studies in an effort to demonstrate their broader impacts. Social return on investment takes into account the taxes paid by participating firms, which contribute to government budgets and are subsequently redistributed to society as deemed necessary by government officials.

2 Available online at: <https://www.sbir.gov/about/about-sttr>



In 2017, Sentana et al. determined the social profitability of 40 Spanish incubators, indicating that although the incubators were not economically profitable (since they rely on public funding to support operations), they were however socially profitable in terms of tax revenues generated by supported entrepreneurs. Specifically, for every euro invested in an incubator program the authors found that 2.8 euros were collected in taxes from program participants. Recently, Markus and Omerovic (2019) conducted an analysis to determine the rate of return for public investments into an entrepreneur support program operating in Bosnia and Herzegovina. The authors found that after only one year in operation the program resulted in a 12% rate of return for the local community, based on the contributions of registered businesses to the public revenues in their community.

A prior study conducted by Audretsch et al. (2002) examined the effect of the United States' Department of Defense (DoD)'s SBIR Program and found that it redirects the efforts of award recipients toward commercial activity that would not otherwise have taken place. Further, they found that this commercial activity and its attendant spillover effects generate substantial positive net social benefits, as implied by the fact that the program funding overcame market failures, and benefitted society with a large social return.

While social return on investment presents a valuable perspective on how the return on investment for entrepreneur support programs can be analyzed, it can only take into account the supported firms that are both operational and generating revenues. The same is typically true for economic impact studies. This is likely to under-represent the true impact of many programs, which serve earlier stage companies or nascent entrepreneurs.

Advancement Towards Sustainable Development Goals

In 2015, and in light of the 2030 Agenda for Sustainable Development, the world's leaders set out on an ambitious path to end poverty, fight inequality and injustice, and protect the planet. The Member States of the United Nations unanimously agreed upon the 17 Sustainable Development Goals (SDGs), under which there are 169 targets, that form the world's agenda for sustainable development. To foster transformative development, countries should embed evaluation at the national and local level to demonstrate how far countries are progressing toward realizing the SDGs (Schwandt et al., 2018). To date, no academic studies were found to have specifically evaluated an entrepreneur support program in terms of alignment with, or advancements towards, the SDGs. However, socially motivated support programs whose missions align with the SDGs are becoming increasingly common. This may in turn lead to a broadened literature on the evaluation of entrepreneur support programs based on the SDGs.

What are the typical metrics used in performance measurement and evaluation?

The following table (Table 2) summarizes the metrics used by studies included in our review and presents examples of academic and practitioner studies correspondingly. The metrics are categorized following the theory of change presented in Chapter 2, from program attributes to program impacts (i.e., impact on capabilities, impact on performance, and broader impacts). Table 2 provides an overview of appropriate measures, based on the desired outcomes and may be useful for the design of future program evaluations.



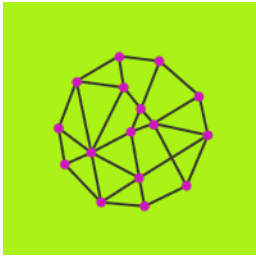
TABLE 2

Summary of Evaluation Metrics and Exemplary Studies

Program Attributes		Program Impacts			
Nature of Clients	Nature of Services	Impact on Capabilities	Impact on Performance	Broader Impacts (Society)	Broader Impacts (Economy)
Frequently Cited Metrics					
<ul style="list-style-type: none"> > Age > Race/ethnicity > Gender > Growth intentions > Citizenship > Knowledge and skills > Motives > Research behaviours > Business stage > HQ location > Industry sector > R&D investments > Size > Attitudes > Behavioral factors 	<ul style="list-style-type: none"> > Coach's credibility > Educational opportunities > Frequency of meetings > Fund managers' propensity to invest > Incubation processes > Incubator management > Participation > Perceived benefits of networking activities > Perceived importance of facilities and services > Program staff > Satisfaction > Satisfaction with services > Selection process 	<ul style="list-style-type: none"> > Business planning > Human capital > Leadership > Marketing capabilities > Patents > R&D investments > Strategic alliance > Strategic knowledge > Technology capacity 	<ul style="list-style-type: none"> > Business scale > Employment growth > Equity growth > Export sales > Household income > Investments received > Profitability > Return on asset > Revenues growth > Successful exit and survival 	<ul style="list-style-type: none"> > Community infrastructure and engagement > Educational progress > Empowerment > Environmental impact > Health > Household earnings > Occupational status > Sustainable development goals > Wage level > Work satisfaction 	<ul style="list-style-type: none"> > Emergence of hi-tech clusters > Improved science and technology > Increased national demand > Industrial dev. > Industrial structure > Job creation > Labour productivity > Return on investment (ROI) > Wealth creation
Examples of Academic & Practitioner Studies					
<ul style="list-style-type: none"> > Orser et al. (2012) > Braidford et al. (2013) > Coleman & Robb (2018) > RIC Centre (2015) 	<ul style="list-style-type: none"> > Farr-Wharton & Brunetto (2006) > Abduh et al. (2007) > Cumming (2007) > Audet & Couteret (2012) > Messegheem et al. (2018) 	<ul style="list-style-type: none"> > Branstetter & Sakakibara (2002) > Hall & Maffioli (2008) > Dalziel & Parjanen (2012) > Pergelova & Angulo-Ruiz (2014) > Halme et al. (2015) 	<ul style="list-style-type: none"> > Howell (2007) > Cumming & Fisher (2012) > Autio & Ranniko (2016) > Czarnitzki et al. (2015) > Fairlie et al. (2015) 	<ul style="list-style-type: none"> > Lerner et al. (2005) > Agan et al. (2014) > Buckley (2016) > Isenberg & Onyemah (2016) > B Impact Assessment³ 	<ul style="list-style-type: none"> > Choi et al. (2009) > Barajas et al. (2011) > Lukeš et al. (2019) > NRC-IRAP (2017)

³ Available online at: <https://bimpactassessment.net>





Conclusion

Through the review of more than 100 journal papers and documents derived from academic and grey literature this report has demonstrated that evaluation can be used as a tool for understanding the accessibility of entrepreneur support programs, how those programs are (or are not) supporting entrepreneurs and firms, and what the broader implications of support programs may be on the economy, society, and the environment. In this way performance measurement and evaluations help program managers, funders, and policy makers determine whether existing programs are effective, and provide insight into the design of future programs.

The evaluation of entrepreneur support programs is a continually evolving field, and work is advancing on several fronts. As the body of research grows, and as the expectations of support programs as an instrument of social and economic change increase, the role for evaluations is expanding. Program managers, funders, and policy makers may simply be interested in determining whether a particular intervention is providing support to the intended target group. For these purposes, performance measurement provides sufficient insight. If the question is instead one of impact – has the intervention had any effect on the participants, what are the mechanisms through which the effects were achieved, and how much time was required for the effects to be realized – an evaluation is required to isolate the effect of the program on participants. Evaluation methods are similarly required to differentiate the effects of an intervention on the various

sub-groups of participants; providing insight into the inclusivity (or exclusivity) of the program. The methodological options available to answer these questions of impact are also expanding, as researchers and practitioners seek to find evaluation strategies that are sufficiently substantive to provide meaningful results while at the same time being sufficiently practical for use in existing programs.

As evaluation questions and the methodologies used to answer them continue to push each other forward so too must the data underpinning these evaluations expand and improve. Powerful datasets capturing entrepreneur and firm level data are now being created and shared by both private and public entities. There is, of course, still work to be done. Applicant and graduate data remain relatively untapped but critical sources of insight for program managers, funders, and policy makers.

Building on this report, an evaluation framework for entrepreneurship support programs across Canada will be developed which applies a gender and diversity lens. Additional studies of ecosystem-level evaluations and existing programs, and appraisals of existing datasets are all topics that, although outside the current scope, would complement the findings of this report.



