Federal Support to Small- and Medium-Sized Enterprises (SMEs) in Atlantic Canada

The Impact on Survival, Growth and Productivity

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The Atlantic Canada Opportunities Agency (ACOA) was established in 1987 as the federal government's agent for economic development in Atlantic Canada. The Agency's legislated mandate is: "To increase opportunity for economic development in Atlantic Canada and more particularly, to enhance the growth of earned income and employment opportunities in that region".

As one important means of pursuing this mandate, the Agency devotes about 40% of its program expenditures to direct support to SMEs since 1995 is in the form of interest free unsecured loans for investments in human or physical capital.

I. Background - Evaluation versus Monitoring

A key issue in determining the impact of business incentive programs is "incrementality", that is the proportion of the subsidized investment, wages or jobs that would not exist without the public support.

As Storey (1998) points out, most of the appraisals of the impact of business assistance programs in force in the OECD countries, while referred to often as evaluations, are merely monitoring. Storey provides a useful classification of impact studies embracing six progressive steps of ascending analytical rigour, (Figure 1).

Figure 1

Assessing Impact of Public Support to Business

Six Steps to Heaven

MONITORING		
Step I	▸	Take up of schemes
Step II	▸	Recipients' Opinions
Step III	▸	Recipients' views of the difference made by the Assistance
EVALUATION		
Step IV	▸	Comparison of the Performance of "Assisted" with "Typical" firms
Step V	▸	Comparison with "Match" firms
Step VI	▸	Taking account of selection bias

Source: **Storey David J., Six Steps to Heaven: Evaluating the Impact of Public Policies to Support Small Businesses in Developed Economies. Paper presented to the Mikkeli Conference on "Growth and Job Creation in SMEs", January, 1998.**

Monitoring merely either describes activity under the program, (eg, number, size, location and sector of firms assisted; dollars of assistance) or records the participants' views on the usefulness of the program, (eg, Did they find it of value? Were they satisfied with the administration? Would they have made the investment anyway?).

In sum, monitoring relies exclusively on the views of recipients while evaluation seeks by some means to compare the behaviour of assisted firms with that of non-assisted firms, to present the counter-factual. The difference between observed changes in assisted firm performance and the counter- factual, or what would have happened in the absence of the public support, is an estimate of the effect of the program.

Put in an other way, moving from step three to step four is the transition between measuring outputs (spending and activities) and measuring outcomes and impacts; or from collecting data to satisfy accounting requirements to assessing the economic impact of programs.

Most of the "evaluations" of the incrementality of business assistance programs can be classified as STEP III - Recipients' views of the difference made by the assistance. Cohen and Le Goff (1987), in their useful review of evaluations of regional development investment incentives in Canada and other OECD countries point out the limitations of all survey research (i.e., large scale questionnaire based surveys; structured interviews; and case studies). Firstly, the business person may not want to admit to a windfall gain situation. Others may take the opposite tack and tell the interviewer what he wants to hear in order to get rid of him. Secondly, the firm may simply not have the information necessary to decide what it would have done without the incentive or how the firm would have performed without assistance, when these questions are asked usually several years after the assistance was given. The respondent may have never seriously considered a no incentive option. Further, after the two or three years which may be required to observe any impacts of the incentive on performance, the business person may well be unable to isolate the incentive from the many other factors affecting performance. Finally, because only surviving firms can be interviewed, the effectiveness of the program is likely to be biassed upward. Because of these flaws, it is not surprising that Cohen and Le Goff were unable to find any agreement among the surveys reviewed on the degree of incrementality achieved either in Canada or other OECD countries.

While little convergence in results was found, the more solid studies suggest that incrementality would be, at the lower end, about 50 per cent. The surveys conducted by Statistics Canada (1995, 1997) and Price Waterhouse (1992) for the Agency tend to support this finding.

Cohen and Le Goff report on two classes of studies which do attempt to analytically establish a "counter-factual". Namely, trend analysis and econometric studies.

The trend approach examines a data series, (investment, business start-ups) over a no program period and projects this trend into a period when the program is active. The policy effect is given by the difference between observed performance during the program and the trend line.

In the Canadian context, Cohen and Le Goff cite trend studies by Usher (1979) and Dudley (1974) and the Economic Council of Canada (1977) pointing out that because no consideration was given to other factors, the validity of the results is questionable. With respect to econometric studies, they report that the validity and usefulness of the results is limited by problems of data reliability, estimation methods and model specification.

