Note

On June 12, 1998, the National Assembly passed the Act respecting Investissement Québec and Garantie-Québec. The Act was brought into effect by an order in council on August 21.

These two new corporations are made up of resources from the Société de développement industriel du Québec (SDI) and the Direction générale des investissements étrangers of the ministère de l'Industrie, du Commerce, de la Science et de la Technologie.

Given that this document describes the assessment method in effect at March 31, 1998, references to the SDI have been kept.
The Société de développement industriel du Québec (SDI) is pleased to present a description of its economic impact assessment method. We thereby hope to foster discussion about this method and the results of our financing operations in order to develop and improve our economic impact studies. We also hope the general public will realize that our approach is valid and that government intervention in the economy is justified.

Economic impact assessments highlight the value of our employees' work, guide the development of our programs and demonstrate the need for SDI financing by providing a measure of our organization’s importance within the Québec government as far as economic development is concerned.

The SDI is a leader with regard to impact assessment methodology among government departments and agencies that carry out similar activities in Québec and other Canadian provinces. We are therefore proud to present this document on the method that we have designed to evaluate the economic impacts of our operations.

It gives me great pleasure to present the members of the economic impact committee and their collaborators, to whom I extend my warm thanks.

Committee members:

Michel Deschamps, committee chairman, economist and head of the portfolio directors team
Benoit St-Laurent, economist and author of the document
Charles Henri Bussières, M.Sc., portfolio director
Andrée Giguère, B.Sc., administrative procedures analyst
Louis Lavigne, economist and portfolio director
Canh Leminh, economist and portfolio director

Former committee members:

Jean Cyr, Sylvie Jacques, Claude Meunier and Denis Thibault

Collaborators:

Economic consultants, Yves Rabeau (professor at the school of management sciences of the Université du Québec à Montréal and collaborator from April 1994 to December 1997) and Yves Dion (professor at the economy and management department of the Université du Québec à Rimouski and collaborator since December 1997) worked on the projects and portfolio components of the economic impact analyses, in addition to contributing a number of suggestions.

Gilbert Martin, project director, Direction des comptes économiques of the Bureau de la statistique du Québec.
Claire Lajeunessé, administration technician, revised and formatted the text.
Alison McGain, translator.
I would also like to thank all those who contributed in any way to preparing this document.

Louis L. Roquet, President and Chief Executive Officer
Société de développement industriel du Québec
SUMMARY

Since the creation of the economic impact committee in July 1994, the SDI has assessed the economic impact of its financing operations. It can thus calculate the portion of economic impacts that would not be generated if it did not intervene. Given that these assessments are based on methods that have evolved over the years, it is important to specify that the methodology described in this document is the one which was in effect at March 31, 1998. It involves four steps.

The first step consists in evaluating the overall economic impact of SDI activities on various economic parameters such as employment, added value, income tax and indirect taxes, and payroll taxes (CSST, HSF, QPP). This is measured using the Québec input-output model developed by the Bureau de la statistique du Québec (BSQ) for the purpose of evaluating the economic impact of projects (costs) implemented during a fiscal year, and that associated with the output (sales) of businesses in our portfolio.

The next step consists in identifying businesses that have submitted a project whose risk level exceeds that normally accepted by the private financial sector. To that end, a comparative analysis is carried out using seven financial ratios that measure the borrowing capacity of firms and an economic ratio that evaluates the probability of activity substitution.

The third step involves calculating the net increase in the activities (sales) of businesses identified previously. We can thus measure growth in the Government’s tax base that is associated with our activities, and thereby identify benefits that accrue to the Government.

The last step in the assessment process consists in evaluating the SDI’s economic profitability by comparing the benefits referred to above with the costs related to our activities. We thus obtain the benefit/cost ratio, which provides a measure of the economic profitability of SDI financing operations.

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1 Payroll taxes include contributions to the Commission de la Santé et de la Sécurité du travail (CSST), the Health Services Fund (HSF) and the Québec Pension Plan (QPP). The contribution to Québec’s Health Services Fund, which is administered by the Minister of Finance, replaced the source deduction formerly made for the Régie de l’assurance-maladie du Québec (RAMQ), and is calculated when reporting income.
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INTRODUCTION

This document is intended for SDI personnel, the various departments and agencies of the governments of Québec, other Canadian provinces and foreign countries, university professors and researchers, and the media.

Its purpose is to describe the economic impact assessment method used by the SDI since the creation of the economic impact committee in July 1994. Its preparation was justified by several factors, namely, the scope and complexity of studies aimed at assessing the economic impact of our activities, the need to apply the same method from one fiscal year to the next so that results will be accurate and comparable, and the need to disseminate such information.

The economic impact studies conducted by the SDI measure the impact of investment projects implemented by businesses to which we grant receive financial assistance, as well as the impact of using assets financed through such projects within these firms. These impacts are assessed using various parameters, such as employment, added value, income tax and indirect taxes, and payroll taxes (CSST, HSF, QPP). It should also be noted that an innovative method has been developed to measure economic impacts directly attributable to our activities. This method, which is based on seven financial ratios and one economic ratio, enables the Québec government to evaluate the economic benefits of our operations for Québec society.

Economic impact studies also measure the effectiveness of SDI programs, guide their development and highlight the importance of our employees' work.

This document, which is the first of two on economic impact assessments, explains the methodology used to conduct such studies. The second document will present an analysis of the results obtained since the assessment process was first implemented.

This document is organized as follows. The first chapter discusses the mandate of the economic impact committee and presents background information on the development of the economic impact assessment process. Chapter 2 presents the principles that guided the development of the assessment method, while chapters 3 and 4 describe, respectively, the projects and portfolio components of the assessment process. The method used to quantify and analyze the various economic impacts is discussed in Chapter 5. The next three chapters focus on impacts specifically attributable to our financing operations: Chapter 6 presents the principles underpinning the method employed to measure these impacts; Chapter 7, the rating system used to identify businesses in need of our assistance; and Chapter 8, the method employed to quantify, for projects financed and the SDI's portfolio, economic impacts directly attributable to SDI financing. The last chapter presents the benefit/cost ratio, or the benefits the Government derives from our operations (measured by economic impacts specifically attributable to SDI activities) compared with the cost of our programs to the Government.
1. MANDATE OF THE ECONOMIC IMPACT COMMITTEE AND BACKGROUND INFORMATION

1.1 Mandate and responsibilities

The economic impact committee has been entrusted with the task of analyzing the economic impact of the SDI. This multidisciplinary committee is composed of professionals from the financial, economic and data processing sectors, and is assisted by an economic consultant affiliated with a Québec university. The committee is responsible for developing an analytical method, validating and analyzing data, doing follow-up, and supervising, writing and promoting reports on the results of its studies.

