A Review of Issues Surrounding Benefit-Cost Analyses of the Small Business Loans Program

Final Report

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Prepared for
Industry Canada

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I.
Executive Summary

A. Terms of reference

KPMG was commissioned by Industry Canada to:

- review the conceptual issues and previous studies respecting the *benefits* of the SBLA;
- review previous studies on the impact of changes in SBLA program design parameters on the program's financial *costs;*
- in light of the above, *comment on the options* currently being developed for revision to the SBLA; and,
- suggest issues that should be incorporated into a *benefit cost assessment framework* that could be used for the SBLA in the future.

Our findings relative to each of these four tasks are summarized below.

B. Assessing the benefits of the SBLA

1. Narrow program objectives and wider economic and social benefits

Governments are often called upon to carefully specify the objectives that a program is to meet in order that it can later be assessed to determine whether it achieves "value for money" - whether the benefits exceed the costs. However, experience has shown that the benefits that governments usually have in mind for programs are broader than those implied by highly specific program objectives. The SBLA is no exception.

In the case of the SBLA, the narrow program objective is articulated in terms of *filling financing gaps*. Specifically, the purpose of the SBLA is to provide financing to small businesses where such financing would otherwise not have been available due to (1) the small size of the loan, (2) a lack of collateral, (3) the high risk nature of the business, or (4) the high interest rate required by the lenders.

However, the ultimate intended benefit of the SBLA, like most other government programs, is to *enhance economic and social welfare*. Intended economic benefits include employment and wealth creation. Social benefits include the promotion of entrepreneurship in society and the maintenance of a vibrant small business sector. Indeed, one of the principal quantitative indicators that governments have typically employed in describing the success of programs such as the SBLA is the number of new jobs created, even where employment creation is not an explicit program objective.

2. Incrementality

Perhaps the most consistently difficult issue in assessing the benefits of SBLA-type programs is the question of incrementality - how much of the observed benefit would have occurred in the absence of the program. Although incrementality is easy to define at this general level, it becomes a very complex issue as one tries to quantify specific impacts of the SBLA. A distinction can be made between *loan incrementality* (e.g., whether the loan would have been advanced in the absence of the program, whether it would have been on as favourable terms or as early, or whether it would have facilitated as productive a working relationship between the borrow and the lender) and *program incrementality* (whether the receipt of the loan resulted in net economic and social benefits, taking account of all the indirect and displacement effects of a particular financial transaction in the economy).

Macro-economic methodologies are, in principle, better suited to addressing the full range of incrementality issues than the more micro studies such as those employed by Equinox Management Consultants. However, macro-economic studies, such as that employed by Informetrica on the SBLA, are usually not able to provide much detail on the impact of programs on specific sectors of the economy, or particular sizes of firms.

3. Findings from previous studies

The 1994 Haines and Riding study and the 1996 Equinox studies concluded that there were significant incremental benefits from the SBLA program. The authors conclude, for example, that over 50 percent of SBLA lending was incremental, and that approximately 121,000 people over the period of January to April 1993, and approximately 350,000 people over the period of May to December 1993 were employed by firms which received what could reasonably be defined as incremental lending under the SBLA program. Furthermore, significant fractions of SBLA recipients reported cost decreases and sales increases as a result of the loan. Although these studies did not explicitly conclude that the SBLA was responsible for the creation of 461,000 jobs in one year, the implication is left that the incremental impact would be many tens of thousands of jobs.

On the other hand, the 1994 Informetrica study was less sanguine in its conclusions on program incrementality, suggesting that the net employment increase in the overall Canadian economy was more like 10,000 per year.

4. Conclusions

The previous studies have provided a good indication of the range of the benefits that would have to be taken into account in an assessment of the overall benefit-cost of the SBLA. It is clear that the program has produced significant incremental impacts with respect to the narrow objective of filling financing gaps and has likely contributed significant net new economic activity. However, the current analytical methodologies and information sources do not yet form an adequate basis for a conclusion on whether the overall benefits are greater than the overall costs. The major value of the analytical work done to date is to help assess the impact of previous and potential design changes on the cost of operating the SBLA.

C. Assessing the impact of design changes on SBLA costs

The 1998 study by Equinox Management Consultants attempted to determine the impact on default rate of such attributes as loan size (greater for larger), age of the firm (greater for younger), sector (highest for the retail and the food and beverage sectors) and use of loan (greatest for leasehold improvements). We reviewed the methodology and calculations used in the Equinox study and, with a few exceptions which did not affect the overall conclusions, we found them to be sound. Nevertheless, these results should be interpreted carefully because they were necessarily based on a set of relatively simple assumptions, the implications of which we review in some detail.

The study provides simulations on how the program costs vary with two operating parameters - the financing rate and the guarantee rate. However, in the future, it may also be worth analyzing how the costs would vary with changes to other parameters such as the administration fee, loan size, sector, and loan category.

D. Implications for SBLA amendment options

1. Implications for Option One

One option for design of the future SBLA is to maintain the current program parameters (guarantee rates, fees, maximum loan size and the like) but to make administrative changes to improve portfolio risk, control interest costs and exclude refinancing of existing leasehold improvements. Our review of the previous studies plus our experience in the financial sector lead us to make the following assessment of the implications of these measures. For *governments*, they would increase administrative costs of the program (while leading to net program savings). For *lenders*, more resources and effort would be required to track their SBLA-related lending activities, with the extent of the impact dependent on the effectiveness of their current screening and credit assessment processes. For *borrowers*, the changes should result in a slightly higher compliance burden and some restrictions in access (despite the simplifications associated with transfers of business improvement loans) but also in a reduced incidence of abuse and a better targeting of available resources to firms requiring financing for purposes identified in the SBLA.

2. Implications for Option Two

In addition to the changes proposed under Option One, Option Two would change the Crown's contingent liability from the 90-50-10 rule to 90-50-12-8. This has the potential to reduce the claims cost to the government and increase the liability for high loan amounts to the lenders, but further analysis should be conducted to test the significance of the impact.

3. Implications for Option Three

Another option would involve increasing the self financing proportion from 10 percent to 15 percent or reducing the guarantee rate from 85 percent to 80 percent. We calculate, based on the simulation model developed by Equinox Management Consultants, that the impact of changing the financing rate is relatively small compared to the impact of changing the guarantee rate. The first would primarily affect borrowers and the second would initially affect lenders, who would in turn likely place stricter requirements on the credit worthiness of borrowers.

4. Implications for Option Four

A fourth option would be to reduce the maximum loan size to $200,000 or $150,000 for all categories of loans. These changes should not impact on the SBLA's greatest source of incrementality, that being start-up and early stage firms whose loans have tended to be below the proposed maxima. However, such a change could also reduce the incidence of loan splitting practices. Since this change would impact both revenues and costs to the program, more analysis would be needed to determine the net effect on the program.

E. Implications for designing an ongoing assessment framework

Our review of the previous studies has served to re-enforce the evaluator's adage that one should try to be clear about what one is trying to achieve when designing new programs or amendments to existing programs. Clear objectives will help in the specification of the data to be collected for future review and the selection of the most suitable techniques of analysis. Furthermore, the more machine-readable information that is available on all relevant attributes of the borrowers, and the more stability is maintained in the program parameters, the more reliable the conclusions of future assessments are likely to be.

A comprehensive approach to measuring the costs and benefits of the SBLA would include: 1) financial analyses of the kind commissioned by the department in recent years, 2) economic impact studies aimed at determining the program's effect on such indicators as Gross Domestic Product and taxes paid, and 3) a full social benefit-cost analysis.

The objective of a financial analysis framework would be to determine the extent to which financing provided to firms under the SBLA bridges a financing gap experienced by small businesses. This calls for a description and analysis of the financing gap and an assessment of what role the program plays in filling the gap. Such a framework would include a detailed definition of and criteria for incrementality, and means for measuring the extent to which these criteria are met.

Criteria for the measurement of incrementality could include measuring the extent to which loans would or would not have been advanced without the program, the favourability of loan terms, the size and scope of financing for loans, the timeliness of loans, and the initiation or facilitation of working relationships between borrowers and lenders. These criteria could then be measured through a combination of borrower and lender loan data and sampling of SBLA loan recipients.

A social benefit-cost study would generally involve the following steps:

- a detailed definition of program objectives and the development of a list of alternatives which could also meet these objectives;
- identification of program (for each alternative) benefits (e.g., increases in productivity, increases in the standard of living and quality of life, increases in income and job creation, economic development, and enhancement of entrepreneurial spirit) and costs (e.g., program administration, default/claim costs);
- quantification of benefits and costs for each alternative;
- calculation of benefit-cost indicators such as net present value and benefit-cost ratios for each alternative.

Such an approach would provide Industry Canada with the most comprehensive assessment of the costs and benefits of the SBLA. However, this approach would also require a significant investment in time and resources. Industry Canada should therefore be realistic about the complexity and cost of the evaluation framework it tries to develop and sustain. The first priority should be an analytical framework that will provide information that will help to make program

design adjustments in a timely manner. The financial analyses already developed by the department and its consultants can provide the basis for this framework. The second priority would be to begin to build a more comprehensive analytical framework that could assist with the assessment of the overall value for money of the program.