As a result, Cohen and Le Goff conclude that on methodological grounds the survey approach is the least flawed of the approaches to evaluation.

II. ACOA's Approach

Thomas and Landry (2000) have described the multiple lines of evidence approach adopted by ACOA to compensate for the shortcomings of the survey method and improve upon the reliability of estimates of incrementality. To construct the foundation for one key line of evidence, the Agency contracted some years ago with Statistics Canada to identify in its data bases ACOA assisted firms and to "track" their performance relative to the universe of all firms. Subtracting the performance of ACOA clients from the total universe gives the performance of unassisted firms.

A. Objectives and Success Indicators

In order to provide an evaluation of the impact of ACOA support, the focus of the tracking is on those aspects of business performance which relate to the objectives of the Agency's support to SMEs.

The objectives of the Agency's key programs of support to SMEs (the Action Program of 1988-1995 and the Business Development Program of 1995 to date) can be summarized as follows:

- Increase the number of successful business start-ups
- Increase the successful expansion and modernization of SMEs
- Increase the number of jobs (new and maintained)

The evaluation framework for the Business Development Program, Collins Management Consulting & Research (1996), identified a number of success indicators for measuring results or progress towards these objectives such as increases in :

- start-up firm survival rates relative to unassisted firms
- wages and salaries (payrolls)
- employment
- productivity

B. The Data

Payroll information and information on business life status used to calculate survival rates of new start-ups comes from the Employment Dynamics data base of Statistics Canada. Payrolls are calculated for the universe of all businesses with paid employees using Revenue Canada T4 tax records. The term "business" includes all private and public sector businesses or organizations (including public administration) which remitted social security and tax deductions on behalf of their employees to Revenue Canada. For the corporate sector, each incorporated entity is treated as a separate unit regardless of whether it is the parent or the subsidiary of another corporation. For the unincorporated sector, each filer of a Tl tax return with paid employees is considered to be a business. An individual tax filer who submits more than one set of financial statements is counted as one business. Business operating in more than one province are sized according to their ALU total across Canada. The average annual level of employment or average labour unit (ALU) is calculated by

dividing a firm's total payroll by average annual earnings per employee of that firm. Average annual earnings are estimated from earnings data at the three digit Standard Industry Classification and province levels collected by Statistics Canada, (Survey of Employment, Payrolls and Hours).

Annual sales are for the universe of incorporated firms from Revenue Canada T2 corporate tax records. A little over one-half of ACOA assisted firms are incorporated firms.

Incorporation does not seem to introduce serious distortions in coverage as compared to the Employment Dynamics data, at least in terms of the distribution of firms by employment size.

Tracking data is now available to ACOA for the period 1989-1997. The main factor affecting the availability of data is Statistics Canada's processing schedule which is in turn dependent on the availability of data from Revenue Canada. Currently, the Employment Dynamics data can be released no earlier than 18 months after the end of the reference tax year.

C. The Productivity Measure

Sales has been selected as the most appropriate measure of output for tracking productivity. A possible alternative would be valued-added, the sum of employee payrolls and corporate profits. However, the value-added data available from the Statistics Canada Employment dynamics and the tax filer data base lacks precision due to technical measurement problems. Firstly, for those corporations who also operate outside the Atlantic and file a consolidated

return, profits in the Atlantic can only be estimated on a pro rata basis to the proportion of sales in the Atlantic. Secondly, because employment is derived by Statistics Canada from payrolls using data on average wages by industry, using value-added as the output measure would mean that output and employment are not totally independent measures. In any event, the sales and value-added trends are very similar. For example, over the 1993-1997 period, Atlantic manufacturing shipments increased by 29.6% as compared to 27.3% for value-added. The choice of output measure would seem to make little if any difference for the results. The productivity estimates are for the universe of incorporated firms.

D. Comparisons of Assisted to "Matched" Unassisted Firms

Assisted firms are matched to unassisted in aggregate terms firms in terms of age (comparisons of survival rates for start-ups), size (employment levels) industrial sector, (manufacturing, business services and tourism which are the sectors where the Agency has focussed its support), and of course geography, by province and region. These are the major factors known to affect business success. Data is available on a provincial basis and on a 2 digit and 3 digit SIC level, but in order to keep the length of the paper manageable, only Atlantic Region results at the 1 digit level are reported.