1.2 Background information

Several situational and cyclical factors prompted the establishment of an ongoing economic impact assessment process.

Prior to 1987, the SDI’s economic department, which has since been disbanded, issued a notice of eligibility for each modern-technology business project submitted under the Investment Assistance Program for Innovative Businesses (section EDA4) and Businesses using Modern Technology (section TMA3). Each application was studied to determine its eligibility, first under section TMA3 and then under section EDA4.

To be eligible under section TMA3, businesses had to target growing markets, focus on products that were exportable and use modern technology (measure of productivity). Compliance with these criteria is now evaluated on the basis of sectoral recommendations made by the government departments concerned.

For the purposes of section EDA4, the SDI measured businesses’s sales growth (which had to surpass that of their activity sector) and profitability (firms had to have turned a profit for at least three years). In addition, businesses had to be controlled by Québec interests, have been in existence for at least three years, and have posted at least $750 000 in manufacturers’ sales over the preceding fiscal year.

A quantification table, taking the following factors into account, was used to maximize economic impacts:

- Québec content of raw materials and of machinery and equipment;
- volume of exports (above that of the businesses’ sector of activity);
- job growth (over 10%); and
- Québec’s participation in the activity sector (less than 25% of Canada’s total output in that sector).

To ensure the Québec economy would reap the benefits of projects, the payment of subsidies was contingent on fulfilment of the conditions pertaining to Québec content. Compliance was monitored by specialists from the technical assistance department. Subsidies could be paid in up to five instalments, the first of which was related to project implementation; the second, to the purchase of Québec machinery; the third, to the purchase of raw materials from Québec; and the fourth, to the sale of products outside Québec. Payment of the fifth instalment was contingent on compliance with a variable condition, which might be the same as one of the first four requirements.
The nature of our financing operations changed following the arrival of a new president, Gérald Tremblay, in the spring of 1986 and the introduction of the 1987-1992 program. Mr. Tremblay ushered in a new direction based on the concept of risk-sharing loans. It should be noted that, in 1985, the Saucier Commission had found that businesses were faced with under-capitalization problems. Based on the commission’s recommendations, the Act respecting Québec Business Investment Companies (QBICs) was introduced to remedy this situation.

A number of factors paved the way for the development of an ongoing economic impact assessment process in 1993, namely, the introduction of a computer-based financial analysis support system (SOISAF) in 1987, the implementation of more stringent file follow-up procedures in 1990 and the realization that a few years would be needed to set up a representative database or portfolio.

At the same time, certain economic and political factors created an environment conducive to putting the process in place. The publication of the Gobeil Report, the pressure brought to bear on the Government following the economic crisis of the early 1990s and the losses initially suffered by the SDI under the ad hoc “SMB Revitalization” and “SMB Recovery” programs prompted us to develop a tool for evaluating the benefits derived from our activities and those that accrued to the Government of Québec.

During a one-day study session organized for employees on June 8, 1994, a resolution was adopted to the effect that the SDI could assess the impact of its financing operations to a greater extent. The resolution specified that we should, in fulfilling our mission to foster economic development in Québec, make the benefits and other impacts of our activities known on a regular basis.

To adequately measure the performance of an organization like the SDI, it is necessary to evaluate externalities generated by its clients’ activities. Therefore, we have to use a tool that measures these effects with the help of various economic indicators. Such assessments complement our financial results, given that a government agency’s financial statements in no way evaluate the triggering or accelerator effect of its financing operations on its clients, or their ripple effect on the various economic agents in society.

Our assessment tool must also demonstrate that these economic impacts would not exist without our financial assistance. Since the SDI is a public body, it is important to evaluate the benefits we generate for different economic agents.

Therefore, the economic indicators used in impact assessments must measure the benefits reaped by business people, i.e. the level of activity engendered within the economy (added value); by workers, i.e. employment; and by our legal shareholder, the Government of Québec, i.e. revenue from income tax and indirect taxes, and payroll taxes. This revenue is redistributed among the members of society through various government programs. In addition, job creation stemming from the activities of SDI clients reduces the cost of social programs.

According to Yves Rabeau, an economist at the school of management sciences of the Université du Québec à Montréal, "supporting the private sector through venture capital financing is justified from an economic standpoint when businesses have to assume a very high level of risk to carry out certain activities or when their initiatives generate benefits that are likely to accrue to the economy as a whole. State financial
support reduces the risk a business has to shoulder and fosters activities that will benefit several economic agents.\(^2\)

The first economic impact study was conducted for fiscal 1993-1994 with the help of Yves Rabeau. It focused solely on investment projects.

Economic impact studies for fiscal 1994-1995 and the following year targeted businesses’ sales as well as investment projects. However, in 1995-1996, we also measured economic impacts directly attributable to SDI financing operations, owing to the development of a new method. Assessments conducted by the BSQ do not provide any indication of the value of impacts that can be attributed to our financing operations and that would not be generated without our intervention. This new method, based on financial ratios, made it possible to measure the portion of economic impacts specifically attributable to the SDI.

The same elements were studied again in fiscal 1996-1997. In addition, however, thanks to further methodological developments, we were able to measure the economic impact of each project financed by the SDI and thus improve the assessment of economic impacts associated with our activities and complete our financial analyses.\(^3\)

Fiscal 1997-1998 was evaluated on the same basis as the previous fiscal year, using, however, an additional economic ratio.

**Results**

As soon as the economic impact committee began its work, the SDI communicated its methods and results both internally and externally. A number of Québec government agencies and departments, including the Secrétariat du Conseil du Trésor, the Conseil Exécutif, the ministère des Finances, the ministère de l’Industrie, du Commerce, de la Science et de la Technologie, the ministère de l’Agriculture, des Pêcheries et de l’Alimentation and the ministère de l’Énergie et des Ressources, reacted positively to the committee’s efforts. A paper describing its work, presented at the 1997 ACFAS (Association canadienne-française pour l’avancement des sciences) conference, was also well received.\(^4\)


2. BASIC PRINCIPLES GUIDING THE DEVELOPMENT OF THE METHOD

This chapter describes the basic principles that guided the development of the economic impact assessment method. They reflect our mission and corporate values, and take the operational constraints required to implement the method into account.