II. Introduction

A. Our understanding of the assignment

Over the course of 1998 Industry Canada has been conducting a comprehensive review of the Small Business Loans Program (SBLA) and its regulations. This review is aimed at ensuring that, should the SBLA be continued, it remain relevant to the needs of small business, be financially self-sustaining, and have an adequate accountability framework. The department has launched a number of research activities and series of consultations with stakeholders.

KPMG was engaged by the department in April of 1998 to:

1. derive, from a variety of known sources (specifically a 1996 economic impact study for Industry Canada), information on the benefits of the SBLA in order to help Industry Canada measure program benefits in the future (Chapter III);

2. review work completed by Equinox Management Consultants for Industry Canada investigating the impact of various SBLA design changes (scenarios) on the default cost for SBLA loans, specifically the logic of the methodology and calculations, the accuracy of the calculations, the validity of assumptions, and possible areas for further examination (Chapter IV);

3. review options developed by Industry Canada on the future operation of the SBLA with respect to cost recovery over a ten year period (Chapter V); and

4. to provide advice to Industry Canada officials on the development of a cost-benefit analysis conceptual framework that could be used to assess program performance (Chapter VI).

This report is not meant to be a comprehensive review of the rationale for, or the benefits of, the SBLA. Rather, this report provides our findings with respect to the above noted tasks.

B. Background on the SBLA

Small business is a fast growing segment of the Canadian economy accounting for approximately 50 percent of private sector employment and 40 percent of economic output. However, small businesses are not always able to secure financing unless the owners are willing to include their personal assets.

The SBLA was established in 1961 to help small businesses obtain financing by providing loan guarantees to private sector lending institutions. The program aims to encourage lenders to make loans, on reasonable terms and conditions, for the establishment, expansion, modernization and improvement of small business enterprises, by offsetting a portion of the lenders' net losses in the event of default of a guaranteed loan. The SBLA is well known among the small business community and financial institutions.

From 1961 to 1993, the SBLA provided 90 percent financing on loans up to $100,000 to companies with sales less than $2 million a year at rates of prime plus one percent. Borrowers were charged a one-time registration fee of one percent of the value of the loan. The government registered approximately $500 million in loans per year during this period. On average, the number of claims per year in the five years ending on March 31, 1993, totaled about $38 million per annum.

On April 1, 1993, the SBLA changed significantly as the result of legislative amendments. These amendments included the provision of loans to firms with annual sales up to $5 million, loans of up to a maximum of $250,000, and 100 percent financing on eligible assets. The government also increased its share of the burden of loan losses to 90 percent of eligible claims. In addition, the registration fee was increased to two percent and the interest rate was raised to a maximum of prime plus 1.75 percent.

Given, the attractiveness of these amendments to lenders and borrowers, lending under the SBLA increased from $500 million annually to $2.5 billion in 1993/94 and $4.4 billion in 1994/95. The increased amount of lending led to increases in the number of defaults and dollar amounts of claims.

In response to this trend, total lending was reduced to $2.2 billion in 1995/96 and $2 billion in 1996/97. The government also reduced the percentage of eligible assets that could be financed from 100 to 90 percent, restored to pre-1993 proportional liability for loan losses (85 percent for the government), imposed a new 1.25 percent annual administration fee on loans made after March 31, 1995, and permitted lenders the ability to charge a maximum interest rate of prime plus three percent.

Total lending for 1998/99 will be approximately $2 billion.

In 1997, the Auditor General conducted an audit of the SBLA program to determine whether Industry Canada had the systems and practices in place to assess whether the program was being delivered efficiently, cost-effectively, and in accordance with the *Small Business Loans Act* and its regulations.

The Auditor General made observations and recommendations in five general areas.

1. **Objectives of the program and evaluation of results** — the Auditor General recommended that Industry Canada define clear statements of expected results for the SBLA and obtain relevant information on the results achieved by the program.

2. **Objective of moving toward cost recovery** — the Auditor General urged the department to undertake analysis of two possibly incompatible objectives - increasing access to financing for small business and moving toward cost recovery.

3. **Monitoring and forecasting** — the Auditor General recommended that the department monitor any developments in the performance of its guarantee portfolio that would prevent it from achieving its financial objective of moving toward cost recovery and should continue in its efforts to develop systems and practices to forecast the future performance of the program.

4. **Delivery of program** — the Auditor General identified three issues in the area: due diligence and due care in lending; project splitting; and interest paid to lenders.

5. **Accountability to Parliament** — the Auditor General noted that Industry Canada should ensure Parliamentarians have the information needed to evaluate whether the SBLA program is managed effectively and is achieving its objectives.

The Auditor-General's review, coupled with Industry Canada officials' desire to ensure that, going forward, the program could, through its design parameters help ensure access to financing

for small businesses while moving toward cost recovery over a ten year period prompted the department to commission this, and other, research studies on the SBLA.

The Minister of Industry will be going forward with a Memorandum to Cabinet including design changes for the SBLA to achieve these objectives at the end of May 1998.

III.
SBLA Benefits

A. Issues in the measurement of program benefits

To assess a government program such as the SBLA, it is important to try to specify as clearly as possible the objectives of the program.

It is our understanding from our discussions with Industry Canada officials, and from our review of various reports and documents on the SBLA, that the objective of the SBLA is to increase the availability of loans for the purposes of the establishment, expansion, modernization, and improvement of small business enterprises. This objective is pursued through the provision of loan guarantees to private sector lending institutions which encourage lenders to make loans, on reasonable terms and conditions to small firms. The objective of the program is to provide access to loans for small firms, not to encourage lenders to provide additional debt capital to risky firms.

In the case of the SBLA, this narrow program objective is articulated in terms of *filling financing gap*s. . Specifically, the purpose of the SBLA is to provide financing to small businesses where such financing would otherwise not be available due to (1) the small size of the loan, (2) a lack of collateral, (3) the high risk nature of the business, or (4) the high interest rate required by the lenders.

Therefore, in order to measure the effectiveness of the SBLA, one would want to measure the extent to which small firms which otherwise would not have access to financing as a result of the limitations identified above, were able to access financing. One would measure incrementality to this end.

Perhaps the most consistently difficult issue in assessing the benefits of SBLA-type programs is the question of incrementality - how much of the observed benefit would have occurred in the absence of the program. Although incrementality is easy to define at this general level, it becomes a more complex issue as one tries to quantify specific impacts of the SBLA.

In addition, the SBLA also has a number of intended benefits which may be defined as *enhancing economic and social welfare*. Intended economic benefits include employment and

wealth creation. Social benefits include the promotion of entrepreneurship in society and the maintenance of a vibrant small business sector. Indeed, one of the principal qualitative indicators that governments have typically employed in describing the success of programs such as the SBLA is the number of new jobs created, despite the fact that employment creation is not an explicit program objective.

In the following sections we attempt to review the conceptual issues and previous studies commissioned by Industry Canada in respect to the benefits of the SBLA. We begin with a summary of the recent studies followed by our thoughts on measuring incrementality, and different types of cost-benefit analysis which could be employed in assessing the benefits of the SBLA. These analyses range from more narrow approaches (assessment of the financial impact on the SBLA in terms of accessibility to financing for small firms versus default/claim costs) to broader approaches which attempt to assess the social benefit created by resources employed by the SBLA.

B. Summary of SBLA benefit studies

In this section we present a summary of three Industry Canada commissioned studies to measure the benefits of the SBLA program carried out between 1994 and 1996.

The purposes of this section are to present the methodological approaches used by the various study teams to review the benefits of the SBLA program and the results reported. It is beyond the scope of our study to express an opinion on the validity of the studies.

Between 1994 and 1996, Industry Canada commissioned three studies aimed at analyzing the benefits of the SBLA program. The studies were:

- *Impact of SBLA Lending: An Evaluation of the Economic Impacts of the SBLA Program* (Equinox Management Consultants with Allan Riding as principal investigator, 1996);
- *Recent Experience with the SBLA: Economic Impacts, Incrementality and Risk Profile Analysis* (George Haines and Allan Riding, Carleton University, 1994); and,

- *The Small Business Loans Act: Economic Impacts* (Informetrica, 1994).

Equinox Management Consultants Study, 1996

1. Overview and approach

In 1996, Industry Canada commissioned Equinox Management Consultants to evaluate the economic impacts of the SBLA program. The study, entitled *Impact of SBLA Lending: An Evaluation of the Economic Impacts of the SBLA Program*, used a combination of internal data drawn from borrower registration forms and external data from telephone interviewed of a large sample of SBLA loan recipients. The purpose of the study was to investigate three elements of SBLA program performance — lending activity, terms of credit, and economic impact.

2. Findings

Equinox's main findings included:

Lending activity

- The size of the average SBLA borrower is smaller than that of non-SBLA bank clients. This suggests that the program is meeting its goal of providing access to capital for small firms that would otherwise not have access to, or qualify for, traditional debt financing. This finding also indicates incrementality.