Appendix: Summary of Studies

Paper	Program (Country)	Research Question	Performance Measures	Data/ Methodology	Findings
Abduh et al. (2007)	> Operating incubators (Australia)	<ul style="list-style-type: none"> > How do clients rate the importance and the effectiveness of individual types of assistance services provided by their incubator programs? > Are clients satisfied with the services provided by their business incubators? > To what degree were the clients satisfied or dissatisfied with the individual types of incubator services? 	<ul style="list-style-type: none"> > Satisfaction (calculated by perceived effectiveness and importance): > Facility-related business incubation services > Counselling-related business incubation services > Business networking services 	<ul style="list-style-type: none"> > Survey data: a total of 129 questionnaires were returned of which 111 responses representing clients from 24 incubators were deemed usable for analysis > Paired sample t-test 	<ul style="list-style-type: none"> > Clients were generally more satisfied with facility related services than the counselling and business networking assistances services. > However, there are significant differences between the perceived importance attached to a number of facility-related services and the effectiveness of those services, suggesting a variation of the level of clients' satisfaction. > The clients' perceptions of the performance of incubators in terms of providing services were relatively low for almost all types of services.
Agan et al. (2014)	> Environmental supplier development (ESD) (Turkey)	<ul style="list-style-type: none"> > Is ESD affected by CSR? > Does ESD affect the firms' performances? 	<ul style="list-style-type: none"> > Financial performance (e.g. product cost, ROI, profit, product quality) > Competitive advantage (e.g. market share, firm value, firm image) 	<ul style="list-style-type: none"> > 314 survey responses were collected from Turkish manufacturing plants with more than 250 employees > Partial least square structural equation model (PLS SEM) 	<ul style="list-style-type: none"> > CSR is positively related to ESD and that ESD has a positive influence on the financial performance and competitive advantage of the participating firms. > However, the relationship between CSR and ESD was not significant in heavy industries as compared to the sectors of consumer products, textiles, and chemicals.



Amezcuca (2010)	> National Census of Business Incubators (US)	> Do incubated businesses outperform their unincubated counterparts in terms of survival, employment growth, and sales growth? > Are certain attributes of business incubators associated with better tenant performance?	> Employment growth > Sales growth > Firm failure	> Three datasets had to be created for the National Census of Business Incubators and their Tenants: 1) a database of business incubators, 2) a database of businesses incubated at business incubators, and 3) a comparison group of businesses not incubated. > Descriptive statistics	> Only 2.9% of tenants of business incubators are ever weaned off the assistance and subsidies offered by business incubators. > Incubation raises the growth > levels of firms in terms of sales and employment. However, the levels of growth, which range between 2% and 7%, among incubated businesses in comparison to unincubated businesses is not dramatic.
Amezcuca et al. (2013)	> Business incubators (US)	> Which business incubators generate the highest levels of economic performance?	> Sales Growth > Employment growth > Firm failure	> A panel of business incubator data consisting of 2,100 business incubators, which have operated in approximately 2,300 establishments > Firm level data from the National Establishment Time-Series Database	> Graduates of nonprofit incubators have lower failure rates than graduates of for-profit incubators. > More important are the findings showing that economic performance of incubated firms varies according to the owner. For example, women and minority owned businesses appear to excel after graduating from a nonprofit incubator as opposed to their peers who graduate from for-profit incubators. > Firms incubated in university incubators tend to have higher hazard rates post-graduation.
Audet & Couteret (2012)	> Mauricie region Virtual Incubator (France)	> What is the effectiveness of coaching as a support measure for young entrepreneurs? > What are the factors that likely to have an impact on the success of coaching initiatives?	> Perceived effectiveness of coach in terms of selection process, frequency of meeting, listening skills and empathy, familiarity with the SME context and credibility	> Exploratory study based on six cases > Interview data	> The findings suggest that the success of a coaching relationship is explained by a set of factors or "winning conditions," some of which are more important than others. The most crucial one appears to be the entrepreneur's open attitude to change.



Audretsch et al. (2002)	> DoD SBIR (US)	> What is the effect of DoD's SBIR program?	> Actual sales realized to date from the technology developed during the Phase II project, measured in dollars	> Survey data of 112 SBIR companies that received a Phase II award since 1992 > Case studies > Tobit models	> DoD's SBIR Program is stimulating R&D as well as efforts to commercialize that would not otherwise have taken place. > SBIR R&D does lead to commercialization, and the net social benefits associated with the program's sponsored research are substantial.
Autio & Ranniko (2016)	> YIC (Finland)	> What is the effect of YIC?	> Revenues	> 88 firms, 42 treated, 46 untreated. 2007 to 2013 > Propensity score matching and difference-in-difference estimation	> The two-year average treatment effect on revenues is 1.20, and three-year effect is 1.30.
Autio et al. (2014)	> NIY, VIGO, and Bridge Programmes (Finland)	> What is the efficiency of the Finnish high-growth entrepreneurship ecosystem? > What is the impact of entrepreneurship support programs on the success of their participating firms?	> Sales growth > Employment growth > Equity growth > Access to finance > External fundraising	> Innovative new firms in Finland in years 2011, 2012 and 2013 > Descriptive statistics > Propensity score matching > Probit model	> NIY Programme and VIGO Programme have helped new innovative and growth-oriented firms to strengthen their early development in comparison to their unsupported counterparts. > Moreover, the Bridge Programme can be seen as a useful model for any company facing a need to lay off employees and seeking to implement the layoffs consistent with its commitment to corporate social responsibility.



Bakhshi et al. (2015)	> Creative Credits Programme (UK)	<ul style="list-style-type: none"> > What are the creative credits scheme outcomes? > Where are these outcomes are being achieved through the logic model? 	<ul style="list-style-type: none"> > Short: Awareness, attitudes, networks, opinions > Medium: behaviors, practices, innovation, innovation collaboration > Long: Innovation collaboration, commercial impacts 	<ul style="list-style-type: none"> > Manchester City Region SMEs and creative companies > 672 SMEs making eligible applications > Creative credits were randomly distributed > Four sequential quantitative survey of the treatment and control groups > Case studies and interviews 	<ul style="list-style-type: none"> > In the short-term, the qualitative element of the RCT+ analysis suggested a largely positive feeling about the Creative Credits scheme. > However longer-term, the qualitative data supported the absence of any boost to sales growth. > No significant differences in future innovation intentions between the treatment and control groups after either 6 or 12 months. > No evidence of any significant network additionality, i.e. no significant differences between the treatment and control groups in the propensity to co-operate on future innovation. > After six months significant innovation and sales effects were evident, effects which had lost their significance after twelve months.
Bank et al. (2017)	> Green Garage (Berlin)	<ul style="list-style-type: none"> > How do sustainable incubators ensure their inflow of tenants? > How do they organize their activities and does the incubator environment affect tenant recruitment? 	<ul style="list-style-type: none"> > Incubator performance: > Tenant selection and recruitment > Secure tenant inflow 	> Case study	<ul style="list-style-type: none"> > Regional and inter-regional co-operation, together with a well-planned, structured pre-incubation process, are requirements for securing an inflow of tenants to sustainable incubators. > Incubator reputation and sufficient long-term funding is also a key to success.
Barajas et al. (2011)	> EU Framework Programme (Spain)	> What are the effects of international R&D cooperation on firms' economic performance?	> Labour productivity (sales over employment)	<ul style="list-style-type: none"> > Spanish participants in research joint ventures supported by the EU Framework Programme during the period 1995–2005 > Regression > Probit models 	<ul style="list-style-type: none"> > R&D cooperation has a positive impact on the technological capacity of firms, captured through intangible fixed assets. > The technological capacity of firms is positively related to their productivity.