The mission of the SDI is to accelerate Québec’s economic development by making it possible to carry out projects whose risk level exceeds that normally accepted by private financial institutions. We work primarily with businesses whose growth is related to technological innovation and exports, and collaborate with economic agents in all regions of Québec. Our efforts complement those of other financial backers.

Two of the corporate values underpinning our mission were taken into consideration in designing our impact assessment method: first, “sound management of public finances,” which is achieved by optimizing the value of economic impacts and using the resources at our disposal; and second, “client satisfaction,” which involves reducing the amount of time it takes to process applications.

Based on these principles and the Rabeau Report, the economic impact committee submitted recommendations to management to the effect that the SDI should introduce an ongoing economic impact assessment process. The report described all the elements needed to carry out a detailed economic impact study. However, the proposed model was difficult to apply given the gap between data collection requirements and available resources. The committee therefore proposed a method that adhered to the following principles and corresponding corporate values:

- Reduce the number of requests for additional information by clients (client satisfaction) and the amount of time portfolio directors devote to this task (client satisfaction and use of available resources);
- Use data from the computer-based file management system (client satisfaction and use of available resources);
- Use data from government agencies able to assist the SDI (e.g. the BSQ, which has developed an input-output model for the Québec economy).

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5 See Yves Rabeau, Élaboration d’un système d’information visant à évaluer les retombées économiques de la Société de développement industriel du Québec (École des sciences de la gestion, UQAM, May 1994), preliminary report.
3. ECONOMIC IMPACT OF PROJECTS FINANCED

This chapter discusses the “projects” component of the assessment process. It describes the method used to evaluate the impact of investment, export, and research and development projects financed by the SDI during a fiscal year. It defines the types of impacts studied, lists the sample selection criteria and explains the various steps involved in assessing and analyzing the economic impact of the files selected.

3.1 Definition of impacts

Projects implemented by businesses generate activities such as site development, building construction or alterations and the production or installation of machinery and equipment, as well as expenses related to exports and research and development. These activities are carried out with the support of a number of professionals, including engineers, architects, notaries, lawyers and accountants. The use of assets acquired by our clients leads to an increase in the activities of these professionals, while the implementation of projects has effects that may be qualified as direct (i.e. affecting entrepreneurs working on project sites) and indirect (i.e. affecting entrepreneurs’ suppliers).

Since the time period over which a business implements a project is subject to certain limits, the impact of individual initiatives is temporary. However, given that, every year, the SDI authorizes additional assistance for new clients and for new projects submitted by existing clients, project financing as a whole has an ongoing impact.

In general, the SDI helps to finance over $1 billion in projects per year. For the purposes of our study, we attribute all the impacts associated with a project to the fiscal year in which financing is authorized even though the project's implementation may take two or three years. We decided that there was no need to adjust real total project costs on the basis of data available when the last instalments of financial assistance are paid, partly because such data have to be collected manually. Given that the impact of projects as a whole represents no more than 10% of global impacts, a 10% variation in costs has an impact of only 1% on overall results. Therefore, the amount of work required to make such adjustments is not justified.

The projects component of the assessment process evaluates the short-term economic impacts or effects of SDI financing operations under the corporation’s regular programs and government mandates. These effects are measured, for the various economic agents concerned, namely, the Government of Québec, consumers and businesses, using economic variables such as employment, added value, and Québec and Canadian government revenue from income tax, indirect taxes and payroll taxes (CSST, HSF, QPP, employment insurance). However, since we are a provincial agency, our studies focus mainly on Québec.

The number of jobs maintained or created by business projects is directly related to increased output. Added value, which is defined as the sum of salaries and wages and the net income of sole proprietorships, represents the economic value of this output. According to Yves Rabeau, “This output and the transactions it generates within the economy produce revenue for the Government of Québec: income tax, profits tax, tax on capital and transaction taxes (Québec sales tax, etc.). Owing to the economic activity sustained by SDI operations, the Québec government recovers part of the costs it assumes in supporting the corporation’s activities. Moreover, especially
in periods of high unemployment, output and transactions supported by SDI intervention may help to reduce social assistance costs to the State.\textsuperscript{6}

The assessment of the economic impact of \textit{projects} financed by the SDI is based on a detailed breakdown of project costs. Project implementation has an impact on entrepreneurs working on project sites (immediate suppliers) and their various suppliers (subsequent suppliers). Impacts affecting immediate suppliers are called direct effects, while those generated among subsequent suppliers are known as indirect effects, given that carrying out a project boosts output (added value) and creates jobs within the businesses concerned. The ripple effect, or impact of the initial expenditure, on suppliers as a whole is felt in the form of income and expenditures, since expenditures made by one supplier represent income for another. This process continues until the initial expenditure or “shock” has been completely distributed among successive stages of income generation and spending within the economy.

\subsection*{3.2 Population selected}

The analysis of the economic impact of SDI-funded \textit{projects} is based on the following financing operations\textsuperscript{7} (according to active files and programs in effect at the time of the study):

- section 7 of the Act respecting the Société de développement industriel du Québec (excluding the Technology Development Fund and the Canada-Quebec Subsidiary Agreement)
- the “credit for establishment” and “export development” sections of the Program for Export Development and the Business Financing Assistance Program;
- the Program of Financial Assistance for Cooperative Undertakings;
- the Program to Promote the Development of Cooperative Undertakings;
- the Program to Promote Investment and the “investment” section of the Business Financing Assistance Program;
- the Program to Promote Technological Development and Design and the “design innovation” and “technological innovation” sections of the Business Financing Assistance Program;
- the Program to Finance Tax Credits and the “tax credit financing” section of the Business Financing Assistance Program;
- the SMB Recovery Support Program;
- the Program to Promote the Grouping or Strategic Alliance of Businesses and the “strategic business alliance” section of the Business Financing Assistance Program;
- the Program to Promote Investment in Tourism and the “tourism investment” section of the Business Financing Assistance Program;
- the “buyer credit” section of the Business Financing Assistance Program (if a business has not benefited from other financing considered in assessing the economic impact of the SDI’s \textit{portfolio} \textsuperscript{8});
- the Private Investment and Job Creation Promotion Fund (FAIRE);


\textsuperscript{7} The codes for this population are given in Appendix B.

\textsuperscript{8} Because buyer credit constitutes an order equivalent to a sale and sales are considered in measuring the impact of the SDI’s \textit{portfolio}. 

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- the Business Start-up Investment Program and the Business Start-up Support Program (commonly known as the "Paillé Plan" and referred to hereafter as the "PDPE");
- SMB Re-start Program (ice storm).