- The age of SBLA borrower firms is considerably less than that of non-SBLA bank borrower clients. Almost half of SBLA borrowers were classified as start-up firms or firms which were less than one year old at the time of the loan. By comparison, less than five percent of non-SBLA bank borrowers are start-ups. This finding indicates that the SBLA program is providing additional loans to those already provided by lenders through existing lending.

- Actual hiring attributable to SBLA loans by borrowers was, on average, higher than the borrowers had expected — 3.9 average actual hires versus anticipated hirings of 2.3.

Terms of lending

- The sectoral distribution of SBLA lending shifted between 1990 and 1996 with firms in the retail and services sectors making less use of the program while more use was made by firms in the transportation and manufacturing sectors.

- The average loan size increased significantly as of April 1993 corresponding with amendments to the SBLA. During the period of January-April 1993 the median loan size was $40,000. During this period 70 percent of loans were less than $50,000. As of April 1993, this amount increased to $50,000. During the period of May to December 1993 less than 60 percent of loans were less than $50,000.

- Terms of lending to SBLA borrowers vary by industry. The interest rates on loans also depend on the size of the firm, size of the loan, the age of the firm, and whether or not the borrower is a franchise.

- Term of maturity for SBLA loans depended on the industrial sector of the borrower, as well as the size of the loan, the size of the firm, the age of the firm, and whether or not the firm was a partnership or a franchise.

Economic impacts

- Approximately 54 percent of lending under the SBLA program was incremental. However, that incrementality had a variety of forms including lending to new firms, lending to young firms, lending to established firms unable to access debt capital, and lending to firms in distress.

- Approximately 121,000 people over the period of January to April 1993, and approximately 350,000 people over the period of May to December 1993 were employed by firms which received what could reasonably defined as incremental lending under the SBLA program.

Haines and Riding Study, 1994

1. Overview and approach

In 1994, Industry Canada commissioned George Haines and Allan Riding from Carleton University to evaluate the economic impacts of lending under the SBLA, the incrementality of SBLA loans, and the extent to which broadening of the eligibility criteria and increased take up of the program was likely to change default rates. The impetus for this study was 1993 amendments to the SBLA which resulted in unprecedented lending activity.

The report drew on empirical evidence from bank loan files, follow-up interviews with SBLA borrowers, and survey data from the Canadian Federation of Independent Business (CFIB) to address the issues of economic impact, incrementality, and risk profile analysis.

2. Key findings

Haines' and Riding's key findings included:

Economic impacts of SBLA lending

- SBLA borrowers tend to be smaller and more marginal than the general population of SME bank clients. Of note from the study team's survey was that:
    - 65 percent of respondents indicated sales increases as a result of the loan (by an average of $341,000 annually);
    - 88 percent of respondents reported that an average of 5 new jobs were created;
    - 29 percent of respondents reported cost decreases;
    - 9 percent of respondents reported an increased ability to export; and
    - 42 percent of respondents reported that the SBLA loan helped the firm to survive.

Issues of incrementality

- Almost 60 percent of SBLA loans are under $50,000 which, from the perspective of lenders, is not a cost-effective business to be in. Moreover, the study team found that bankers contend that lending to SMEs is generally an unprofitable segment of the banking business. These findings indicate incremental benefit of the SBLA program.

- The study team's survey results include:
    - 11 percent of respondents reported that all other loan requests had been turned down;
    - 50 percent of respondents believed that they could have borrowed elsewhere without the SBLA; and
    - 27 percent of respondents reported that the SBLA loan was not necessary for firm survival.
    - The study team found evidence to suggest that banks "may be reducing the funds available to small businesses as lines of credit and replacing these lines of credit with SBLA loans." This would suggest that operating or non-guaranteed loans are being discouraged more than guaranteed loans.
    - The study team found that 30 to 40 percent of SBLA loans were to firms that were among the least risky of lenders' portfolios. These findings imply that approximately 30 to 40 percent of SBLA lending is non-incremental.

Risk profile analysis

- The eligibility amendments to the Act (1993) were expected to change historical loan loss rates. In particular, the study team found that firms with annual revenues between $2 and $5 million were more likely to default than other firms.

Informetrica Study, 1994

1. Overview and approach

In 1994, Industry Canada commissioned Informetrica to estimate the general economic effects of loan insurance provided to lenders pursuant to the SBLA. The study, entitled *The Small Business Loans Act: Economic Impacts*, looked at "elements of the impact that can be traced to the SBLA program in that SBLA-related investment is introduced into the economy, and the consequent increase in the economy's productive capital stock."

The study proceeded from the premise that SBLA lending has two main influences.

1. Investment spending of those who are beneficiaries of SBLA loans is a demand on the production of the construction industry, manufacturers that produce durable goods, and the goods and services of suppliers in these directly affected industries.

2. Investment spending allocates the country's income to additional, potentially productive, real capital stock.

These firm-based views of the direct impact of financing new, productive fixed capital must be reflected in aggregate economic activity if there is to be a positive overall impact of the original lending.

The study team measured these influences using standard macroeconomic protocols — a base case view of economic activity was prepared assuming that the SBLA program did not exist, and then, a impact case view was prepared assuming that the SBLA program had been introduced into the economy.

The study team used an econometric model to formalize these measurements for each of the years from 1994 to 1998 employing The Informetrica Model (TIM).

2. Key findings

The key finding from the Informetrica study was that impacts on the economy from SBLA financed investment spending through successive years would be modest in terms of employment as a result of the equipment-intensive nature of program investment and the high direct and indirect import content of such spending. The study found that employment increases attributable to the program would be approximately 10,000 each year based on the team's estimate of how the new firms and capital would be impacting the economy year over year.

C. Measuring SBLA program benefits

The potential benefits of the SBLA can be considered from a number of perspectives. In terms of analyzing these benefits one can proceed from a narrow view with an assessment of the extent to which the SBLA is achieving its stated objective of providing accessibility to financing for small businesses, or one can employ a number of broader, more rigorous analyses aimed at assessing the economic impact of the program and its social benefits.

As mentioned earlier, in assessing whether or not the SBLA is achieving its stated objective one would want to assess the extent to which the loans it was providing were incremental in nature. This would require an analysis of the financing gap and the extent to which the SBLA was filling that gap.

Economic and social benefit analyses are also concerned with the incremental nature of the program but also investigate the impact of the program on economic indicators such as Gross Domestic Product, and taxes paid, and social benefit indicators such as productivity and enhancement of entrepreneurial spirit.

We begin this section we a discussion of incrementality followed by reviews of each of the above mentioned types of benefit-cost analysis (bridging the financing gap, economic impact, and social benefit).

1. The issue of incrementality

There are those who argue that[1], in a perfect market situation, a SBLA-type program would not be necessary given that the default rate for SBLA-type borrowers ought not to be greater than the default rate for non-SBLA borrowers with similar risk. In such a situation, banks would benefit from perfect market information (reducing the cost of due diligence) and lend money to small firms. If a SBLA-type program did exist in such a situation, the provision of loan guarantees to lenders and the associated program administration and default costs could be viewed as a subsidy to the private sector.

Others argue that loan guarantee initiatives are required to correct market imperfections. In this view, market intervention in the form of the SBLA addresses two market imperfections: the role of collateral in bankers' lending decisions (collateral small firms usually do not have); and, the high fixed cost of due diligence (relative to loan size) which makes it uneconomical for lenders to extend small loans.

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[1] *The views described in the following two paragraphs were debated at the International Round Table on Loan Guarantees sponsored by the Inter-American Development Bank in Washington D.C. in 1996.*

While the goal of the SBLA program is to improve accessibility for small firms, the presence of loan guarantees increases the willingness of lenders to take on additional risk in lending to small firms without the same level of due diligence. Therefore, the SBLA not only creates access for small "credit-worthy" firms but also firms which are riskier propositions. The result is a greater default rate for guaranteed loans versus non-guaranteed ones, which, in turn, emphasizes the need to compare the resulting program benefits with the default and administration costs of the program.

Therefore, the key to analyzing the performance of programs like the SBLA is measuring incrementality. Incrementality may be defined as *the advancement of loans to firms that would otherwise not be available*. Therefore, if the SBLA program were providing loans to firms which could have otherwise got those loans in the absence of the program, the program would have no incremental benefit.

However, incrementality takes on many forms. The incremental benefit of the program may be in providing credit where credit is otherwise unavailable, credit on more favourable terms, credit on a more timely basis, facilitating or initiating a working relationship between lender and borrower, or a combination of the above.

Incrementality is a complex and multi-dimensional issue. The following paragraphs focus on loan incrementality, that is, the effect of the program on the loans. A related but separate issue is the incrementality of program benefits, which is addressed thereafter.

Loan incrementality embodies two issues:

- Definition of incrementality — what are the criteria for incrementality?
- Measurement of incrementality — how do we determine whether the criteria are met?

Loan incrementality can be defined in many ways. In the 1996 Equinox Study the following criteria were used:

- The loan would not have been advanced without the program.
- The terms of the loan (e.g., maturity, interest rate) would not be as favourable without the program.