Bates (2005)	> N/A	> What are the factors contributing to successful small-business closure?	> Successful closure: whether the business that has closed down was judged by its owner to be successful or unsuccessful at the point when the decision to close was made	> Census Bureau Characteristics of Business Owners (CBO) data > Logistic regression	> Young firms are often shut down for reasons other than failure. > Common owner and firm traits delineate successful from unsuccessful small-business closures. > Successful and unsuccessful small-business closures are distinct groups differing systematically regarding firm traits and owner characteristics.
Bayona-Sáez & García-Marco (2010)	> Eureka Program (Europe)	> Does participation in a European public initiative to support market-oriented R&D, have a positive impact on the performance of participating firms?	> Return on asset (firm performance)	> A dynamic panel data model covering the period 1994–2003, for a sample of 866 European firms > Generalized method of moments (GMM) with two Step Estimator with corrected standard errors	> Eureka project has a positive influence over firm performance measured as return over assets (ROA), although the effect does not manifest itself until a year after project completion. > While manufacturing firms follow the general pattern of a positive effect appearing a year after project completion, the effect in non-manufacturing firms is already apparent during the year of completion.
Bayona-Sáez & García-Marco (2010)	> Eureka Program (Europe)	> Does participation in a European public initiative to support market-oriented R&D have a positive impact on the performance of participating firms and, if so, how long it is before the impact becomes apparent?	> ROA	> A dynamic panel data model covering the period 1994–2003, for a sample of 866 European firms, 284 of which completed a Eureka project during the period of analysis, distributed by the Van Dijk Bureau > GMM using the Two Step Estimator with corrected standard errors	> Eureka project has a positive influence over firm performance measured as return over assets (ROA), although the effect does not manifest itself until a year after project completion. > Nevertheless, when the sample is divided by sector, it is obtained that, while manufacturing firms follow the general pattern of a positive effect appearing a year after project completion, the effect in non-manufacturing firms is already apparent during the year of completion.



Bertoni et al. (2019)	> Government sponsored participative loan (Spain)	> What is the effect of a hybrid policy instrument, PLs, on employment and sales growth among entrepreneurial ventures?	> Employment growth > Sales growth	> A sample of 512 entrepreneurial ventures that received a PL from a Spanish government agency between 2005 and 2011 > Propensity matching score > Analysis with instrumental variable	> PLs significantly boosted their beneficiaries' employment and sales. > The effect is larger for high-tech, young and small entrepreneurial ventures and for those that received a PL during the global financial crisis. > The effect on growth is significant and stable, and PLs increase their beneficiaries' annual growth by 10.6% for employment and by 18.0% for sales.
Bloch et al. (2014)	> Research grants from Danish Council for Independent Research (Denmark)	> What is the impact of research grant funding?	> Effects of funding grants: > Research itself > Scientific production and other outputs > Research behaviours > Career structure > Research environments	> Survey data on all grant recipients (1546) and a random sample of rejected applicants (512) > Bibliometric data and analysis > Qualitative, case study analysis > Difference-in-difference with propensity score matching	> Research grant has effect on the applicant's career in terms of position and also in terms of prestige, research independence and other qualitative effects. > Research grants may affect research performance both by providing the opportunity and the motivation to advance their research more than otherwise would have been the case > Research funding in the form of large project grants or centres are most beneficial



Braidford et al. (2013)	<ul style="list-style-type: none"> > Women's entrepreneurship centres (England, Canada, Sweden and the USA) 	<ul style="list-style-type: none"> > Is gender a good basis on which to differentiate business support, or are other characteristics of individuals more effective discriminators? > Have existing initiatives of this kind proven successful in their stated and unstated aims? 	<ul style="list-style-type: none"> > Numbers (and characteristics) of clients engaged > Overall turnover and profits of the businesses supported > Increases in the number of women-owned/led enterprises > Employment levels in the relevant regions and the number of highly skilled women 	<ul style="list-style-type: none"> > In-depth interviews > Case studies > Extensive survey of academic and evaluation literature 	<ul style="list-style-type: none"> > In the USA, the provision of female-friendly training and networking to attract low-income women, alienated or intimidated by the classroom-based, male-dominated, somewhat more aggressive style of training on offer. This style both lacks one-to-one support and also fails to address how business ownership could fit with family and other responsibilities. > In Canada, to fill the funding gap for higher risk, low-capital start-ups, alongside intensive, one-on-one counselling and support in business planning and follow-up development and networking opportunities. > In Sweden, to change the image of women entrepreneurs and provide networking and opportunities for peer learning and mentoring, with the relatively small number of existing female entrepreneurs. > In England, to broadly follow the same rationale as in the case of the USA, i.e. to attract a greater number of women, from a wider variety of backgrounds, to business support provision and provide more relational models of support than had been on offer. > Women's centres are working mainly for the more disadvantaged women, rather than those with real potential as entrepreneurs. Such centres may also reinforce stereotypes of "women's businesses."
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Branstetter & Sakakibara (2002)	> Research Consortia (Japan)	> What is the impact of a large number of Japanese government-sponsored research consortia on the research productivity of participating firms?	> Patenting in the targeted technologies registered by the participating firms during and after the consortium	> Data on all company-to-company cooperative R&D projects formed with a degree of government involvement from 1980 through 1992 > Difference-in-differences approach	> Consortium outcomes are positively associated with the level of potential R&D spillovers within the consortium and (weakly) negatively associated with the degree of product market competition among consortium members.
Bronzini & Iachini (2014)	> R&D subsidy program (Italy)	> Are incentives for R&D effective?	> Additional investment by firm	> Regression discontinuity design to compare the investment spending of subsidized firms with that of unsubsidized firms	> No significant increase in investment. This overall effect, however, masks substantial heterogeneity in the program's impact. We estimate that small enterprises increased their investments—by approximately the amount of the subsidy they received—whereas larger firms did not.
Bruhn et al. (2018)	> Consulting program (Mexico)	> What is the impact of Consulting Services on Small and Medium Enterprises?	> Full-time employees > Sales > Profits > Productivity > ROA	> 432 small and medium enterprises in Mexico > Data come from two sources: first, baseline and follow-up surveys of these interested enterprises were conducted. Second, from the IMSS, we secured wage and employment data. > Regressions based on RCT design	> There is a persistent large increase (about 50 percent) in the number of employees and total wage bill even 5 years after the program. > However, the short-run impact on productivity and return on assets, is statistically significant only at 10 percent.



Buckley (2016)	<ul style="list-style-type: none"> > The Irish state, through Enterprise Ireland (Ireland) 	<ul style="list-style-type: none"> > What difference did the policy make to firm growth performance post-state investment? > Did it make a noticeable contribution to an observed result (Value Creation)? > If so, in what way? 	<ul style="list-style-type: none"> > State-level: > Firm growth > Repayment of state investment > Sustainable jobs > Accelerated innovation, > Accelerated productivity > Societal welfare > Entrepreneurial success rates > Firm-level: > Sales > Profits > Organic growth > Sustainable competitive advantage > Acquisition and survival 	<ul style="list-style-type: none"> > 51 indigenous firms in Ireland > Contribution analysis > Logistic regression > Case studies 	<ul style="list-style-type: none"> > The blockages to growth in indigenous firms was not due to "availability of venture finance" per se in the analysis period. > It highlights the "limited endowment of managerial resources" available (Penrose, 1959) in the smaller state and the deficiencies in absorptive capacity levels (Arnold et al., 2004; Forfas, 2005), not just in individual firms but perhaps in the wider economy.
Casson & Giusta (2007)	<ul style="list-style-type: none"> > Not applicable 	<ul style="list-style-type: none"> > What is the impact of social networks on entrepreneurial activity? 	<ul style="list-style-type: none"> > Economic performance > Regeneration 	<ul style="list-style-type: none"> > Social network analysis 	<ul style="list-style-type: none"> > Different types of social network are required for different purposes. Some types of networks are most useful in the early stages of entrepreneurial activity and others at later stages. > Effective networks are normally intermediated by reputable trust-brokers. The reputation of government gives it a significant role as a trust-broker, but there is a danger that its reputation may be undermined when it extends its activities into areas where it lacks the competence to intervene effectively.