The SDI decided to exclude the following financing operations:

- those relating to the Act respecting Québec Business Investment Companies (QBICs) and the Regulation respecting the capitalization of small and medium-sized businesses since both involve fiscal programs;
- financing under section 7 of the Act respecting the Société de développement industriel du Québec, as it pertains to the Technology Development Fund and the Canada-Quebec Subsidiary Agreement, since such operations bring at least one other government body into play;
- financing operations involving the sale of products, since such sales are considered in evaluating the economic impact of the SDI's portfolio.

### 3.3 File retrieval criteria

Files are retrieved from this population using the following criteria:

- financing has to be in the form of a loan, a guarantee or a subsidy and have been authorized during the fiscal year concerned, i.e. between April 1 and March 31;

- file status has to be “authorized,” “approved,” “to be administered” or “completed” (files relating to financing offers refused by businesses, and therefore classified as “rejected,” are excluded.)

### 3.4 Data gathered

Once files have been retrieved, data are gathered on project costs broken down according to buildings, equipment and machinery, working capital and refinancing. The data are derived from each company’s business plan and are included in the contract offer made to the firm. Since they are computerized when financing is authorized, their use does not increase the workload of our staff. The information systems branch is the only department that has been required to do additional work involving the development of the following data retrieval programs: "P1824 - investment project breakdown” and “P1850 - financing authorizations for fiscal year” (by sector and program). This branch is responsible for running these programs and revising them if necessary.

### 3.5 Grouping and validation of data

The data gathered using the above-mentioned retrieval programs are grouped before proceeding with econometric simulations. Projects are broken down as follows:

- by program, subdivided by major group (i.e. activity sector), according to two-digit SIC\(^9\) codes;
- by major group, regardless of program and excluding the PDPE;

\(^9\) Standard Industrial Classification of Statistics Canada.
If information is available at the time of the assessment, we exclude the portion of project costs incurred abroad.

Given that the information in our databank fluctuates and evolves, the data retrieved reflect the situation at the end of the SDI’s fiscal year.

- grand total for all programs and sectors excluding the PDPE; and
- grand PDPE total.

All results are verified before being sent to the BSQ and the economic consultant. The goal is to scrutinize the project breakdown to make sure there are no incongruities, to determine Québec content and to make corrections if necessary.

3.6 Special features

Project expenditures recorded in miscellaneous fields (especially for research and development or export projects) are integrated as follows:

- in “export” working capital, in the case of export programs;
- in “R&D” working capital, in the case of research and development programs;
- in “operations” working capital, in the case of investment programs; and
- in “other” working capital, in the case of other expenditures.

3.7 Storage of data

A backup copy of all files retrieved and data gathered is made and kept.

3.8 Timetable

The analysis of the economic impact of investment projects follows a tight schedule so that the results can be presented in our annual report. A first set of data is retrieved in mid March for verification purposes and a final set in April, which corresponds to the end of our fiscal year.

As soon as we receive the results from the BSQ and the economic consultant, we make them available (mid May) for publication in our annual report.
4. ECONOMIC IMPACT OF THE SDI’S PORTFOLIO

This chapter discusses the “portfolio” component of the assessment process. It defines and demonstrates the impact of activities associated with new assets acquired by SDI client businesses. It also discusses the steps involved in assessing their impact.

4.1 Definition of impacts

Once financed assets have been deployed, businesses use them to increase their activities (i.e. sales, direct effects) and those of their suppliers (i.e. purchases, indirect effects), and thereby heighten the impact of these assets on Quebec’s economy. Given that these assets are depreciated over a long period (5 to 10 years), impacts related to their use are ongoing and recurrent.

Such impacts are called structuring or medium-term effects because SDI financing operations are spread over several years and their impact is sometimes felt within economy for several years as well.

To measure impacts associated with the use of financed assets, we look at the activities of businesses in our portfolio. The goal is to analyze the economic impact of firms that receive SDI financial assistance. For this purpose, we quantify the impacts on Quebec’s economy of financing operations conducted between April 1, 1988 and June 30 of the fiscal year concerned. For example, the study period for fiscal 1997-1998 extended from April 1, 1988 to June 30, 1997. We considered the sales of businesses that were still in operation and still part of our portfolio. Therefore, businesses that had finished repaying their loan or that had failed were not taken into account.

To sell their goods and services, our client businesses place orders with their suppliers, thus generating economic impacts in the form of jobs and output or added value, as explained in Chapter 3. “The Government of Quebec derives revenue from these activities in the form of income tax, contributions and other taxes, which can be calculated using input-output tables. The Government thus recovers part of the amounts it invests in SDI assistance programs.”

4.2 Population selected

The analysis of the economic impact of the SDI’s portfolio is based on the following “to be administered” financing operations (according to active files and programs in effect at the time of the study):

- section 7 of the Act respecting the Société de développement industriel du Québec, excluding the Technology Development Fund and the Canada-Quebec Subsidiary Agreement;
- the Private Investment and Job Creation Promotion Fund (FAIRE);
- the “credit for establishment” and “export development” sections of the Program for Export Development, the Export Assistance Program and the Business Financing Assistance Program;
- the "formation of consortiums" section of the Export Assistance Program;

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² The codes for this population are given in Appendix B.
- the Program to Promote the Development of Cooperative Undertakings and the Program of Financial Assistance for Cooperative Undertakings;
- the "investment" section of the Program to Promote Investment, the Investment Assistance Program and the Business Financing Assistance Program;
- the “design” and “technological development” sections of the Program to Promote Technological Development and Design, the Program of Assistance for Research and Innovation Activities and the Business Financing Assistance Program;
- the Program of Assistance for Technological Innovation for New Businesses;
- the Act respecting the Agence québécoise de valorisation industrielle de la recherche;
- "ad hoc" loans under the Financial Assistance Program (SMB Revitalization);
- the SMB Recovery Support Program;
- the Program to Promote the Grouping or Strategic Alliance of Businesses, the Program of Assistance for the Grouping of Businesses and the “strategic business alliance” section of the Business Financing Assistance Program;
- the Program of Assistance to Tourist Investment, the Program to Promote Investment in Tourism and the “tourism investment” section of the Business Financing Assistance Program.