- The loan would not have been as big, or the scope of financing not as broad, without the program.
- The loan would not have been advanced in as timely a fashion without the program.
- The loan initiated or facilitated the working relationship between the borrower and the lending institution.

The 1994 Haines and Riding study defined incremental loans as those that were advanced to borrowers after they had exhausted all other financing avenues. Under this definition, the SBLA would act as a last resort lender.

There is no absolute definition of incrementality in the SBLA context. Rather, incrementality can be defined as broadly or as restrictively as policy makers desire, and is based on the definition of the program's objectives.

Regardless of the chosen definition, incrementality is difficult to determine because it requires the development and assessment of hypothetical events. For example, if the "lender of last resort" definition is chosen, the loan to a borrower who was turned down once would be incremental if it is likely that the borrower would be turned down by other lenders.

In most cases, incrementality can only be assessed, but not observed as a fact. The measurement of incrementality requires sound assumptions and the use of judgment. Assumptions must be logical and supported by empirical data.

2. Bridging the financing gap

At one level, the potential benefit of the SBLA program is in bridging of the financing gap experienced by small businesses. This calls for description and analysis of the financing gap, and an assessment of what role the program is playing in filling that gap.

Another way of assessing whether or not the program is bridging the financing gap is to profile the firms which have benefited from the program to determine the extent to which these firms represent the program's target population. Considerable information on this subject is contained in Equinox's 1996 study and Haines' and Riding's earlier program benefit study (1994).

3. Economic impact

Another way of assessing the benefits of the SBLA program is to consider its economic impact. We define economic impact as the effects of an industry or a set of economic activities on the Canadian economy. Typical indicators of economic impact include employment, Gross Domestic Product (GDP), and taxes paid. Economic impact can be measured at the borrower level (direct impact) and at the level of the total economy (total impact).

Since the SBLA program can best be thought of as a facilitator of loan transactions but not as an industry or a set of economic activities, it is difficult to assess its stand-alone economic impact.

One potential perspective is to analyze the economic impact of the total activities of SBLA program users. However, the program cannot take all the credit for such impact. This analysis would provide a sense of magnitude of the overall activities which the program played a role in; although, it would be more meaningful to concentrate on assessing the incremental (as opposed to total) economic benefits of the program.

The work completed by Equinox (1996) and Haines and Riding (1994) focuses on the "incremental" economic impact of the SBLA program, as opposed to the case without the SBLA. The results are based on surveys on borrowers. The economic impact indicators used include: additions to employment; other effects on borrowers including increases in sales, increases in profit, and enhancement of survival; improved timeliness of loan; and enhancement of relationship between borrower and banks.

It should be noted that a weakness of the Equinox and Haines and Riding approaches is that in measuring program benefits from the aggregate experiences of borrowers they neglect the "system-wide" view of program benefits. For example, the impact on the market shares of non-SBLA borrowers when SBLA borrowers enter their market.

The 1994 Infometrica study used an econometric model to determine the economic impact of the SBLA on the Canadian economy. Indicators used included: Gross Domestic Product (GDP), employment, business capital stock, and current account balance.

4. Social benefits

A comprehensive approach to measuring the costs and benefits of the SBLA would include the types of financial analyses commissioned by the department in recent years to measure incrementality, economic impact studies aimed at determining the program's effect on such indicators as Gross Domestic Product, and taxes paid, and full social benefit-cost analyses.

A social benefit-cost study would generally involve the following steps:

- a detailed definition of program objectives and the development of a list of alternatives which could also meet said objectives;
- identification of program (for each alternative) benefits (e.g., increases in productivity, increases in the standard of living and quality of life, increases in income and job creation, economic development, and enhancement of entrepreneurial spirit) and costs (e.g., program administration, default/claim costs);
- quantification of benefits and costs for each alternative;
- calculation of benefit-cost indicators such as net present value and benefit-cost ratios for each alternative.

D. Conclusions

While the studies we reviewed in this report go a long way in assisting Industry Canada to measure the benefits and costs of the SBLA, the current state of knowledge and data available on SBLA performance do not provide sufficient information for the department to make a quantitative bottom-line decision on program costs versus benefits. This is largely due to the fact that numerous recent changes to the program's parameters limit the availability of longitudinal data on the program necessary for such quantitative analysis.

As result we would recommend that the department confirm the objectives of the SBLA, determine the best means of achieving those objectives (i.e., operating parameters), and put systems in place to maximize the collection of data necessary to assess program performance.

The social-benefit approach to analyzing the program would yield the greatest amount of information on program performance but would also be the most expensive and time consuming.

IV.
SBLA Costs

In this chapter, we provide a review of findings from a series of simulations designed by Equinox Management Consultants in the Spring of 1998 (Allan Riding, principal investigator) to investigate the impact of various program design changes (scenarios) on the default cost for SBLA loans. We conclude with our recommendations on possible areas for further investigation.

A. Objective of Equinox's study

The key objective of the study conducted by Equinox was to estimate the consequences of changes to parameters under which the SBLA loan guarantee scheme might be offered. Highlights of the Equinox terms of reference were:

1. **Assembly of SBLA data:** To assemble in a machine readable form data from the SBLA loan files for a series of lending periods.

2. **Design of alternative scenarios:** In consultation with Industry Canada officials, to identify the range of reasonable and realistic values for various attributes of interest, and design various scenarios for the SBLA program.

3. **Base case estimation:** Estimate base case cost-effectiveness.

4. **Estimation of alternative scenarios:** Estimate the cost-effectiveness of alternative combinations of program design attributes as agreed to in step two.

5. **Report preparation:** Prepare a report which would include, among other things, a summary of the base case, historical estimates of program effectiveness, and a report on the relative impacts of changes to the program parameters of interest.

In conducting the study, the above terms of reference were refined through discussions between Industry Canada and Equinox to specify amongst other things, the parameters of interest for the alternative scenarios, definition and measures of cost-effective, and overall content of report.

B. Overview of Equinox's methodology and output

The work conducted by Equinox can be divided into two key components:

1. **Base Case Analysis**—establishment of a base scenario, and determination of the association between default rates and selected SBLA parameters/eligibility criteria through analysis of the recent historical experience of the SBLA program; and

2. **Analysis of Alternative Program Designs**—estimation of the impact on cost recovery of specific combinations of SBLA program design alternatives (simulations).

Below, we provide a summary of the methodology used by Equinox for each component, followed by some highlights of the key findings.

1. Base Case Analysis

The three main purposes of the base case analysis were to: 1) provide a sense of the current cost recovery situation of the program; 2) provide estimates of key variables that would feed into the second phase; and 3) generate benchmarks against which alternative program designs can be compared.

For the base case analysis, SBLA data from the following periods and sub-periods[2] were analyzed:

- Period 11 (April 1, 1990 to March 31, 1993)
- Period 12 (April 1, 1993 to March 31, 1995)—1.25 percent annual fee initiated.
- Period 12 (March 31, 1995 to December 31, 1995)—financing rate and guarantee rate reduced to 90 percent and 85 percent respectively.

[2] *Period 12 has three sub-periods.*

- Period 12 (since January 1, 1996).

The analysis included a series of breakdowns of the historical default rates and cost of claims by sector, age of business, purpose of loan, size of loan, and other dimensions deemed to be of interest, such as default rates in the initial year of loan. A synthesis of the cost estimates with previously-reported estimates of benefits and economic impacts was then carried out.

2. Highlights of Base Case Analysis

In the analysis of the historical data, patterns were identified with respect to how the portfolio and default patterns changed in response to changes in program parameters—these findings were fed into the simulation model developed by Equinox. In addition, some correlation with default rates were identified, including:

(a) **Loan size:** Historical results indicate that larger loans tend default more frequently, result in more claims (as they involve more capital), and also default earlier in the course of the loan. However, these outcomes could have been affected by the other parameters that were changed during the period analyzed, e.g., guarantee rates.

(b) **Age of firm:** Loans to start-up, and firms less than a year old, were observed to default more frequently. However, incrementality of the program is higher with loans to new and small business borrowers.

(c) **Sector:** The retail, and accommodation/food and beverage service sectors tended to have higher default and claims rates, and accounted for a large proportion of SBLA lending.

(d) **Use of loan:** Use of the SBLA loan for leasehold improvements, and to finance the SBLA registration fee resulted in higher rates of defaults compared to other categories.

(e) **Initial year defaults:** When guarantee rates were increased from 85 percent to 90 percent, higher rates of initial default were observed.

Because of the term inherent in SBLA loans, and the reporting lag which allows lenders up to 36 months to submit their claims, it is difficult to provide reliable conclusions for the most recent lending sub-period.

3. Analysis of Alternative Program Designs

To determine the default cost associated with various scenarios, Equinox designed a series of spreadsheets for the baseline and alternative scenarios. Operating parameters were specified as follows:

- portfolio size of $14 billion;
- interest rate on loans of 9 percent;
- administration fee of 2 percent;
- annual fee of 1.25 percent; and
- four program design scenarios plus baseline, differentiated by varying levels of financing and guarantee rates.