Choi et al. (2009)	> Science and Technology Promotion Fund (Korea)	> What is the impact for national R&D funding in science and technology?	> Short-medium term performance measures (e.g. technology, business, management, and manufacturing) > Impact factors (e.g. improvement of science and technology, industrial development, increased national demand, industrial structure, national economy, and global competitiveness)	> Survey of the 173 companies supported by Science and Technology Promotion Fund during 2000–2003 > Quantification analysis > Cluster analysis	> When the government or the firm conducts a R&D project, it should focus on both manufacturing and management factors to increase the impact factor. > R&D planners need to pay more attention to the following things in order to increase the performance of their applicants for R&D funding: whether the candidates of R&D funding have a research department or whether their headquarters are located in capital or whether their products are positioned in a mature stage of life cycle.
Coleman & Robb (2018)	> The Rising Tide Angel Training Program (US, and Europe)	> What are the findings from the participants of Rising Tide Angel Training Program?	> Knowledge and skills > Willingness to invest	> Survey of 68 Rising Tide participants > Descriptive statistics	> Those who consistently participated in the educational and training activities achieved greater gains than those who chose to participate in the network-related aspects of the program alone. > It constructed an investing network that consists of 99 women with different backgrounds and areas of expertise.
Cukier et al. (2011)	> Diversity Audit Tool (Canada)	> How can diversity across an organization be increased? > How can an organization's progress in increasing diversity be measured, not only within its human resources functions, but also throughout the organization's value chain?	> Leadership and governance > Strong and transparent HR practices > Quality of life and organizational culture > Measuring and tracking diversity > Integrating or mainstreaming diversity across the value chain > Developing the pipeline	> Case study > Financial services sector (TD, RBC, Scotiabank)	> Whether or not the practices identified the DAT increases the level of diversity and inclusiveness at a firm is influenced directly by how these policies are understood by all of the employees within an organization. > There are underlying barriers that continue to prevent women from fully participating in the workforce.



Cumming (2005)	> Innovation Investment Fund (Australia)	> What is the impact/performance of the IIF program?	> Propensity of IIFs to take on risk by investing in early stage and high-tech investments > Propensity of IIF managers to screen, monitor and add value to investee companies through staging, syndication, and portfolio size per fund manager > IIF exit success and share price returns performance of IIF-backed IPO	> Secondary data > 280 Australian venture capital and private equity funds and their investments in 845 entrepreneurial firms > Econometric regression analyses	> IIF program has facilitated investment in start-up, early-stage and high-tech firms as well as the provision of monitoring and value-added advice to investees.
Cumming (2007)	> Innovation investment funds (Australia)	> What is the performance of the IIF funds relative to other types of private equity and venture capital funds in Australia?	> Propensity to take on risk by investing in early stage and high-tech investments > Propensity to monitor and add value to investees through staging, syndication, and portfolio size per fund manager > Exit success	> 280 Australian venture capital and private equity funds and their investments in 845 entrepreneurial firms over the period 1982–2005 > Graphical and descriptive analysis > Logit and OLS regression > Poisson and Box Cox regression	> The IIF program has significantly contributed to the financing of start-up and early stage firms, as well as high-tech firms, in Australia. > IIF fund managers are also more likely to stage and syndicate investments and invest in fewer portfolio firms per fund manager. > The IIFs are part of organizations with managers that have privately raised companion funds.
Cumming & Fischer (2012)	> The Innovation Synergy Center (Canada)	> What is the efficacy of publicly funded business advisory services in relation to entrepreneurial outcomes?	> Sales > Angel equity > Patents > Strategic alliances	> A sample of 228 early-stage firms, of which 101 used business advisory services > Regressions > Controls for endogeneity and/or Heckman-sample selection corrections.	> Services are positively associated with firms' sales growth, patents, finance and alliances. > Mentor hours are consistently positively associated with a greater percentage change in sales and angel financing. > However, the data indicated the positive association between more hours and patents and strategic alliances was not robust depending on controls for endogeneity.



Czarnitzki et al. (2011)	> Federal and Provincial R&D tax credit programs (Canada)	> What is the effect of R&D tax credits on innovation activities of Canadian manufacturing firms?	> Profitability > Domestic market share > International market share > Keep up with competitors > Innovation indicators: new products, originality of innovation	> Sample of 3562 manufacturing firms from the Canadian 1999 Survey of Innovation > Non-parametric matching approach > Probit model	> R&D tax credits increase innovation output of the recipient firms. > Tax credit recipients realize a higher number of product innovations, as well as increased sales shares of new and improved products. > The tax credit recipients also achieve a higher probability with respect to the introduction of market novelties for both the national Canadian market and the world market.
Dalziel & Parjanen (2012)	> Global Access Program (Finland)	> What is the impact of innovation intermediaries?	> Firm performance (e.g. revenues, employment, new international customers, export sales, and financing)	> Survey data of 33 firms that participated GAP program between 2004 and 2009 inclusive.	> GAP program has had an impact on the performance of participating firms in terms of revenue growth, exports, new international customers, and employment growth. > A statistically significant relationship between the immediate impact on strategic information and advice, and information and advice on new markets, and longer-term impact on firm performance.
Dalziel et al. (2014)	> Ontario's Business Support Programs (Canada)	> What is the effectiveness and design of business support programs?	> Company resources and capabilities > Company performance > Impact on economy	> 65 Ontario's Business Support Programs, identifying the nature of the companies that received support between 2005-06 and 2011-12	> Companies that are established or large are more likely to receive support than companies that are new or small. > Ontario's business support programs favours the largest and oldest companies, the companies least likely to be in need of support.



Dechezle-pretre et al. (2016)	> R&D tax subsidies (UK)	> What is the causal impact of research and development (R&D) tax incentives on innovation outcomes?	> R&D investments > Patenting	> Administrative tax data on the population of UK firms > Regression Discontinuity Design	> There are statistically and economically significant effects of the tax change on both R&D and patenting, with no evidence of a decline in the quality of innovation. > R&D tax price elasticities are large at about 2.6, probably because the treated group is from a sub-population subject to financial constraints. > Over 2006–11 business R&D would be around 10% lower in the absence of the tax relief scheme.
Fairlie et al. (2015)	> Project Growing America through Entrepreneurship (US)	> What are the effects of entrepreneurship training?	> Business ownership > Business scale (e.g. sales and employees) > Earnings (business and household) > Work satisfaction	> Longitudinal survey data from Project GATE in which free entrepreneurship training was randomly offered to individuals interested in starting or improving a business	> Entrepreneurship training has limited impacts on business ownership, scale, and income. > Entrepreneurship training does dramatically increase the likelihood of business ownership in the short run, but this effect depreciates over time: we do not find significant effects at 18 or 60 months. > Nor do we find evidence that training affects other outcomes—including measures of business scale, business profitability performance, household income, and work satisfaction—at any horizon (6, 18, or 60 months).



Farr-Wharton & Brunetto (2006)	<ul style="list-style-type: none"> > Government-sponsored business networks (Australia) 	<ul style="list-style-type: none"> > How do the relational dimension of business networks affect the networking activities of female entrepreneurs? > What is the role of trust on women's networking behaviour and the part played by government business development officers in supporting women entrepreneurs' opportunity recognition behaviour? 	<ul style="list-style-type: none"> > Real benefits of being in network for my business > Overall satisfaction with the assistance 	<ul style="list-style-type: none"> > Survey data on 90 females belonged to a business network > Interviews > Regression > Qualitative analysis 	<ul style="list-style-type: none"> > The quantitative findings suggest firstly that approximately 20 per cent of the reason why women entrepreneurs belong to formal business networks is to search for business opportunities; however, their experience of trusting significantly affects their perception of the potential benefits of networking activities. Moreover, government development officers appear not to positively affect women entrepreneurs' trusting behaviour. > Government business development officers do play a significant role in assisting networked women entrepreneurs.
Fonseca & Jabbour (2011)	<ul style="list-style-type: none"> > Business incubators (Brazil) 	<ul style="list-style-type: none"> > How can the green performance of business incubators be assessed? 	<ul style="list-style-type: none"> > Green buildings and facilities > Green screening processes > Environmental training and awareness > Energy management > Water resources management > Promoting green management > Tenants with green proactivity 	<ul style="list-style-type: none"> > Six Brazilian business incubators located within the state of Sao Paulo > Data collected through documents, file records, direct observation and in-depth interviews > Literature review > Exemplary cases > Field research 	<ul style="list-style-type: none"> > The framework's seven variables—green buildings and facilities; green screening processes; environmental training and awareness; energy management; water resources management; promoting green management; tenants with green proactivity—are an applicable alternative approach for assessing the environmental performance of incubators. > Testing this framework revealed that the incubators are at different levels of environmental maturity.