The SDI decided to exclude financing operations conducted prior to April 1, 1988, given the new form of financing introduced at that date, i.e. risk-sharing loans, which replaced subsidies. The following financing operations have also been excluded:

- those relating to the Act respecting Quebec Business Investment Companies (QBICs) and the Regulation respecting the capitalization of small and medium-sized businesses, since these are fiscal operations;
- financing operations under the PDPE, given that they were the object of a survey conducted in the spring of 1997 for the purpose of making a separate assessment of the economic impact of businesses in our portfolio that received financial assistance under these programs;
- financing of tax credits for research and development, since these financing operations do not require any follow-up, meaning that we do not have the financial statements needed to analyse them;
- financing under section 7 of the Act respecting the Société de développement industriel du Québec and derived from the Technology Development Fund and the Canada-Quebec Subsidiary Agreement, since such operations involve at least two government bodies;
- financing operations under the “buyer credit” section of the Business Financing Assistance Program, since this section is intended to finance orders, and no assets are deployed once sales are completed;
- financing operations with a risk level of 5, since they target businesses that might go bankrupt.

4.3 File retrieval criteria

The following criteria are used to retrieve a first set of files from the population selected:
- financing has to have been authorized after April 1, 1988;
- it has to be in the form of a loan, a guarantee or a subsidy; and
- file status has to be “to be administered.”

A second set of files is retrieved to pinpoint businesses whose fiscal year ends between July 1 and June 30 (businesses have six months to send us their financial statements, which are usually audited) and whose profit and loss statement has been entered into the computer-based financial analysis support system (SOISAF). For example, the portfolio assessment for fiscal 1997-1998 covered the period from July 1, 1996 to June 30, 1997.

4.4 Data gathered

The following data are gathered once files have been retrieved:¹⁴

- the number of businesses and authorized amounts that meet the first set of retrieval criteria;
- the number of businesses and authorized amounts that meet both the first and second sets of retrieval criteria;
- all data from profit and loss statements expressed in dollars and percentages.

The economic impact of our portfolio is evaluated using statements of profit and loss derived from the audited financial statements of our client businesses. Since these financial statements are computerized as part of financing operation monitoring procedures, using this data does not increase the workload of our staff. The information systems branch is the only department that has been required to do additional work involving the development of the following data retrieval program: “P1851- portfolio - statement of profit and loss” (by sector, program and level of funding authorized). This branch is responsible for running the program and revising it if necessary.

4.5 Grouping and validation of data

The data gathered using the above-mentioned retrieval program are grouped as follows to allow the BSQ to make econometric estimates:

- by program, subdivided by major group (i.e. activity sector), according to 2-digit SIC codes;
- by major group;
- by level of funding authorized,¹⁵ subdivided by major group;
- grand total for all programs and sectors.

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¹⁴ See example in Appendix G.

¹⁵ The various levels of funding authorized are presented in Appendix C.
Before the retrieval file, broken down by economic activity sector, program and level of authorized funding, is sent to the BSQ, it is printed out so that the data can be reviewed to ensure that total sales for the sectors as a whole correspond to the sum of the sales for each sector. This is done to avoid counting sales twice and thus overestimating economic impacts. This approach is based on the principle that a business must not appear in more than one activity sector (1 business = 1 SIC).

4.6 Calculation of financing that has been reimbursed - rationale

At the end of each fiscal year, we calculate the sales of businesses that have reimbursed the SDI, i.e. the sales of businesses that have left our portfolio according to the normal procedure. This makes it possible to better evaluate changes in sales from one year to the next. Nevertheless, businesses that reimburse the SDI and leave our portfolio continue to operate and generate economic impacts, which, however, are not accounted for in our analysis.

4.7 Calculation of financing that has been reimbursed - procedure

To monitor financing reimbursed during the year and sales stemming from this financial assistance, monthly reports ("P2925") listing files that have been closed are obtained from the SDI’s accounting and treasury branch for a one-year period beginning on January 31. These reports are used for consulting data from the financial management system (SYGEFI). The process involves selecting "eligible" files from the lists included in the reports using the retrieval criteria mentioned above, that is, the criteria pertaining to type of financing, authorization date, program and risk category.

Once a preliminary selection has been made, we check the status of the remaining files, keeping only those whose status is “completed.” These files are checked against financial transactions between the SDI and the businesses concerned to ensure the latter have actually reimbursed us. We eliminate loans that have been written off and disbursements in respect of losses incurred on loan guarantees.

This process makes it possible to obtain the final list of files for which financing has been reimbursed for the fiscal year concerned. It is then used to calculate sales. However, sales are not always available for the fiscal year concerned given that, in some cases, the pertinent financial information has not yet been computerized. Therefore, the estimate provided corresponds to a minimum. For example, sales for the 1997-1998 fiscal year totalled $338 million.

4.8 Storage of data

A backup copy of all files retrieved and data gathered is made and kept.
4.9 Timetable

The analysis of the economic impacts associated with the output of our client businesses follows a tight schedule so that the results can be presented in our annual report. The data needed for the analysis are retrieved\(^E\) in January.

The audited data are sent to the economic accounts branch of the BSQ and to the economic consultant in mid February. Once they have communicated their results to us, we synthesize the data and make them available for publication in our annual report.

To avoid providing an overly high estimate of global impacts in publishing the results, we use the total sales calculated for each activity sector to represent total sales per program and per level of authorized funding. This approach is based on the fact that each business is assigned only one SIC in order to minimize the risk of double counting of sales. It should be noted that a business may receive financial assistance under more than one program and benefit from more than one level of funding.

\(^E\) Given that the information in our databank fluctuates and evolves, the data retrieved reflect the situation between July 1 and June 30.
5. QUANTIFICATION AND ANALYSIS OF ECONOMIC IMPACTS

Once the data pertaining to projects financed and the SDI’s portfolio have been retrieved, grouped and verified, they are sent to the BSQ so that the economic accounts branch can do econometric simulations aimed at quantifying the impact of the deployment and use of SDI-funded assets on certain parameters of the Quebec economy. The economic consultant then analyzes the results obtained by the BSQ. This chapter discusses both of the steps involved in this process.

5.1 Econometric simulations by the BSQ

The data gathered by the information systems branch are sent to the BSQ (and the economic consultant) to allow the economic accounts branch to conduct an economic impact assessment. Econometric simulations are carried out for this purpose, using the Quebec input-output model based on the approach developed by the Russian economist Wassily Leontief. With this approach, the Quebec economy is divided into 209 sectors and 246 sub-sectors, and the economic impact of a project or output (sales) worth a given amount in a given sector is simulated. Simulations are conducted for each of the sectors and programs concerned.