The performance of assisted to unassisted firms is compared for survival rates, (Figures 2-7), payroll growth (Figures 8-11), employment growth (Figures 12-17) and productivity growth (Figures 18-20).

The contribution that ACOA is making to SME survival, growth and competitiveness can be seen by the fact that in almost every case examined for various industrial sectors and size classes of firms, the performance of ACOA assisted firms has been better than of unassisted firms. It is possible to get an indication of the contribution of ACOA support to overall SME performance by comparing the performance of all firms to unassisted firms. As one example, overall survival rates in manufacturing are more than 2 points higher for all firms (including ACOA clients) than for unassisted firms (Figure 7). As another example, in manufacturing, the prime focus of Agency support, productivity growth on an all firms basis is 60% greater than for unassisted firms, (Figure 18).

It is worth noting, that as might be expected ACOA support has a greater impact in difficult economic times when compared with periods of buoyant economic conditions. In almost all cases, the gap between assisted and unassisted firm performance was considerably greater in the 1989-1994 period than the 1994-1997 period, (Figures 8-17).

Again as would be expected, Agency support is making the greatest difference for the small- and medium-sized firm as compared to large firms (over 100 employees). This is the case for survival rates across all industries (Figure 3), employment growth in manufacturing (Figures 16-17) and perhaps most importantly, productivity growth in manufacturing (Figure 20). Comparing Figures (16-17) and Figure (20) dealing with productivity, suggests that employment may have been preserved in large ACOA assisted firms at the expense of productivity gains.

Looking at the Business Services sector, growth in payrolls for ACOA assisted firms has consistently outpaced that for unassisted firms (Figure 10), but this has not been the case for employment growth (Figure 14). This is due partly to the fact that the Agency has focussed its support on the high value-added portions of the sector, (eg, computer and related services and architechectural and engineering services). However, when allowances are made for average wages and salaries, employment growth for assisted firms has generally not kept pace with unassisted. The Agency is looking at ways to improve performance here including: putting together dedicated teams of analysts in order to acquire more in-depth knowledge of the issues in these key high technology sectors; and accepting more risks commensurate with the higher benefits in these sectors.

In the tourism sector, ACOA assisted firms did not match the payroll or employment growth of unassisted firms in the 1989-1994 period, (Figures 11 and 15). Agency policy at that time supported the dramatic expansion of the tourism industry in the late 1980s which occurred on a North American- wide basis. In the recession of the early 1990s ACOA assisted firms suffered relatively more from the overbuilding which took place. Agency policy was modified to promote improvements to quality rather than additions to capacity resulting in improved performance for assisted firms versus unassisted firms over the 1994-1997 period.

Testing the Analytical Rigour of the Analyses

We are confident that our analysis falls firmly within the upper (evaluation) echelons of Storey's "Six-Steps to Heaven" schema - *viz.* Step 5 which involves a comparison of groups of matched firms. Broadly similar firms which have been assisted by ACOA are compared using objective data with non-assisted firms. It can be inferred from this that there is some room for improvement in the analysis. Specifically this would involve removing selection bias from the populations of firms being used to evaluate a program, and thus remove to the extent possible any exogenous influences which would over-estimate the impact of the program. In practice, this is very difficult and technically complex. As Storey remarks:

> Many analysts feel that the fairly complex statistical analysis [involved] is very difficult to communicate in simple language. Even if they understand it themselves, politicians faced with having to explain [it] to taxpayers and the small business community would risk being branded as indulging in 'statistical hocus pocus'. It is therefore unattractive as a measurement tool.

Given the nature of ACOA's mandate and programs, some selection bias is inevitable in the populations of firms that have been used to estimate the current results. ACOA will usually favour better projects, thus there is the claim that better firms are more likely to be chosen for support.

From an ACOA point of view, an officer or panel must decide whether an application is worth supporting. This judgement is guided initially by the terms and conditions attending the program under which the application qualifies, which sectors are eligible for support, and by ACOA's strategic priorities. Business plans must accompany the application, and program officers will assess the application in terms of the need for assistance, its commercial viability, and its economic benefits. Assuming the person making the decision to support or not is properly qualified, and has reasonable information to hand, he or she will favour better projects.