Giffoni et al. (2018)	<ul style="list-style-type: none"> > Cohesion Policy programs (Poland, Spain, and Italy) 	<ul style="list-style-type: none"> > How can BNs be used in real-world evaluations to test the theory of different policy instruments in the field of business support? 	<ul style="list-style-type: none"> > Economic performance: <ul style="list-style-type: none"> > Increased exports > Increased sales > Increased number of clients > Diversified types of clients > Increased capacity to resist the crisis > Decreased total costs 	<ul style="list-style-type: none"> > Data on 700 SMEs that participated the Cohesion Policy programs during 2007-13 have been collected between July and September 2015 through three online surveys > Bayesian network analysis > Graphical map analysis > Theory-based approach 	<ul style="list-style-type: none"> > BNA can be a valuable tool to complement theory-based evaluation of business support measures and empirically test the theory of policy instruments and the multiple and complex relationships among variables. BNA allows finding conditional probability distributions characterizing sample data. > The volume of R&D grant, and hence the size of the investment project, increases if the firm had previous collaboration experience with research centres or universities. > The higher the level of education the more probable they are to have already collaborated with universities on other R&D projects.
Hall & Maffioli (2008)	<ul style="list-style-type: none"> > Government Technology Development Funds (TDF) (Argentina, Brazil, Chile and Panama) 	<ul style="list-style-type: none"> > Does public financing crowd out private resources? > What is the impact of the TDF on the innovative behaviour of beneficiaries? > What is the impact on innovation capacity of beneficiaries? > What is the impact on competitiveness of beneficiaries? 	<ul style="list-style-type: none"> > Amount invested by beneficiaries in R&D > Subjective indicators on product innovation, process innovation, linkages with other agents in the NIS > Patents; sales due to new products > Total factor productivity; labour productivity; growth in sales, exports, employment 	<ul style="list-style-type: none"> > Primary sources of information, such as the surveys collected in Chile and Panama, and secondary sources of information, such as the innovation and industrial surveys used in Argentina and Brazil, merged with the administrative records > Quasi-experimental econometric techniques > Difference-in-difference with propensity score matching 	<ul style="list-style-type: none"> > TDF do not crowd out private investment and that they positively affect R&D intensity. > In addition, participation in TDF induces a more proactive attitude of beneficiary firms towards innovation activities. > However, the analysis does not find much statistically significant impact on patents or new product sales and the evidence on firm performance is mixed, with positive results in terms of firm growth, but little corresponding positive impact on measures of firm productivity, possibly because the horizon over which the evaluation was conducted was too short.



Halme et al. (2015)	> Tekes (Finland)	<ul style="list-style-type: none"> > How have Tekes' activities succeeded to develop renewing working methods and forerunning capabilities? What is a role of capabilities to improve forerunning and renewal in the research organizations, universities and large firms? > What is the impact of forerunning capabilities on the whole economy and society? 	<ul style="list-style-type: none"> > Impact on capabilities measures: <ul style="list-style-type: none"> > Market and environment-related (including societal changes) > Information or operations-related > New products or services > Strategic decision making > Alliances 	<ul style="list-style-type: none"> > Literature review of literature concerning capabilities and other relevant material concerning Tekes > Online surveys > Statistical analysis of Tekes "three years after" questionnaire > Case studies > Descriptive statistics > Radar charts 	<ul style="list-style-type: none"> > Innovation capabilities are important and Tekes research, development and innovation funding has had a clear and significant positive impact on the overall accumulation of innovation capabilities of research organizations and large firms. > Tekes has succeeded well in improving different types of capabilities. On average, the highest impact was on networking, whereas the impact on internationalization activities was weak.
Howell (2017)	> SBIR (US)	> What is the effect of SBIR?	<ul style="list-style-type: none"> > Patents > VC financing > Revenues > Successful exit and survival 	<ul style="list-style-type: none"> > Secondary data and survey data > 5,000 applicants to the program between 1983 and 2013 > Regression discontinuity design 	<ul style="list-style-type: none"> > A Phase I award increases the average number of patents awarded to a company by at least 30%, increases the company's chance of receiving VC financing by 9% (as well as increasing the amount of money raised and the number of deals), and doubles the likelihood of positive revenues. > For those companies that have positive revenues, a Phase I award results in a 30% increase in revenues. > Finally, a Phase I award increases the probability of survival and successful IPO (initial public offering), and acquisition. > These effects are more pronounced for young companies and for companies in emerging sectors.



Howell (2017)	<ul style="list-style-type: none"> > US Department of Energy's SBIR grant program (US) 	<ul style="list-style-type: none"> > What is the grant impact on firm outcomes? > What is the grant mechanism; how do grants ease financing constraints? > How do grants affect investor decisions? 	<ul style="list-style-type: none"> > Innovation: patenting > Finance: subsequent venture capital investment > Technology commercialization: Revenue > Successful exit and survival > Environmental impact 	<ul style="list-style-type: none"> > Complete data from the two main applied offices at the DOE: Fossil Energy (FE) and Energy Efficiency and Renewable Energy (EERE). Together, they awarded \$884 million (in 2012 US\$) in SBIR grants between 1983 and 2013. > Survey data on 347 grantees about grant use > Sharp regression discontinuity design 	<ul style="list-style-type: none"> > An early-stage award approximately doubles the probability that a firm receives subsequent venture capital and has large, positive impacts on patenting and revenue. These effects are stronger for more financially constrained firms. > Certification, where the award contains information about firm quality, likely does not explain the grant effect. Instead, the grants are useful because they fund technology prototyping. > More grants to small, young firms on a one-time basis may be more effective in stimulating innovation than fewer larger grants that follow firms through multiple stages of technology development.
Hünermund & Czarnitzki (2019)	<ul style="list-style-type: none"> > R&D grants in Eurostars (Europe) 	<ul style="list-style-type: none"> > What is the effect of Europe's largest multilateral subsidy program for R&D-performing small and medium-sized enterprises 	<ul style="list-style-type: none"> > Sales growth > Employment growth 	<ul style="list-style-type: none"> > Official Eurostars application records provided by EUREKA > Employment and sales data from Bureau van Dijk's Amadeus database > Propensity score matching 	<ul style="list-style-type: none"> > R&D grants had no average effect on job creation and sales growth, but treatment effects were heterogeneous and positive for high-quality projects. Under an RCP the program would have created 53% more jobs and 48% higher sales.



Hyman & Dearden (1998)	<ul style="list-style-type: none"> > NGOs belongs to the Small Enterprise Education and Promotion Network (US, Canada) 	<ul style="list-style-type: none"> > What are the best practices of comprehensive impact assessment systems for NGO programs? > What are the impact indicators? 	<ul style="list-style-type: none"> > Enterprise level impact: <ul style="list-style-type: none"> > Income > Value added > Change in assets > Employment > Financing > Enterprise management practices > Sustainability of enterprises > Household level impact: <ul style="list-style-type: none"> > Consumer savings > Health > Educational progress > Expenditures > Housing or other material goods consumed > Empowerment > Community level impact: <ul style="list-style-type: none"> > Environmental or natural resource impact > Policy impact > Community infrastructure or services 	<ul style="list-style-type: none"> > Survey data of the NGOs based in US or Canada, based on responses from organizations, follow-up phone interviews, and 	<ul style="list-style-type: none"> > It reviews the monitoring and evaluation systems of four NGOs providing business development services to microenterprises in developing countries, and compares their approaches to data collection and analysis, uses, and types of impact indicators. > The diversity of microenterprise programs makes it difficult to specify a standard set of indicators.
Isenberg & Onyemah (2016)	<ul style="list-style-type: none"> > Manizales-Mas (Colombia) 	<ul style="list-style-type: none"> > What are the outcomes of Manizales-Mas? 	<ul style="list-style-type: none"> > Social progress > Company growth > Community and academic engagement 	<ul style="list-style-type: none"> > Qualitative interviews > Descriptive statistics 	<ul style="list-style-type: none"> > The data are consistent with the hypothesis that Manizales-Mas plays a causal role, as the social progress indicators in Manizales have increased since 2010. > Qualitative interviews suggest that participants tie growth outcomes to specific lessons and exercises in the program. > The Manizales-Mas formal programs appear to have had a broad effect.