The BSQ input-output model is updated periodically to take into account the most recent information gathered by the Census of Manufacturers as well as changes affecting tax tables. However, the model does not take the two following elements into consideration:

- induced effects, which may be defined as additional direct and indirect effects (total wages), reflecting the respending of income by people who have earned it, over and above autonomous spending (increased spending within a sector that may have an impact on the Quebec economy): in other words, new economic activities generated by individuals following an increase in their disposable income.

These effects are not evaluated because, according to economics literature, this would result in “double counting.” Net induced effects would then have to be estimated. This conclusion is based on the fact that the accounting equation “initial expenditure = value added at factor cost + indirect taxes - subsidies + other outputs + imports” no longer applies when induced effects are taken into consideration. In addition, given that household composition is not known, no information is available on the splitting of income between consumption and saving or on the nature of goods purchased (often luxury items).

- corporate tax, since this information is not requested during the census of Quebec businesses.

5.1.1 Projects

This section defines the economic parameters used in assessing the impact of projects financed by the SDI, as well as various effects recognized by economic theory.

According to this theory, there are three types of economic impacts: direct effects, indirect effects and induced effects.

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17 Reinjection of personal income into the economy through consumer spending.

18 Definitions of general terms used by the Bureau de la statistique du Quebec are given in Appendix D.
For the purposes of the BSQ's input-output model for Quebec, the effects of a project are similar to those associated with a specific shock in the form of autonomous spending that has an impact on a final demand sector.\textsuperscript{19} In other words, direct effects include direct effects within the final demand sector (those associated with the use of primary factors, i.e. labour and capital, and which generate added value within the sector) and direct effects on productive “immediate supplier” sectors (businesses involved in implementing a firm's project), which supply the final demand sector directly.

In the latter case, however, direct effects consist only of effects on immediate suppliers during the implementation of a project in a particular sector or under a particular program.

Indirect effects consist of those felt among subsequent suppliers.

To better situate the reader, the following table presents the results of econometric simulations for fiscal 1997-1998 using the BSQ input-output model.

Investment projects worth $2.1 billion authorized during the fiscal year required 15,293 persons per year among immediate suppliers (direct effects, businesses working on project sites), for a total of 22,139 persons per year. Added value, or the additional output generated by project implementation, amounted to $1.106 billion. This information allowed us to measure Quebec content, or the ratio, expressed as a percentage, between the increase in value added at factor cost and the simulated initial expenditure (project costs), i.e. $1.106 billion divided by $2.091 billion, or 52.9%. Quebec content can also be measured by calculating the ratio of the increase in gross domestic product at market price generated by the initial expenditure to the initial expenditure. Gross domestic product at market price is equal to the sum of value added at factor cost plus indirect taxes minus subsidies and other outputs. Using this method, Quebec content amounts to 53.6%, or $1.120 billion divided by $2.091 billion.

The method selected depends on which ratio is meant to be highlighted or maximized. Econometric simulations for fiscal 1997-1998 also revealed that the Quebec government will receive $100 million in income tax from people employed by the various suppliers. In addition, it will receive $7.6 million in sales tax and $5.4 million in specific taxes from transactions thus generated, as well as $97 million in payroll taxes, in the form of contributions to the CSST, the HSF and the QPP paid by employees of the suppliers involved in implementing projects.

\textsuperscript{19} Total amount that consumers, businesses, the Quebec government and foreigners are prepared to pay for goods and services.
Example of econometric simulation results generated by the BSQ input-output model
Table 1.2
Impact of SDI-funded investment projects totalling $2.1 billion on the Quebec economy (fiscal 1997-1998)

(in thousands of 1997 dollars)

<table>
<thead>
<tr>
<th>Category</th>
<th>Direct effects</th>
<th></th>
<th>Indirect effects</th>
<th>Total effects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Within</td>
<td>Among immediate suppliers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labour (person-years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salaried employees</td>
<td>-</td>
<td>13,100.0</td>
<td>6,235.5</td>
<td>19,335.5</td>
</tr>
<tr>
<td>Other workers</td>
<td>-</td>
<td>2,193.4</td>
<td>609.8</td>
<td>2,803.2</td>
</tr>
<tr>
<td>Value added at factor cost</td>
<td>-</td>
<td>711,337</td>
<td>394,861</td>
<td>1,106,198</td>
</tr>
<tr>
<td>Salaries and wages before taxes</td>
<td>-</td>
<td>474,362</td>
<td>212,027</td>
<td>686,389</td>
</tr>
<tr>
<td>Net income of sole proprietorships</td>
<td>-</td>
<td>24,503</td>
<td>11,505</td>
<td>36,008</td>
</tr>
<tr>
<td>Other value added before taxes</td>
<td>-</td>
<td>212,473</td>
<td>171,328</td>
<td>383,801</td>
</tr>
<tr>
<td>Other outputs (1)</td>
<td>...</td>
<td>6</td>
<td>6,404</td>
<td>6,410</td>
</tr>
<tr>
<td>Subsidies</td>
<td>-</td>
<td>-4,769</td>
<td>-4,795</td>
<td>-9,564</td>
</tr>
<tr>
<td>Indirect taxes</td>
<td>...</td>
<td>2,988</td>
<td>14,735</td>
<td>17,723</td>
</tr>
<tr>
<td>Imports</td>
<td>...</td>
<td>510,392</td>
<td>460,674</td>
<td>971,066</td>
</tr>
<tr>
<td>Quebec government revenue</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Including: Income tax</td>
<td>-</td>
<td>69,873</td>
<td>30,647</td>
<td>100,520</td>
</tr>
<tr>
<td>- Sales tax</td>
<td>...</td>
<td>2,987</td>
<td>4,688</td>
<td>7,675</td>
</tr>
<tr>
<td>- Specific taxes</td>
<td>...</td>
<td>-</td>
<td>5,458</td>
<td>5,458</td>
</tr>
<tr>
<td>Federal government revenue</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Including: Income tax</td>
<td>-</td>
<td>55,582</td>
<td>24,476</td>
<td>80,058</td>
</tr>
<tr>
<td>- Sales tax</td>
<td>...</td>
<td>-</td>
<td>705</td>
<td>705</td>
</tr>
<tr>
<td>- Excise taxes and duties</td>
<td>...</td>
<td>-</td>
<td>3,884</td>
<td>3,884</td>
</tr>
<tr>
<td>Payroll taxes (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Quebec (QPP, HSF, CSST)</td>
<td>-</td>
<td>71,184</td>
<td>26,088</td>
<td>97,272</td>
</tr>
<tr>
<td>- Federal (employment insurance)</td>
<td>-</td>
<td>32,241</td>
<td>13,968</td>
<td>46,209</td>
</tr>
</tbody>
</table>

1 Reduction of inventories, sales of goods and services by government bodies and other
Labour

Represents the workload, in person years, of immediate suppliers (direct effects) and subsequent suppliers (indirect effects) who take part in implementing projects.