On the other side of the application, usually the better, more motivated or dynamic firms are likely to apply for support, run by people who are better informed, open to new ideas, to the extent they are willing to seek help in a wide range of areas. In the literature, this has been referred to as "motivation" bias or even "self-selection" bias. Since ACOA has moved to repayability of support, there is evidence that the quality of applications has improved. Claims that the typical ACOA applicant is mainly "managing for grants" are patently false by this reasoning. Start-up firm survival rates demonstrate convincingly that ACOA-supported firms are much more likely to stay in business for longer than non-supported businesses.

Even allowing that some selection bias is inevitable, the gap between ACOA-supported firms and non-supported firms is simply too wide and persists over time. This is best illustrated where there is a time series, such as for survival rates. Selection bias may explain some of the gap in the earlier years of operation, but as the gap gets wider over time, it becomes less and less of an issue. It would be more of an issue, as well, if fewer applications were

accepted. If, for example, ACOA only offered support to 10% of its applicants, then the process becomes highly selective. Between 1989 and 1997 (the period over which survival rates have been tracked) the overall acceptance rate for commercial projects was between 60 and 70% of applicants under ACOA's biggest programs.

The significance of selection bias in the population of ACOA-supported firms is further reduced if we consider that all firms face bias when they approach commercial lenders for financing. Banks and other financial institutions have their own criteria for support, which notably include favouring projects which stand a reasonable chance of commercial return.

It is also possible that some of the observed difference in performance between assisted and unassisted firms may result from the "displacement" effect, i.e., ACOA support to firms adversely affecting competitors. The little evidence available indicates that this effect is weak. For example, the Economic Council of Canada (1977) found that if there is an effect, it is not very strong or occurs by inhibiting expansions. More recent evidence from the United Kingdom indicates a displacement effect of between six and 29%, (National Audit Office, 1991).

The Agency has procedures in place to ensure that adverse impact on competitors is kept at a minimum consistent with achieving the objective of improved competitiveness. Another factor which tends to minimize adverse impact is that, as the table below indicates, exporters make up a relatively larger portion of the Agency's clients than they do for the population of all firms. It is true, however, that the Auditor General (1995) did find some

instances where existing producers could have been affected by Agency support.

Exporters as a Proportion of Total - 1997				
	Manufacturing		***All Industries***	
Employee Size Class	***ACOA Clients***	***All Firms***	***ACOA Clients***	***All Firms***
<20	18.2	11.1	8.0	1.9
20 - 99	53.3	44.2	27.9	9.4
>100	24.5	59.3	48.6	20.1
Total:	***32.0***	***19.9***	***13.1***	***2.9***
Source: Statistics Canada. Data is for incorporated firms only.				

An economic argument can also be made, however, that in its attempts to avoid displacing existing firms ACOA risks lessening its economy-wide efficiency impact. If by supporting one firm another unsupported firm feels threatened, but takes appropriate steps to meet this threat (by new investment in equipment, for example) and in consequence becomes more efficient itself, then the overall level of productivity in that sector is increased as a result of ACOA support of a single firm.

Concluding Remarks

Tracking data compiled for ACOA by Statistics Canada on a variety of indicators (start-up firm survival rates, payroll and employment change, and productivity) show that ACOA-assisted companies overwhelmingly perform better than unassisted firms. In most cases the gap between assisted and unassisted firms is at least noticeable, and in many cases it is wide.

There are several reasons for this better performance, which are, backed up by evidence from other surveys commissioned by ACOA. One reason ACOA clients perform better has already been mentioned - they are usually more motivated to succeed, and will do more to achieve success. Other reasons could be that ACOA financial support opens doors to a wider array of sources of capital. Note that the fact that ACOA loans are unsecured and interest-free should not be an issue here, as it is less the *cost of capital* that is at stake, more *access to capital*. Another reason for better performance is that ACOA support frequently helps firms to reach a critical stage (by purchase of new equipment, for example) where they are that much more competitive. ACOA support also comes as part of a package which also includes management consulting services and advice on becoming export ready.

The overall conclusion is that ACOA has had an impact on the Atlantic economy, and that this impact is almost always positive. This is demonstrated and confirmed by means of rigorously designed methods of review which use independently-produced data, and moves beyond monitoring of activities into evaluation of the economic impact. This also allows ACOA to fine-tune its programs and its target sectors, and generally improve its services to SMEs over time.

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