Kariv et al. (2009)	> Transactional networking of ethnic groups (Canada)	> What are the different types of transnational networking and their effects on business performance?	> Business performance: > Business sales > Business survival (age) > Business growth: number of full-time employees	> Sample of 720 lead entrepreneurs from five ethnic groups (Chinese, Italian, Jewish, Indian/Sikh, and Vietnamese) chosen according to incidence within the three largest cities in Canada (Toronto, Montreal, Vancouver) > One-way Anova > Regression	> Ethnicity, along with human capital and push/pull factors, both of which are part of our conceptual framework, plays a central role in the engagement of different types of transnational networking and that the different types of transnational networking affect business turnover (sales) and business survival (age). > Push/pull factors were found to play a marginal role in business performance. > Gender appeared significantly and negatively related to turnover, indicating that the earlier arrival entrepreneurs were more likely to increase their business sales, while men were more likely than women to have higher sales rates.
Kariv et al. (2019)	> Entrepreneurial education (Canada)	> What is the role of academic and non-academic entrepreneurship education programs on entrepreneurs' growth intentions?	> Growth intentions: > Expand > Acquire > Merge > Grow in other ways > Start a new business	> A sample of 2609 Canadian adults who were active or non-active (wanna-preneurs) in entrepreneurship activity > Hierarchical regression analysis	> The results confirmed the significant impact of the "traditional" essence of academic (e.g. knowledge) and non-academic (e.g. funding) programs on growth intentions. They further proved the relevance of academic programs to experienced entrepreneurs and of non-academic programs to nascent/wanna-preneurs intentions toward growing their business. > Most of the included non-academic EE attributes that emerged as significant positively affected all types of growth intentions.



Klyver et al. (2018)	> Social support (Denmark)	> What is the impact of social support timing on firm emergence? > Specifically, how do instrumental support, emotional support, and their timing affect nascent entrepreneurs' tendency to continue their efforts to start a business?	> Entrepreneur persistence	> A longitudinal dataset of 385 nascent entrepreneurs through callings > Descriptive statistics > Hypothesis tests > Stepwise regressions	> Instrumental support has a direct impact on entrepreneurial persistence. > Emotional support is important when received earlier compared with later in the firm emergence process, when fewer gestation activities have been completed.
Kyrgidou & Petridou (2013)	> E-mentoring intervention in rural women entrepreneurs (Greece)	> What is the linkage between e-mentoring and entrepreneurial knowledge, skills and behavioral aspects?	> Learning > Behavioral aspects	> Data were gathered from 60 out of 63 women mentees who had initially demonstrated an interest in becoming mentees, all members of rural cooperatives > Variance analysis	> Mentoring can serve as a dynamic, two-fold relationship that can create a significant learning database benefiting both sides. Mentees' knowledge and skills were positively influenced, while their attitudes facing uncertainty, flexibility and innovation were found to be strongly influenced in the short and long run.
Lall et al. (2003)	> Accelerators in the impact investment sector (Global)	> What is the role of accelerators in launching high-impact enterprises?	> Financial performance	> Survey data from 52 social impact-focused accelerators, and 35 investors > Descriptive statistics > T-test	> Nearly one third of respondent programs did not track social or environmental indicators.
Lall et al. (2020)	> Impact-oriented accelerators (Global)	> What is the effect of acceleration on outside equity investment?	> Level of equity investment	> A matched sample of 1647 entrepreneurs who applied to 77 impact-oriented accelerators > Data come from the Entrepreneurship Database Program (EDP) at Emory University, which operates as part of the Global Accelerator Learning Initiative > Regressions	> Accelerator program participants attract significantly more outside equity than their rejected counterparts. > The effect is tied to the number of accelerated months in the follow-up year. Despite these promising observations, we find that the equity investment effect does not extend to ventures working in emerging markets, or to those with women on their founding teams.



Le & Jaffe (2017)	> Direct government assistance to firms (New Zealand)	> What is the impact of government subsidy through R&D grants on innovation output for firms?	> Innovation outcomes: > Any innovation > Process innovation > Product innovation > New product to the world > Sales due to new products > New patents > New trademark	> A large database that links administrative and tax data with survey data > Propensity score matching (PSM) method with the Kernel method > Average marginal effects from probit coefficients > Testing for placebo effects	> R&D grants have a stronger effect on more novel innovation (e.g. applying for a patent or introducing new products to the world) than on incremental innovation (e.g. any product innovation) and that larger, project-based grants are more effective at promoting innovation than smaller, non-project-specific grants. > There is little evidence that R&D grants have differential effects between smaller and larger firms.
Lee et al. (2011)	> Government support process and policy (Korea)	> How effective is government support for Korean women entrepreneurs in SMEs?	> Satisfaction index of women entrepreneurs according to marital status, presence of children, education, age, business type > Perceived performance (i.e. sales, profit, business expansion, business potential)	> A random sample of 120 Korean women running SMEs in 2006-2007 > Structural equation model > Factor analysis	> The government support process has the highest effect on the improvement of the satisfaction of women entrepreneurs, and satisfaction has a direct positive effect on performance.
Lerner (1999)	> SBIR (US)	> What is the long-run performance of high-technology firms receiving funds from the SBIR program?	> Employment growth > Sales growth	> 1435 firms over a 10-year period > Matching sample > OLS, median regressions	> The SBIR awardees enjoyed substantially greater employment and sales growth. > No increase of performance was associated with larger subsidies.



Lerner et al. (2005)	<ul style="list-style-type: none"> > Government programs (Israel) 	<ul style="list-style-type: none"> > What is the impact of government programs designed to enhance immigrants' incorporation in the labor market? > How do these programs operate in relation to other factors such as human capital, ethnicity, and gender? 	<ul style="list-style-type: none"> > Occupational status in Israel > Entrepreneurship index > Monthly earnings and incomes from work 	<ul style="list-style-type: none"> > A sample of 1,195 immigrants from the former Soviet Union in Israel were interviewed in depth on two different occasions > Logistic regression > ANOVA 	<ul style="list-style-type: none"> > The impact of both government programs was more pronounced for women immigrants and immigrants from the Asian republics > For all three dimensions of occupational integration, government intervention in the form of retraining courses played a significant role in enhancing the chances of finding work, achieving a higher level of occupation in Israel, and in improving the level of earnings obtained.
Lukeš et al. (2019)	<ul style="list-style-type: none"> > Business incubators (Italy) 	<ul style="list-style-type: none"> > What are the short-term and long-term effects of business incubators on the performance of innovative start-ups? 	<ul style="list-style-type: none"> > Sales revenues > Job creation 	<ul style="list-style-type: none"> > A large sample of 2544 innovative Italian start-ups, of which 606 were incubated, was followed over a period of up to six years > Tobit and Poisson regressions > Propensity-score matching analyses 	<ul style="list-style-type: none"> > There is a significant negative effect of incubator tenancy on sales revenues and no significant effect of incubation on job creation. > Findings also suggest that the initially negative effect of incubation on sales revenues turns into a positive effect in the long term. > For young innovative start-ups, one to two years of age, the estimated effect of on-incubator location is negative, for older start-ups (three or four years of age) it turns into a positive effect.