Value added at factor cost

Represents the output generated among immediate and subsequent suppliers who take part in implementing projects.

Income tax and indirect taxes

Represent the amount of income tax and indirect taxes that are paid to the Government of Quebec by employees of immediate and subsequent suppliers and that are generated by work required to participate in implementing projects.

Payroll taxes

Represents taxes paid to the Government of Quebec by employees of immediate and subsequent suppliers and that are generated by work required to take part in implementing projects. This parameter consists of contributions to the Commission de la Santé et de la Sécurité du travail (CSST), the Quebec Health Services Fund (HSF) and the Quebec Pension Plan (QPP). Employers alone pay contributions to the CSST.

5.1.2 Portfolio\(^2\)

This section defines the economic parameters associated with the use of assets financed by the SDI. As above, three types of economic impacts are identified: direct effects, indirect effects and induced effects. For the same reasons mentioned earlier, induced effects such as corporate tax are not evaluated.

For the purposes of the input-output model, the effects of our clients' output since 1988 are similar to those associated with a specific shock, such as increased activity, that has a direct impact on a production sector.\(^2\) Two assumptions are made in using the input-output model. First, it is assumed that exogenous growth in final demand is generated by the non-resident sector, and second, that exported goods and services are exempt from margins and indirect taxes. When the non-resident final demand sector is used (export sector), goods and services are not subject to margins or indirect taxes because they are taxed in the importing country (non-resident sector). However, purchases are evaluated at consumer prices, i.e. producer prices to which margins and indirect taxes are added. Both assumptions are used to ensure that output (sales) is shown at production prices (factory-gate prices), i.e. exempt from indirect taxes (GST and QST) and margins (transportation, wholesale and retail).

In this way, all direct effects are associated with the sector or business concerned, while indirect effects are observed among immediate and subsequent suppliers.

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\(^2\) As in the case of the projects component, definitions of general terms are given in Appendix D.

\(^2\) One of the 209 economic activity sectors used by the BSQ.
A BSQ table is not presented for this section since it is based on the same principles as that for the projects component, despite certain differences related to direct and indirect effects.

**Labour**

Represents the direct and indirect workload, in person years, that has to be shouldered by businesses (direct effects) and their immediate and subsequent suppliers (indirect effects) in order to sell their respective goods and services.

**Value added at factor cost**

Represents the direct and indirect output generated among businesses and their immediate and subsequent suppliers as a result of sales made by these firms and their suppliers.

**Income tax and indirect taxes**

Represent direct and indirect effects in the form of income tax and indirect taxes that are paid to the Government of Quebec by employees of businesses and their immediate and subsequent suppliers and that are generated by work required to sell their respective goods and services.

**Payroll taxes**

Represent direct and indirect effects in the form of taxes paid to the Government of Quebec by employees of businesses and their immediate and subsequent suppliers and that are generated by work required to sell their respective goods and services. This parameter consists of contributions to the Commission de la Santé et de la Sécurité du travail (CSST), the Quebec Health Services Fund (HSF) and the Quebec Pension Plan (QPP). Employers alone pay contributions to the CSST.

5.2 **External analysis**

The data we transmit to the BSQ and the results of its econometric simulations are analyzed by an economic consultant, who draws the necessary conclusions.
6. PRINCIPLES UNDERPINNING THE ASSESSMENT OF ECONOMIC IMPACTS ATTRIBUTABLE TO THE SDI

The aim of this chapter and the next two chapters is to demonstrate that the SDI, as mentioned in its mission statement, “accelerates the economic development of Quebec by making it possible to implement projects whose level of risk is higher than that normally accepted by private financial institutions.” They provide a detailed explanation of the method used to evaluate economic impacts directly attributable to the SDI.

Chapter 7 explains the rating method used for the purposes of the assessment, while Chapter 8 presents the impact quantification method. As for the present chapter, it outlines the principles that guide us in assessing the impacts associated with projects we finance (i.e. impacts attributable to our financing operations) and whose risk level exceeds that deemed acceptable by private sector institutions.

To evaluate these impacts, we first had to develop an objective method for identifying business that would not have been able to carry out projects without our assistance on account of their financial structure. We then developed a method for quantifying impacts directly attributable to our intervention based on the overall results of projects and operations of businesses that received financial support from the SDI.

6.1 Analysis of capital markets

Before going any further, it is essential to fully understand the operation of supply and demand on capital markets.

A number of private or public financial institutions offer businesses a range of financial products. The supply of such products is based on certain rules, while demand for them among businesses is based on selection criteria specific to each entrepreneur. The dynamics of capital supply and demand determine the allocation of financial resources on capital markets.

Supply of capital

Private and public financial institutions place various financial products at the disposal of business firms according to more or less strict rules. The presence of public financial institutions in this sector is justified by the fact that they participate in projects considered too risky for private financial institutions.

Venture capital companies make investments based on anticipated minimum returns in accordance with their investment policy, and their operations must comply with their portfolio mix requirements.

Private sector institutions decide to participate financially in a project based on various factors, such as security provided, credit history, the experience and qualities of managers or promoters, and profitability.

As a public institution, the SDI usually intervenes in areas that private institutions consider too risky: start-up operations, major expansions, research and development, export activities and projects involving the use of working capital for business recovery under difficult economic conditions. Our investment decisions depend more on the

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quality of a business plan than on the value of security or the hope of obtaining a return on our investment. Instead, we ensure that we have the legal tools needed to collect our returns, obtain securities, and so forth.

Given the type of financial products we offer, our operations complement those of private institutions rather than compete with them.

Nevertheless, entrepreneurs are the ones who decide whether or not to use our products. Therefore, we have to study what criteria promoters use to select financial products.

**Demand for capital**

Entrepreneurs and promoters choose financial products based on their financial knowledge, the time it takes to acquire them, financing costs, their firm’s financial structure and their business network. They use objective, subjective or strategic criteria. For example, a business may have to apply for the type of financing offered by the SDI on account of its financial structure and the rules governing private sector financing. Its decision is thus based on an objective selection criterion. However, the same business may opt for SDI financing because it wants to have the leeway needed to deal with unexpected situations, in which case its decision is based on a strategic selection criterion.

### 6.2 Impact assessment principles

According to our brief analysis of capital markets, the financial structure of a borrowing enterprise plays a determining role in whether or not it obtains the financing needed to carry out its project.