These scenarios have the following specifications (all else being equal at baseline):

Baseline	90% financing rate, and 85% guarantee level for all categories and loans sizes.
Scenario 1	90% financing rate, and 1) 80% guarantee level for loans > $150,000; 2) 80% guarantee level when funds are to be used for leasehold improvements.
Scenario 2	Financing rate of 75% for leasehold improvements.
Scenario 3	Combination of scenarios 1 and 2.
Scenario 4	80% financing rate across the board.

Exhibit IV-1 summarizes the differences between the baseline and alternative scenarios. Based on the series of simulations developed by Allan Riding, six sets of baseline and alternative scenarios were developed for six different assumed default rates: 9.0 percent, 8.5 percent, 8.0 percent, 7.5 percent, 7.0 percent, and 6.5 percent.

For comparison with the default cost, and to arrive at an estimate of cost recovery potential, Equinox also developed an amortization schedule over a 5-year loan pay-back period, and estimated fee income per dollar loan given a fixed percentage administrative fee and annual fee. Default cost was calculated on a per dollar basis. An absolute figure for shortfall (default costs

less income) was then determined on the assumption of a $14 billion portfolio. All figures for income, costs and shortfall were adjusted for present value at 6% interest rate.

A sample of Equinox's most current spreadsheets can be found in Appendix A, and an accompanying list of definitions for the spreadsheet items can be found in Appendix B of this report.

Exhibit IV-1
Program design parameters for baseline and alternative scenarios

	Baseline		Scenario 1		Scenario 2		Scenario 3		Scenario 4	
	≥$150,000	<$150,000	≥$150,000	<$150,000	≥$150,000	<$150,000	≥$150,000	<$150,000	≥$150,000	<$150,000
Portfolio	$14 billion	$14 billion	$14 billion	$14 billion	$14 billion	$14 billion	$14 billion	$14 billion	$14 billion	$14 billion
Financing rate										
Leasehold Improvements	90%	90%	90%	90%	75%	75%	75%	75%	80%	80%
Other	90%	90%	90%	90%	90%	90%	90%	90%	80%	80%
Level of Guarantee										
Leasehold Improvements	85%	85%	80%	80%	85%	85%	80%	80%	85%	85%
Other	85%	85%	80%	85%	85%	85%	80%	85%	85%	85%
Administration fee	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Annual fee	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%	1.25%

Note: *Variations from the baseline scenario is shown as a shaded cell.*

As identified above, there are two key outputs from Equinox's simulations: the default cost per dollar of loan; and, fee income per dollar of loan, from which the absolute figure for the shortfall on a $14 billion portfolio was derived.

Below, we present what we have interpreted to be the process by which the outputs have been determined. This review is based on our analysis of the spreadsheets, and discussions with Industry Canada and Equinox. An overview of Equinox's approach to the calculations can be found in Exhibit IV-2.

(a) Default cost as percentage of total portfolio

In arriving at the default cost, Equinox started with a $14 billion loan portfolio which was then distributed according to size and usage category of loan. This distribution was calculated using a weighting factor based on historical data from 1990-1997.

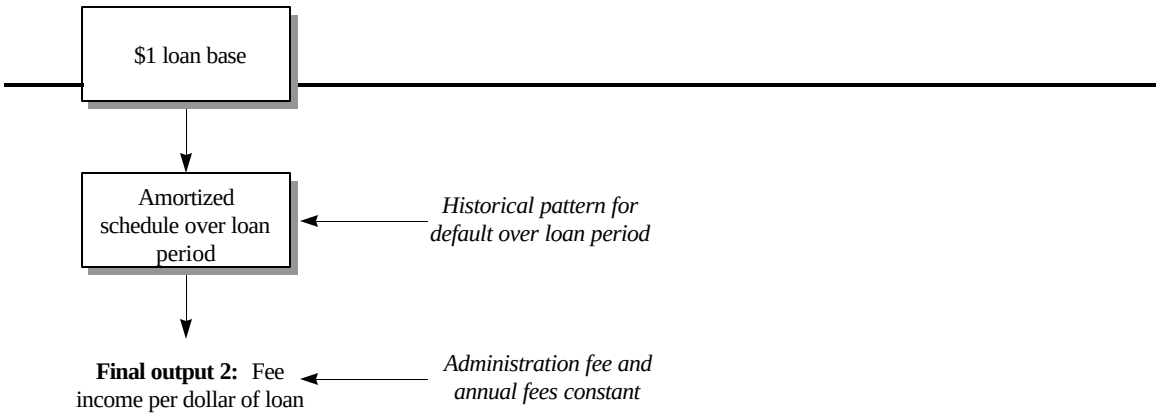
The historical rates by loan size and category for the same period were used as inputs, and extrapolated to reflect an assumed mean default rate which was designated for each series of simulations (from 6.5 percent to 9.0 percent). This rate reflects the number of SBLA-financed businesses that are expected to fail. The base case in each simulation series has the same default cost as the assumed mean default rate. Equinox then applied an adjustment factor for the default rates to account for the effect of changing the guarantee rate.

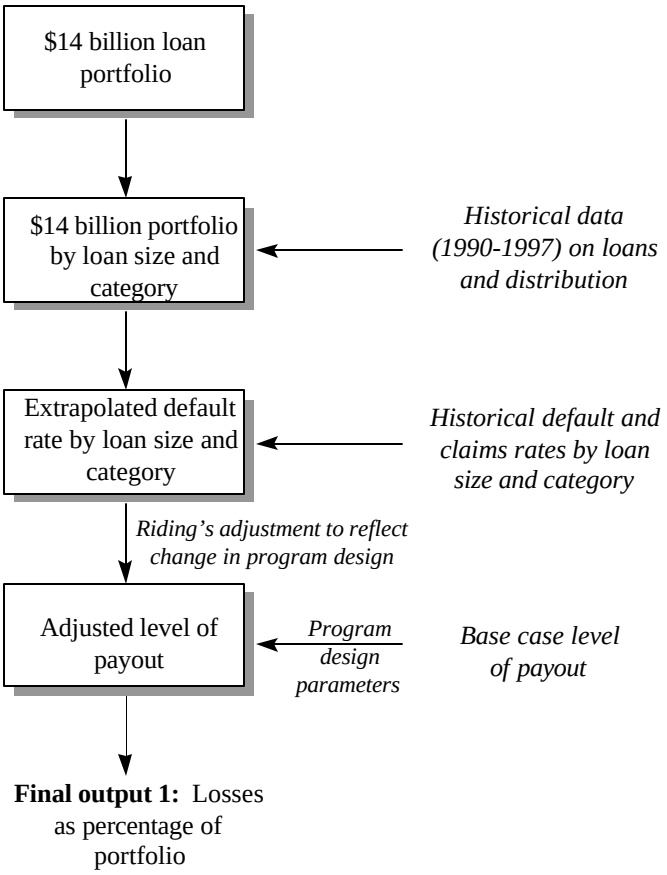
A claims rate was also calculated for each loan category based on historical data. The rate reflects the average claim amount as a percentage of the defaulted loan amount. The default cost, as a percentage of the $14 billion portfolio, was then calculated using the specified values for the financing rate and guarantee rate, as well as the adjusted default and claims rate, and to reflect what the government actually pays in the event that SBLA-financed businesses fail.

(b) Fee income per dollar loan

Using a $1 loan base, Equinox developed an amortization schedule over a 5-year loan pay back period at an interest rate of 9 percent. A schedule for the balance after claims was used with the following default rates: 2.0 percent in Year 1, 2.2 percent in Year 2, and 1.2 percent in Year 3, 0.5 percent in Year 4, and 0.2 percent in Year 5. Using a one time administration fee of 2 percent (or $0.02 per $1), and an annual fee applied to the balance each year after claims, the fee income per dollar loan was then calculated.

Exhibit IV-2
Overview of Equinox's calculations




$14 billion loan portfolio
$14 billion portfolio by loan size and category
Historical data (1990-1997) on loans and distribution
Extrapolated default rate by loan size and category
Historical default and claims rates by loan size and category
Riding's adjustment to reflect change in program design
Adjusted level of payout
Program design parameters
Base case level of payout
Final output 1: Losses as percentage of portfolio

C. Summary of Equinox's simulation results

Based on the results of the first series of simulations developed by Equinox, in each alternative scenario, the combination of the financing rate and guarantee rates resulted in lower default costs than the base scenario. The biggest decrease was evident in Scenario Three, representing a combination of Scenarios One and Two — 85 percent guarantee rate, 90 percent financing rate only on loans of less than $150,000 if NOT used to finance leasehold improvements or change in ownership, and 75 percent financing, 80 percent guarantee level for the latter two categories. A minor difference was seen in Scenario Two, in which the financing rate decreases to 75 percent from 90 percent for leasehold improvements and transfer of ownership categories.

Subsequent spreadsheets developed by Equinox included: the incorporation of an adjustment factor for average claims rates, combination of the change of ownership category into "other", reduction of the amortization pay-back period to 5 years, and an interest rate on loans of 9 percent. Rather than building a separate spreadsheet for each default rate option (from 6.5 percent to 9 percent), Equinox developed a base case, and summary spreadsheet that could be adjusted for each simulation. There was no direct analysis or comparison of results of the simulation.