Lyons & Zhang (2018)	> Next 36, Technology entrepreneurship training program (North America)	> What are the varying effects of the program on different types of individuals?	> If a finalist worked with a start-up in any capacity following the program > If a finalist founded a start-up after the program.	> Data on program finalists from program inception in 2011 to 2015. In total, 188 finalists were accepted into the program and 166 finalists were not accepted. > Complete data on 179 finalists who are accepted and 156 finalists who are not accepted into the program > Manually collected data from finalists' LinkedIn profile pages	> Program participation is associated with an increased likelihood of subsequent entrepreneurship but that this is not uniform across participants; the estimated relationship between program participation and subsequent entrepreneurial activity is disproportionately lower for applicants with ex-ante resources and capabilities in entrepreneurship. > Program is more effective for individuals that have otherwise limited access to technology entrepreneurship opportunities.
Mangan & Trendle (2019)	> Program of mentoring for Indigenous students (Australia)	> What is the effectiveness of a mentoring program for Indigenous trainees in Australia?	> Labour market outcomes > Completion rates	> Data from Direct Entry Level Training Administration (DELTA) database > Propensity score matching > Logit models	> The program increased the completion rate of Indigenous trainees by approximately 10%.
Marku & Omerovic (2019)	> Business Ideas Incubator (Bosnia and Herzegovina)	> What is the effectiveness of support programs, especially in terms of return on investment in entrepreneurship development support programs.	> Payment of public revenues	> Business and local communities' samples in which the YEP Business Ideas Incubator was implemented. > Rate of return on investment analysis	> The rate of return on public investment in entrepreneurship development support program is significant already after one year from the start of the incubation process.



Messeghem et al. (2018)	> Nonprofit incubators (France)	> How can non-profit incubator performance be measured? > How can a model of non-profit incubator performance be developed?	> Local development performance: > Business creation > Job creation > Survival rate > Growth in turnover > Incubatee satisfaction > Incubation processes: > Incubatees network > Knowledge transfer > Learning: > Quality of incubator management > Experiences and competence of support staff	> Survey data collected from 121 incubator managers > Interviews > Confirmatory factor analysis > T-test, R2 > Used a balanced scorecard model	> Local development leverage is related to the creation of shareholder value in Kaplan and Norton's model (2001). It can be divided into three factors to take into account the stakeholders in the incubation process: the creation of value for funders, incubatees, and incubators. > "Incubatee satisfaction" addressed the role of satisfaction in the process of value creation. > "Incubation processes" corresponds to Kaplan and Norton's internal process construct. This performance measurement focuses on the processes essential to meeting the objectives of customers and shareholders. > "Learning" is the foundation of performance.
Mole et al. (2009)	> Business Link (BL) Network (England)	> How is the effectiveness of business support services of the BL network?	> Sales growth > Employee growth	> Survey of over 3000 English SME: a structured survey of firms in England assisted by BL, and a comparable group of non-assisted businesses > Probit model	> BL was more likely to provide intensive assistance to younger firms and those with limited liability status. > There are no significant effects on growth from "other" assistance but a significant employment boost from intensive assistance.



Oc & Tiesdell (1998)	> City Challenge business support (UK)	> What is the impact of business support for ethnic minorities in city challenge areas?	> Business growth > Job creation	> Interviews of 47 ethnic minority entrepreneurs that participated City Challenge Programs > Case study > A review of business support practice across six Challenge areas	> As their remit contained both a "welfare" dimension and a "regeneration" or "opportunity" dimension, Challenges can be considered to be special regeneration agencies. > It was evident that the availability of financial resources was most highly valued by the ethnic entrepreneurs > Both providers and recipients of business support stressed the necessity of achieving better dialogue and communication between business support agencies and ethnic minority businesses.
Oh et al. (2009)	> Credit guarantee (Korea)	> What is the effect of the credit guarantee policy?	> Productivity > Sales > -Employment > Investment > R&D > Wage level > Survival of firms	> Unbalanced panel data with approximately 95,000 to 109,000 plants for each year from 2000 to 2003, assembled from the Annual Report on Mining and Manufacturing Survey > Propensity score matching > Probit model > Kernel matching	> Credit guarantees influenced significantly firms' ability to maintain their size, and increase their survival rate, but not to increase their R&D and investment and hence, their growth in productivity. > Moreover, due to the adverse selection problem, firms with lower productivity were receiving guarantees.
Orser & Riding (2006)	> Women's Enterprise Initiative (Canada)	> What is the economic impact of WEI training program?	> Job creation and retention > Training clients	> Focus groups in the provincial training centres, one-on-one interviews, and telephone consultation > Survey data of 913 WEI clients, and of 539 businesses that received loans > Chi-square test	> The results suggest that men and women seek different types of assistance with respect to business development. When compared to a control group of business owners, WEI clients and women business owners were more likely than males to prioritize intrinsic outcomes such as evaluation of entrepreneurial skills, building self-confidence, and improving strategic management skills.



Orser et al. (2012)	> Women-focused, small business program (Canada)	> What are the motives for accessing a women-focused, small business program (Centre)?	> Firm attributes > Client attributes > Client motives	> An online survey captured verbatim responses from 212 respondents > Content analysis > Descriptive statistics	> Most respondents were growth-oriented, well-educated and employed prior to start-up. > Clients employed the Centre for three reasons, including managerial, social capital and gender-related motives. > The Centre was perceived as being "different" to other agencies such that staff implicitly understood their needs as businesswomen, services were targeted specifically to women, and clients felt empowered and comfortable seeking business advice in an inviting, low risk learning environment.
Pergelova & Angulo-Ruiz (2014)	> New firms that received government financial support (US)	> What is the influence of government financial support on new firms' performance?	> Competitive advantage: > Innovation-based > Licensing-in-based > Marketing-based > Human capital-based > New firm financial performance: > Annual profit	> A panel of new US firms tracked since their inception, 2004 until 2010, elaborated and published by the Ewin Marion Kauffman Foundation > Survey data on 3998 businesses > 2126 interviews > Ordinal probit regression	> Government guarantees and government equity have a direct effect on new firms' competitive advantage and only an indirect impact on performance. > Public policy support, in particular, access to finance through government guarantees and equity, was found to impact competitive advantage positively. In turn, competitive advantage leads to increased profits for new firms.
Radacic et al. (2016)	> Innovation Support Programs (EU)	> What is the effect of innovation support programs on output innovation by small and medium enterprises in traditional manufacturing industry?	> Product innovation > Process innovation > Organizational innovation > Marketing innovation	> 312 SMEs, comprising 145 participating and 167 non-participating firms from seven EU regions > ANOVA > Average treatment effect	> The estimated effects of innovation support programs are positive, typically increasing the probability of innovation and of its commercial success by around 15%. > Yet, it is also found that a greater return on public investment could have been secured by supporting firms chosen at random from the population of innovating traditional sector small and medium enterprises.



Ramkissoon-Babwa & Mc David (2014)	> National Integrated Business Incubator System (IBIS) Programme in Trinidad and Tobago	> How effective is the client selection process in business incubation?	> N/A	> Case study of the integrated Business Incubator System (IBIS) Programme	> The Client Selection strategy plays a major role in giving a Business Incubator Programme a solid platform for support and realization of core objectives. > Staff selection, communication and community strategies, early entrepreneurial linkages and a client diversion system are main aspects of an effective client selection system for a business incubator.
Ramsden & Bennett (2005)	> External advice (UK)	> What is the role of external business advice for small to medium-sized enterprises (SMEs)?	> Soft outcomes: improved ability to manage, ability to cope > Hard outcomes: profitability, turnover, reduced costs > Overall satisfaction levels	> A stratified sample of small and medium-sized businesses in Britain with approximately equal numbers of respondents in two sets of strata > Descriptive statistics	> "Hard" and "soft" outcomes tend to be combined for many SMEs, but the widest effects of external advice seem to be intangible, such as reassurance or reducing uncertainty. There is less variation between SMEs of different size than expected, but strong variation between types of external suppliers of advice.
Riebe (2012)	> University-sponsored centres for women entrepreneurs (US)	> What are the benefits of university-based women entrepreneur centres as an educational and outreach strategy?	> Educational opportunities > Outreach activities > Growth in the number of collaborating organizations and participants > Referrals > Anecdotal reports on growth of participants' businesses > Economic development of the communities	> Case studies of two university-sponsored centres for women entrepreneurs: The Center for Women's Entrepreneurship (CWE) at Chatham University, and Metropolitan State University's Center for Women Entrepreneurs	> Centres for women entrepreneurs such as those described here offer a model for re-envisioning and expanding universities' business offerings to better serve the needs of the growing ranks of adult and lifelong learners and contribute to the financial vitality of their communities. > Even beyond these economic and institutional benefits, educational equity requires that university business schools and outreach programs develop new ways to provide female learners with educational experiences that meet their particular learning and professional needs.



Robson & Bennett (2000)	> Cambridge ESRC Centre for Business (CBR) (UK)	> What are the differences in types of client on the use and impact of business advice by SMEs?	> Impact of sources of advice Impact of fields of advice	> Survey data of 2500 respondents > Ordered logit models	> There are significant differences between clients' perceived impact of advice and the sources of advice they use, chiefly as a result of firm size, and to a lesser extent for growth, innovation and export levels. > Size and innovation are shown to be the two chief significant explanatory variables. Interestingly, profitability is found to have a negative relationship with the usage of the public sector sources.
Sentana et al. (2017)	> Incubators existing in the Valencian Community (Spain)	> What are the economic as well as social profits of business incubators?	> Economical profitability > Social profitability	> An in-depth interview carried out face to face or through the telephone (in the case of the province of Castellón) with the directors and/or managers of the 43 incubators > 183 closed-question survey data from the business projects leaders and directors or managers of the firms currently accommodated in the incubators > Cost-benefit analysis	> Although business incubators are not economically profitable since they need financial aids and public investment to start operating, they do have social profitability, insofar as the activity developed by entrepreneurs permits to provide public administrations—via taxes—with returns exceeding what was invested in these incubators.
Sinclair & Pooyak (2007)	> Aboriginal mentoring program (Canada)	> -What is the history of mentoring, and what are some of the current mentoring projects that are taking place in the Saskatoon area? > What is the influence of Aboriginal perspectives on mentoring strategies and programs?	> N/A	> 31 participants interviewed, the majority are of Aboriginal ancestry and include youth, professionals, and community members > Qualitative thematic analysis	> Many of the participants struggled with the definition of mentoring. > Elders must be included within the program development and evaluation processes, developing cultural awareness as a core component of mentorship training, and developing mentorship cultures in organizations to support informal mentoring strategies.



St-Jean & Audet (2009)	<ul style="list-style-type: none"> > Fondation de l'entrepreneurship's mentoring program (Canada) 	<ul style="list-style-type: none"> > What specific learning occurs within a novice entrepreneur mentoring relationship? > Is there a relationship between learning outcomes and the methods used by the mentor to achieve learning? 	<ul style="list-style-type: none"> > Learning outcomes: <ul style="list-style-type: none"> > Cognitive > Skill-based > Affective learning > Benefits from mentoring: <ul style="list-style-type: none"> > Management knowledge and skills > Improved vision for business venture and identifying new opportunities > Sense of self-efficacy > Validation of one's entrepreneurial self-image > Lowered sense of solitude 	<ul style="list-style-type: none"> > Online survey data from 25 novice entrepreneurs > Descriptive statistics > Chi-square test 	<ul style="list-style-type: none"> > Mentoring offers an opportunity for novice entrepreneurs to mainly develop cognitive and affective learning. > Mentoring is particularly helpful in allowing a transfer of knowledge about the business world, and developing a competence set that will be useful to the entrepreneur > Moreover, some entrepreneurs had developed an improved vision for their business and others had identified new business opportunities to pursue. > Mentoring can also help improve various affective learning aspects including self-image, self-efficacy and resilience in the face of difficulties.
Stephens & Onofrei (2012)	<ul style="list-style-type: none"> > Business incubation initiative > (Ireland) 	<ul style="list-style-type: none"> > What is the impact of business incubation on its participants (incubatees)? 	<ul style="list-style-type: none"> > Hard measures: sales turnover, profitability, growth, independence and the number of clients > Soft measures: professionalism, improved business skills, confidence, productivity, knowledge, cost savings and publicity. 	<ul style="list-style-type: none"> > Data were collected using a survey of 43 incubatees and interviews with a random sample of 12 of them > Case study 	<ul style="list-style-type: none"> > The measurement of business incubation outcomes needs to be broader than a set of statistical outputs. > The personal development of the incubatee is an important feature of business incubation. For the entrepreneurs, improving their personal skills, confidence and professional networks has a positive impact on their commitment to the incubation process.



The Evidence Network (2013)	> YIC (Finland)	> What is the impact of YIC program?	> Impact on resources and capabilities measures (e.g. business capabilities) > Impact on performance measures (e.g. revenues, employment, international markets)	> 108 YIC client companies	> The YIC Program is achieving significant impact on companies' acquisition of new international customers, increases in employment, and time to market. Companies that used the non-financial NIY support initiatives to a greater degree attribute the greatest impact on company performance to the YIC program. > The YIC Program is achieving significant impact on strengthening the resources and capabilities of companies, in particular, improvements to their leadership or governance, business planning, selling into new markets, and strategic knowledge capabilities.
Wang et al. (2017)	> InnoFund (China)	> What explains selection into the InnoFund program? What is the effect of InnoFund?	> Firm survival > Patent applications > Equity investment	> 974 firms that applied to InnoFund between 2005 and 2010, inclusive. Applications and evaluations of applicants, both successful and unsuccessful. > Regression discontinuity design	> Innovative firms and firms with financing more likely to receive a grant. > Firms with political connections more likely to receive funding. > Receiving a grant has no effect on survival, patenting, or venture capital financing
Wonglimpiyarat (2016)	> Yozma (Israel)	> How can the innovation financing policies/ programs help support the growth of high-tech industries, leading Israel to become a high-tech powerhouse?	> Not applicable	> Cluster model	> Thriving high-tech clusters are the result of government-led policies in creating the VC industry with the impacts of Yozma program.



Young (2002)	<ul style="list-style-type: none"> > Assistance programs to minority-owned business (US) 	<ul style="list-style-type: none"> > What are the assistance programs available to minority-owned businesses? > What are the areas of need? 	<ul style="list-style-type: none"> > Nature of services > Perceived value of programs > Degree of importance 	<ul style="list-style-type: none"> > Data from 687 mail questionnaires > Descriptive statistics > T-test 	<ul style="list-style-type: none"> > The types of assistance of the greatest needs are: Accounting, legal, business planning, and start-up. > Minorities received more start-up assistance and business planning development.
Yusuf (2010)	<ul style="list-style-type: none"> > Start-up assistance programs (US) 	<ul style="list-style-type: none"> > What are nascent entrepreneurs' support needs? > What assistance do entrepreneurs receive from assistance programs? > How do entrepreneurs value the assistance? 	<ul style="list-style-type: none"> > Participation > Entrepreneurs' satisfaction > Entrepreneurs' subjective assessments of overall program effectiveness 	<ul style="list-style-type: none"> > Data from the US Panel Study of Entrepreneurial Dynamics (PSED), a national database of individuals involved in the process of starting businesses > -66 observations based on interview and survey data > Descriptive statistics > T-test 	<ul style="list-style-type: none"> > Assistance programs were effective in addressing the entrepreneur's support needs 26 percent of the time. > However, entrepreneurs continued to perceive the support as being valuable, regardless of the lack of effectiveness.
Zhang & Guan (2018)	<ul style="list-style-type: none"> > Beijing Zhongguancun > Science Park (China) 	<ul style="list-style-type: none"> > What is the time-varying effects of government fiscal incentives on the innovative performance of firms? 	<ul style="list-style-type: none"> > Innovation performance > Annual new product sale revenue > Patent application > Invent application 	<ul style="list-style-type: none"> > A unique panel of survey data from 32,431 Chinese high-tech companies based in Beijing during the period 2005–2014 > Generalized estimating equation (GEE) regression > T-test > Propensity score matching 	<ul style="list-style-type: none"> > Direct government subsidies favor firms in the short-term but hinder them in their long-term innovation performance. > Indirect tax credit, on the other hand, is favorable to a firm's short-term and long-term innovation performance. > Financial slack positively moderates the relationships between government incentives and firms' innovation performance, while human slack has the opposite moderating role.



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