D. Our conclusions

The results of the simulations carried out by Equinox should be interpreted carefully. While the calculations appear to be valid and logical, the results represent financial calculations using a set of relatively simple assumptions. There is limited empirical support for some of the assumptions largely because there have been many changes to the program parameters in recent years.

Our comments on Equinox's simulations are presented below according to the logic of methodology and calculations, the accuracy of calculations carried out, the validity of assumptions, and possible areas for further investigation.

1. Logic of methodology and calculations

Based on the terms of reference provided for Equinox's study (Section A of this chapter), the methodology used to calculate the costs of the program is valid in so far as it produces financial comparisons of fee income with pay out of claims under different program design scenarios.

The calculations result in an estimate of the proportion of SBLA-financed businesses that are expected to fail, the average claim as a percentage of the defaulted loan value, and the subsequent amount that could be expected to be paid out as a result of the failed business. The estimation of fee income provides a measure of the potential for cost recovery when compared with the calculated default costs.

The selection of the parameters (e.g., default rate, financed portion, guarantee level) used in the calculations appear appropriate for the simulations.

2. Accuracy of calculations

The flow of the calculations appears to be accurate, with the following exception:

- There is no linkage between the default rate used in calculating the claims cost and the default rate used in calculating the fee income. To be consistent, the two rates should be the same.

3. Validity of assumptions

The simulations allow for analysis of the effect of (a) decreasing the portion financed through SBLA; and, (b) decreasing the guarantee level on claims costs. These changes can affect claims in two ways:

- by reducing the risk exposure of the program and therefore reduce claims costs; and,
- by changing the risk profile of borrower using the program. If the changes in the program lead to lower risk borrowers, then claims costs are expected to be lower.

The first point is relatively straight forward. Equinox uses the following assumptions in the second point:

- Changing the portion of the loan financed has no impact on default rates.
- Changing the guarantee level from 85 percent to 80 percent will decrease default rates by 25 percent. For example, at guarantee level of 85 percent,

the default rate for the category "Change of Ownership/Less than $150K" is 4.62 percent (under the 9 percent overall default rate case). The default rate for the same category will decrease to 3.46 percent (4.62 percent x 0.75) at guarantee level of 80 percent. This assumption is based on a formula that the default rate in the portfolio of guaranteed loans is approximately equal to 1/(1-g) times the default rate of non-guaranteed loans.

As Equinox points out, loans made in the April 1, 1993 to December 31, 1994 period have significantly higher default rates than loan made in other periods. This tends to support the second assumption above. However, it must be noted that during that period, many other program variables are different including larger size of borrowers and loan sizes, and higher portion financed rate (100 percent) for equipment and land. Hence there is little empirical evidence to directly support the two assumptions above.

Some other assumptions we identified by reviewing the spreadsheets include:

- **Historical default rates:** The default rates used by Equinox were based on historical data. However, the value of these rates is not completely accurate because final default rates remain unknown. This is because of the number of loans that have yet to default within the periods being considered, and the time frame provided for lenders to file claims.

- **Forecasted default rates:** We did not assess the reasonableness of Industry Canada's forecasts. We assumed that the calculations were accurate.

- **Reduction factor:** Without comparable historical data on claim costs resulting from changes in guarantee rates, it is difficult to confirm whether the formula used to calculate the reduction factor for the default rates is accurate.

- **$14 billion portfolio size:** A portfolio size of $14 billion was used by Equinox; however, the results when expressed in terms of fee income per dollar of loan and claim costs per dollar of loan independent of the portfolio size. We believe the results in per dollar of loan terms are more meaningful since the scenarios are forward-looking. The purpose of the simulations is to analyze the effect on future cost recovery. The existing portfolio size is not directly relevant.

4. Possible areas for further investigation

The simulations give a useful indication of how overall costs vary between scenarios given differences in operating parameters—specifically the financing rate and the guarantee rate. There are a number of other parameters that, when changed, could impact the overall default cost and potential for cost recovery. These include administration and annual fees, loan size, geographic region, sector, loan category, pay-back amortization period for loan, size of eligible businesses, and other external economic variables such as employment and bankruptcy rates.

Changing the parameters of the program would have an impact on various factors, such as the number of loans taken out, the types of clients attracted (e.g., higher-risk versus lower risk, size of company) and the overall default cost. For example, while one scenario may be attractive in terms of higher potential fees, it may not necessarily be attractive or feasible in terms of attracting low risk companies.

It would therefore be worth investigating the specific indicators of cost-effectiveness that Industry Canada views to be important and look at how those indicators vary amongst the different scenarios. In so doing, a focused comparison could be made between the different scenarios and the baseline.

V.
Review of SBLA Program Options

In this chapter, we provide a review of four options developed by Industry Canada on the future operation of the SBLA.

It should be noted that our comments are qualitative in nature and based on research that has already been conducted on the impact of changing various aspects of the SBLA. Quantitative tools were not available for our review nor were we asked to create such tools.

A. Option One

Description: Base Case (with changes to improve portfolio risk, control interest costs, exclude refinancing of existing leasehold improvements) however, without any changes to program parameters (e.g., the guarantee rates, fees, maximum loan size, eligible firms etc.). Administrative changes would include: a) improving due care in all BIL[3] process; b) compliance audit; c) interim payments; d) enforcement in cases of fraud; e) redefine and register category of loans; f) security; g) collection of 1.25% administration fee; h) maintain limit of 25% on the option of personal guarantees; i) forecasting and monitoring of program; j) assumption of BIL permitting transfer from borrower to borrower; k) appraisal requirement extended to transfer of assets; l) Revenue Canada - right to set-off; m) Overpayment to lender - right to set-off.

The administrative changes proposed in the Option 1 Base Case can be divided into three key objectives: reduced incidence of loan default, lower administrative requirement/cost, and lower cost of default/improved cost recovery.

1. Reduced incidence of loan default

Items in the base case considered to have reduced incidence of loan default as a key objective include: (a) improving due care in all BIL process; (b) compliance audit; (d) enforcement in cases of fraud; (f) security; (h) limit of 25% on options of personal guarantees; (k) appraisal extended to transfer of assets.

[3] *Business improvement loans.*

a) Impact on key stakeholders

Government — Industry Canada would have to ensure that the processes involved in this option are conducted properly, on a regular basis, and reinforced. This would have the effect of increasing the overall administrative cost of the program. While the current definition of "cost recovery" used for SBLA program does not include administration costs, primarily because of its relatively small size in comparison to the overall cost of the program, the costs associated with implementing and maintaining the above measures should be considered relative to the overall savings resulting from lower default rates.

Lenders — The extent to which lenders are significantly impacted will depend on whether or not they have in place sufficiently strict screening and credit assessment processes for interested borrowers, and whether or not these processes are used on a consistent basis for both SBLA and non-SBLA loans.

Borrowers—In most cases, borrowers should already be providing information at a sufficient level of detail to allow a thorough credit analysis from the lender's perspective. Stricter information requirements for lenders will also be passed on to the borrowers. Implementation of the above changes should reduce the number of incidences of abuse of the SBLA program (e.g., loan splitting) and help ensure that the available resources go toward small companies requiring financing for purposes identified in the SBLA.

b) Impact on access and cost recovery goals

Two specific goals have been identified for the SBLA: 1) increased availability of loans for financing small business, and 2) cost-recovery for the program. The impact of the proposed changes on these goals could include:

- the level of complexity of administration set out by the government for lenders to satisfy program requirements (relative to incremental effort required the lenders to satisfy the requirements);

- the incremental level of effort relative to the benefits obtained by borrowers by going through application process for the SBLA program (and providing the information required by lenders); and

- the cost of implementation and on-going administration of the proposed changes for the lenders and for government.

While the risk, and subsequent cost, of default is likely to decrease with the above changes, access by small businesses may also be hindered if lenders decide not to participate because of complex administrative requirements, added cost to implement the changes, and extensive monitoring by the government. At the same time, stricter practices in information requirements are likely to discourage applications from larger, more established companies, who could more easily obtain financing through other commercial sources, possibly increases incrementality. Small business borrowers, however, may also be directly discouraged from applying if the level of information required for an SBLA loan is unnecessarily complex.

2. Lower administrative requirement/cost

Items included in the base case considered to have lower administrative requirements/costs as key objectives include: (j) assumption of BIL permitting transfer from borrower to borrower; (l) Revenues Canada right to set-off; and (m) overpayment to lender right to set-off.

a) Impact on key stakeholders

The changes identified in this category could benefit all key stakeholders. The key benefit being that each of the above changes reduces at least one administrative step for the government, lender, and/or the borrower, as well as the related time and cost.

When transferring a BIL from borrower "X" to borrower "Y", any new or changed information would be obtained from the new borrower. This would help ensure that the business is essentially the same and that financing is still going to be used as it was intended in the original application. As a result, there should be no significant changes to supporting credit documents (e.g., business plan, market analysis) which would affect the overall risk profile of the business. The proposed administrative change would also avoid the requirement of going through the entire loan application and assessment procedure by what is essentially the same business. This should save additional work for the borrower, the lender, as well as the government.

Using Revenue Canada refunds and SBLA overpayments to off-set outstanding loan and claims also reduces an administrative step, providing the borrower or lender gives their consent to the direct transfer.

b) Impact on access and cost recovery goals

The measures in this category are not expected to have a substantial impact on access to financing by small businesses, or cost recovery. They could, in fact, speed up the cost recovery process by putting some pressure on the borrower to repay the loan.

3. Lower cost of default/improved cost recovery

Items in the base case considered to have lower cost of default/increase cost recovery as a key objective include: (c) interim payments; (g) collection of 1.25 percent administration fee; (e) redefine and register category of loan; (i) forecasting and monitoring of program.

a) Impact on stakeholders

Government— Between April 1 and September 30, 1997, Industry Canada paid $15.6 million of interest to lenders on claims of $119.3 million. Reducing the time frame for lenders to submit their claims from 36 months to 24 months would lower interest costs. Collection of a 1.25 percent administration fee would provide annual revenues on outstanding balances and benefit the government.

Redefining and registering categories of loans into such groups as loan purpose, sector, region, size and age of business, would require initial time and resources to establish; however, in the long run, this effort would assist in providing useful information upon which the SBLA program can be better monitored. Such monitoring would allow for identification of riskier groups and categories, which would feed into future decisions related to the program.

Lenders— Lenders would be impacted by the proposed changes in so far as they would be required to speed up their collection activities.

Borrowers—Borrowers would only be affected by the requirement to provide information on their business and loan requirements according to the pre-defined categories.

b) Impact on access and cost recovery goals

Interim payments and the 1.25 percent administration fee would have an immediate impact on bringing the program closer to cost recovery through lower interest payments and increased income. While the administration fee is not expected to affect overall access to small business financing, any increases in the fee could potentially inhibit the number of borrowers.

The other two proposed changes (redefine and register category of loan, and forecasting of program) could be expected to allow for better program decisions that will result in lower claims cost overall in the future. One of the problems of trying to forecast the impact of program changes currently, is that there is insufficient empirical data to allow for the desired level of accuracy and reliability in the forecast. Continued and enhanced monitoring of the program will allow Industry Canada to make more accurate forecasts.

B. Option Two

Description: In addition to the Base Case in Option 1, change the Crown's contingent liability to approved lenders from the 90-50-10 rule to a 90-50-12-8 rule for the reimbursement of any loss the lender may sustain in an amount not exceeding the following formulae per legislated lending period. In respect of any BIL made after March 31, 1999: i) 90% of the first $250,000 in BILs made; ii) 50% of the second $250,000 in BILs made; iii) 12% of the third $500,000 in BILs made; iv) 8% of all subsequent BILs made.

The Auditor General's Report of December 1997 observed that there was significant variation amongst the rates of claims submitted by different lenders. Some lenders had noticeably higher rates of claims and/or higher proportion of defaulted loans in their portfolio than others. While there may be a number of factors contributing to this, one obvious possibility is that some lenders are not taking due care in making their SBLA loans. This then, has an impact on the cost of the program.

a) Impact on stakeholders

The change proposed in Option Two has the potential to reduce the claims cost to government; however, further analysis should be conducted to test the significance of the impact. By reducing the guarantee rate to 8 percent for all BILs in excess of $1,000,000, some lenders may respond by restricting their SBLA-related lending activity to less than $1,000,000. This could potentially reduce the level of access by borrowers.

The change could also have an impact on the larger institutions that have large loans outstanding as they would be required to take on a greater portion of the loss if they are not taking sufficient due care in their lending activities. Alternatively, the change might encourage lenders to exhibit greater care in assessing their loan candidates.

b) Impact on access and cost recovery goals

As indicated above, there should be further quantitative analysis conducted using data from the lenders with respect to the number and value of SBLA loans issued by each lender, the number and value of SLBA loan defaults and claims, and the percentage of impaired loans in each lender's portfolio. In the analysis of SBLA data for periods 11 and 12, conducted by Equinox, it was shown for example, that Caisse Populaires loans had higher default rates than Credit Union loans. This analysis could be carried further to identify the actual amounts and number of loans and defaults for the various institutions.

The overall impact of the change is expected to increase the prospects of cost recovery for the program. The impact on access by small businesses, however, is uncertain without further analysis, as some lenders may respond to the change by reducing the level of lending associated with the SBLA program.

C. Option Three

Description: In addition to the Base Case in Option 1: a) increase the amount of a project the entrepreneur would be required to self-finance, from 10 to 15 percent for all classes of loans (i.e., reduce coverage from 90% to 85% of projects); or b) reduce the guarantee rate from 85% to 80%.

Using the simulation model developed by Equinox from May 11, 1998, the following results were generated given the scenarios presented for Option Three assuming an interest rate on loan of 8 percent, overall default rate of 9 percent, registration fee of 2 percent and annual fee of 1.25 percent.

	Financing rate	Guarantee rate	Fee income/ dollar loan	Cost/dollar loan	% shortfall
Base Case	90%	85%	0.0475	0.0567	0.92%
Option 3a	85%	85%	0.0475	0.0535	0.60%
Option 3b	90%	80%	0.0475	0.0400	-0.75%

a) Impact on stakeholders

Based on the above results, the impact of changing the financing rate is relatively small compared to the impact of changing the level of guarantee.

Changing the financing rate would primarily affect the borrowers, as they would have the responsibility of finding alternate sources of financing to cover the additional 5 percent requirement. The change in financing rate could, however, reduce the risk and cost from the government's perspective but to a relatively small extent.

In contrast, reducing the guarantee rate would primarily affect the lenders, as they would be responsible for covering an additional 5 percent of the cost, should the loan default. This subsequently shifts greater risk to the lenders, who, in order to maintain the same level of profit, would be expected to have stricter requirements in assessing the credit worthiness of borrowers.

b) Impact on access and cost recovery goals

Results from Equinox's simulation model indicate that reducing the financing rate from 90 percent to 85 percent would have a relatively small positive impact on cost recovery for the program. At the same time, the change would also make financing more difficult for small business operations, as they would be required to look for an additional 5 percent from alternate sources—up to $10,000 for a $200,000 loan. Such a move would slightly increase the likelihood of cost recovery for the program.

In contrast, a reduction in the guarantee rate would have a relatively larger impact on cost recovery in that the loss per dollar loan is effectively reduced by shifting the cost over to the lender. This puts greater responsibility on the lender to ensure that greater care is used in assessing SBLA applications.

D. Option Four

Description: In addition to the Base Case in Option 1, reduce the maximum loan size to: a) $200,000; or b) $150,000 for all categories of loans.

As indicated from the analysis of SBLA data for periods 11 and 12 conducted by Equinox, larger loans tend to default more frequently, default earlier in the life of the loan, and entail larger dollar volumes. It should be noted though, that the data used, possibly reflects other changes within the periods analyzed, such as the guarantee rate.

In cases analyzed for periods 11 and 12, the size of loans less than $25,000 has consistently made up the largest proportion of lending (by number of loans)—a combined average of 34.5 percent for both periods. These smaller loans are generally representative of early-stage and start-up companies. Loans between $150,000 and $199,999 made up the smallest proportion of loans (3.9 percent of total loans), and those over $200,000 made up the second smallest proportion of loans (5.3 percent of total loans). These larger loans are more representative of larger firms that are more likely to qualify for traditional bank borrowing.

a) Impact on stakeholders

These changes should not impact on the SBLA's greatest source of incrementality, that being start-up and early stage firms whose loans have tended to be below the proposed maxima, the impact should be minimal. (Approximately 91 percent of all loans were under $150,000 in periods 11 and 12).

Limiting the loan size to $150,000 or $200,000 would likely reduce the incidence of fraud associated with SBLA lending. Incidences, such as loan splitting become more expensive from the lenders' perspective when the cost of incorporating several firms is a higher proportion of the capital involved.

b) Impact on access and cost recovery goals

Reducing the maximum loan size to $150,000 or $200,000 could be expected to reinforce the SBLA's objective to target small businesses and provide assistance in obtaining financing support. By limiting the amount to $150,000 rather than $200,000, the additional benefit could be lesser risk and overall lower default cost. At the same time, however, less revenues would be available through the annual, and registration, fee for the larger loans. Both costs and revenues would have to be compared, analyzed and weighed to assess their relative importance impact before suggesting whether the maximum loans should indeed be reduced.

VI. Conclusions

Viewed from the perspective of SBLA's stated objective — to fill financing gaps — the studies we reviewed provide Industry Canada with a wealth of information on the financial benefits and costs of the SBLA. The studies provide useful information on the extent to which financing is accessible to small firms which otherwise would not have access to capital and how much the program costs in terms of default rates.

These studies have provided sufficient information to vet various proposed program parameter options aimed at ensuring ongoing access to capital for small firms as well as movement toward program cost recovery over a ten year period.

In terms of the ultimate intended benefits of the SBLA — enhancing economic and social welfare, the current state of knowledge and data available on the SBLA's performance is insufficient to assess the overall value for money of the program. This is partly the result of numerous recent changes to the SBLA's operating parameters which have made it difficult to analyze long term data.

A comprehensive approach to measuring the costs and benefits of the SBLA would include the types of financial analyses commissioned by the department in recent years, economic impact studies aimed at determining the program's effect on such indicators as Gross Domestic Product and taxes paid, and full social benefit-cost analyses.

The objective of a financial analysis framework would be to determine the extent to which financing provided to firms under the SBLA bridges a financing gap experienced by small businesses. This calls for a description and analysis of the financing gap and an assessment of what role the program plays in filling the gap. Such a framework would include a detailed definition of and criteria for incrementality, and means for measuring the extent to which these criteria are met.

Criteria for the measurement of incrementality could include measuring the extent to which loans would or would not have been advanced without the program, the favourability of loan terms,

the size and scope of financing for loans, the timeliness of loans, and the initiation or facilitation of working relationships between borrowers and lenders. These criteria could then be measured through a combination of borrower and lender loan data and sampling of SBLA loan recipients.

A social benefit-cost study would generally involve the following steps:

- a detailed definition of program objectives and the development of a list of alternatives which could also meet these objectives;
- identification of program (for each alternative) benefits (e.g., increases in productivity, increases in the standard of living and quality of life, increases in income and job creation, economic development, and enhancement of entrepreneurial spirit) and costs (e.g., program administration, default/claim costs);
- quantification of benefits and costs for each alternative;
- calculation of benefit-cost indicators such as net present value and benefit-cost ratios for each alternative.

Such an approach would provide Industry Canada with the most comprehensive assessment of the costs and benefits of the SBLA. However, this approach would also require a significant investment in time and resources. Industry Canada should therefore be realistic about the complexity and cost of the evaluation framework it tries to develop and sustain. The first priority should be an analytical framework that will provide information that will help to make program design adjustments in a timely manner. The financial analyses already developed by the department and its consultants can provide the basis for this framework. The second priority would be to begin to build a more comprehensive analytical framework that could assist with the assessment of the overall value for money of the program.

Appendix A
Spreadsheet from Equinox's Simulation

Simulating Income for the SBLA Portfolio

Assumptions:

Historically, SBLA loans have average term of 63 months. A five-year amortization will be assumed.

Per-Dollar Amortization Table

Assumes interest rate of on loan = 8%

Year	Loan Balance (Opening)	Annual Payment	Interest Payment	Loan Balance (Closing)
0				1
1	1	($0.25)	$ 0.080	$ 0.830
2	$0.83	($0.25)	$ 0.066	$ 0.645
3	$0.65	($0.25)	$ 0.052	$ 0.447
4	$0.45	($0.25)	$ 0.036	$ 0.232
5	$0.23	($0.25)	$ 0.019	$ 0.000

Amend amortization table to reflect defaults as per Chart 3

Year	Loan Balance (Opening)	Annal Payment	Interest Payment	Loan Balance (Closing)	Annual Defaults	Net Balance
1	1	($0.25)	$ 0.080	$ 0.830	0.020	$0.813
2	$0.83	($0.25)	$ 0.066	$ 0.645	0.022	$0.631
3	$0.65	($0.25)	$ 0.052	$ 0.447	0.012	$0.441
4	$0.45	($0.25)	$ 0.036	$ 0.232	0.005	$0.231
5	$0.23	($0.25)	$ 0.019	$ 0.000	0.002	$0.000

Fee Structure Assumptions:	2%	on application	$1.88
	1.25%	annually	
Estimated fee income per dollar of loan =	**$**	**0.0465**	
Present value of fee income (@6%)	**$**	**0.0435**	
On a $14 billion portfolio, this implies estimated income of			**$ 650,338,245**
With a present value of			**$ 609,353,145**

Simulating Default Costs

Notional Size of Portfolio **$14,000,000,000**

Notional Distribution of Portfolio (as per Panel B of Table 5 and Table 6) broken down by loan size groups.

	Loan Size		Portfolio Breakdown ($)	
Loan Purpose	**<$150,000**	**>$150,000**	**<$150000**	**>$150000**
Leasehold Improvements	6.65%	5.26%	931,000,000	736,400,000
All other categories	57.94%	30.15%	8,111,600,000	4,221,000,000

Assumptions

(1) Proportion Financed

	Loan Size	
Loan Purpose	**<$150,000**	**>$150,000**
Leasehold Improvements	90%	90%
All other categories	90%	90%

(2) Guarantee Level

	Loan Size	
Loan Purpose	**<$150,000**	**>$150,000**
Leasehold Improvements	85%	85%
All other categories	85%	85%

(3) Default Rates

Assumed Overall Default Rate = **9%**

Distribution of Default Rates (based on data from Tables 5 and 6) given overal assumption of **9%**

	Loan Size	
Loan Purpose	**<$150,000**	**>$150,000**
Leasehold Improvements	14.40%	14.22%
All other categories	7.47%	9.27%

Claims History Data

	Average Claim per Dollar of Loan	
Loan Size Category	**<$150000**	**>$150000**
Leasehold Improvements	60.31%	62.13%
Other	63.12%	61.52%

Forecast Claims

Loan Size Category	**<$150000**	**>$150000**
Leasehold Improvements	80,847,542	65,059,297
Other	382,438,466	240,702,483

Appendix B
Definitions Of Items Identified in Equinox's Simulation Spreadsheets

Based on our review of the simulation spreadsheets, and discussions with Industry Canada, and Equinox Management Consultants, we document below the definitions for items identified within those spreadsheets, and sources of data used.

1. Average claims per loan (constant)

The average claims per loan are based on the historical data gathered claims amounts as a percentage of the value of defaulted loans for each category.

2. Shortfall on $14 billion portfolio (calculated)

This shortfall is calculated based on the difference between forecasted loss and income assuming a $14 billion portfolio.

3. Weights (constant)

The values identified for "weights" were calculated from historical data and represents the distribution of the total loans portfolio according to the different categories.

4. Default rates (constant)

the default rates are based on the historical data gathered on default amounts and loan amounts for each category.

5. Average assumed default rate (variable)

This figure was specified by Industry Canada for each simulation, varying from 6.5 percent to 9.0 percent. The range of figures were estimated based on past, current and forecasted future default rates of approximately 5 percent, 6.85 percent, and 9.0 percent respectively.

6. Assumed default rate (variable)

Assumed default rate for each category is an extrapolation of the historical default rate to the assumed default rate. It was calculated as the average assumed default rate (for all categories) divided by the average default rate (for all categories), multiplied by the historical default rate for each category.

7. Reduction (calculated)

Assumed default rates in each scenario were adjusted by a reduction factor to account for the effect of reducing the guarantee rate on the default rate. As the guarantee rate goes down, the factor also brings the default rate to a lower level. This factor was calculated based in part on analysis of empirical evidence from 1993 to 1994, when the guarantee rate was increased from 85 percent to 90 percent, and also estimated using a mathematical formula from Allan Riding's past research[4]. His research is based on the premise that given a lower guarantee rate, lenders tend to be more careful in selecting their who they lend to. The clients subsequently selected would tend to be lower risk, yielding the same profit to the lenders as other loans guaranteed at a higher rate.

8. Estimated losses (calculated)

Estimated losses represent the full default costs for all categories of loans in a particular scenario for a specified assumed default rate combined with given financing and guarantee rate for each category. The calculation was based on a summation of the reduced default rate multiplied by the loan amount for each category multiplied by factor of a scenario's financing rate multiplied by the guarantee rate divided by the financing rate and guarantee rate for the baseline scenario for each category.

9. Administration fee (constant)

The administration fee is a one time fee charged on the loan amount at the beginning of the loan period. This figure is kept constant at 2 percent for all scenarios.

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[4] *Financing Growth in Canada, Industry Canada publication.*

10. Annual fee (constant)

The annual fee, as the term implies, is applicable each year on the remaining balance of a loan. Lenders are allowed to charge a maximum fee of prime + 3 percent to borrowers, of which 1.25 percent always goes back to the program. The figure is kept constant at 1.25 percent for all scenarios.

11. Fee income per dollar of loan (constant)

Fee income per dollar of loan is calculated as a one time 2 percent administration fee ($0.02 for each $1) plus the annual percentage fee multiplied by the sum of the balance after claims over the amortization period.

12. Proportion financed, level of guarantee (variable)

The percentage values for proportion finances and level of guarantee are variables in the simulations. The differences in each scenario is shown on page 3 of the main report.

13. Balance, balance after claims (constant)

Balance amounts are based on a $1 loan amortized over a 5-year period, at 9 percent interest less claims amounts. Balance after claims amounts were calculated based from the balance amounts less default amounts of 2.0 percent in Year 1, 2.2 percent in Year 2, and 1.2 percent in Year 3, 0.5 percent in Year 4, and 0.2 percent in Year 5. The factors used in these calculations were identified based on previous studies, as also based on historical default rates.