To identify businesses that have received financing for projects whose risk level is higher than that normally accepted by private financial institutions, we have developed a set of financial ratios derived from “0” pro forma balance sheets (based on audited balance sheets). These ratios have been grouped in four families. A fifth family has also been selected and is related to economic data. The families were chosen on the basis of our mission:

- the first family measures the relationship between the scale of a project and the size of the business that wants to carry it out;
- the second gauges the relationship between a business’s borrowing capacity and shareholders’ equity;
- the third measures a business’s borrowing capacity relative to the realizable value of securities;

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24 An “0” pro forma balance sheet is based on the balance sheet derived from the most recent audited (or interim) financial statements associated with a project and its financing.

25 See diagrams entitled “RATING METHOD (Investment)” and “RATING METHOD (Export development and research and development),” Chapter 7, Introduction.
- the fourth evaluates a business’s ability to use working capital to finance a project; and
- the fifth examines the probability of activity substitution.

To make the process more objective, each business is rated on a scale of 0 to 10 on the basis of mathematical relationships established between each financial ratio. This rating method, which is explained in detail in the next chapter, is used to identify projects whose risk level is higher than that usually accepted by private financial institutions.

Using the files thus identified, it is then necessary to determine the portion of economic impacts attributable to the SDI by calculating the difference between pre-project and post-project activities (sales). Once this change has been measured, it is possible to evaluate the portion of economic impacts attributable specifically to the SDI.

6.3 Population selected

The assessment of economic impacts that may be attributed to the SDI focuses on investment, export development and research and development projects that we have financed.

6.4 File retrieval criteria

Files are retrieved from this population on the basis of the following criteria:

- financing has to have been authorized during the fiscal year concerned, i.e. between April 1 and March 31;
- file status has to be “authorized,” “approved,” “to be administered” or “completed” (files relating to financing offers refused by businesses, and therefore classified as “rejected,” are excluded.)

6.5 Data gathered

The information needed to assess impacts directly attributable to the SDI is found on the "0" pro forma balance sheets prepared when files are analyzed.\textsuperscript{26} Therefore, using these balance sheets does not increase the workload of our staff. The information systems branch is the only department that has been required to do additional work involving the development of the following data retrieval program: "P1852 - incitative criteria assessment.” This branch is responsible for running the program.

Once data have been retrieved, they are transferred to an Excel file. The content is analyzed before refining it and grouping the data in the various categories needed to do the assessment (i.e. by sector and program).

6.6 Storage of data

A backup copy of all files retrieved and data gathered is made and kept.

\textsuperscript{26} The various items on the "0" pro forma balance sheet are presented in Appendix E.
6.7 Timetable

Data are retrieved in mid April. Files are then checked to ensure that the necessary information has been computerized and that no data recording errors were made when the "0" pro forma balance sheets were entered.
7. RATING METHOD

This chapter explains the rating method used by the SDI and the various elements involved in applying it, namely, ratio families, rating scales and the weights assigned to each family and ratio.

The aim of the chapter is to present a detailed description of the rating method employed to identify and select project files whose risk level exceeds that normally accepted by private financial institutions.

The rating method is applied to files authorized during a given fiscal year in one of the following three areas: investment, export development, or research and development.

Every year, projects or files from the preceding fiscal year are added to those of past years, thus building up the database examined and used for rating purposes.

The financial ratios employed in the rating process are recognized in financial circles, and are divided into four families. The weight assigned to each ratio and family has been established by the economic impact committee in collaboration with staff from the SDI and the ministère des Finances. A fifth family of ratios differs from the others in that it is based on sectoral growth rates; it is used to evaluate the probability of activity substitution.

Each of the five families accounts for 20% of a business’s final rating. The first four families, which focus on firms’ financial structure, have each been assigned a weight of 25% and account for 80% of the final rating. The fifth family, which deals with economic considerations, accounts for the remaining 20%.

Each financial ratio has its own rating scale. In the case of the first family, which comprises two ratios, the results obtained by each business for each ratio are compared with the average results for each of the three areas studied, namely, investment, export development and research and development. The deviation is then calculated and expressed as a percentage.

The rating scales were established on the basis of the financial logic underpinning each ratio and by taking the results for each file into account in order to obtain a normal distribution. These scales make it possible to rate the deviation between a business’s results and the benchmark used.

Four levels of mathematical relationships must be established to determine a firm’s final rating:

- at the first level, each ratio is calculated using data from “O” pro forma balance sheets;
- at the second level, the rating for each ratio is determined on the basis of the deviation between the business’s results and the recognized benchmark;
- at the third level, the rating for each family of ratios is established based on the ratings obtained for each ratio making up the family;
- at the fourth level, the final rating is calculated by adding together the ratings obtained for each family.

This rating method is shown on the following two diagrams.
RATING METHOD
(Investment)

Business's rating

Activity substitution
(20 %)

Sectoral growth -
(Growth of economy,
manufacturing sector or
service sector)

Financial rating
(80 %)

Scale of project
(25 %)

Borrowing capacity relative
to shareholders' equity
(25 %)

Borrowing capacity as a
function of the realizable
value of securities
(25 %)

Working capital
(25 %)

Total project cost/
Firm's total pre-project
assets
(50 %)

Total project cost/
Shareholders' pre-project
equity
(50 %)

New term loan/
Shareholders' pre-project
equity
(25 %)

New term loan/
+ SDI financing/
Pro forma shareholders' equity
(75 %)

New term loan/
Project's fixed
assets
(60 %)

[Net fixed assets (R-5) x 52 %
- Net long-term debt (R-5)] /
New term loan
(40 %)

Pro forma working
capital/
Sales P1
(15 %)
RATING METHOD
(Export development and research and development)

Business's rating

Activity substitution (20 %)

Sectoral growth - (Growth of economy, manufacturing sector or service sector)

Financial rating (80 %)

Scale of project (25 %)
- Total project cost/ Firm's total pre-project assets (50 %)
- Total project cost/ Shareholders'pre-project equity (50 %)

Borrowing capacity relative to shareholders'equity (25 %)
- New term loan + SDI financing/Pro format shareholders'equity (100 %)

Borrowing capacity as a function of the realizable value of securities (25 %)
- New term loan - [Project's fixed assets x 50 % + Value of available secondary securities] (100 %)

Working capital (25 %)
- Pro forma working capital/ Sales P1 (15 %)

Working capital (25 %)
- Pro forma working capital/ Sales P1 (15 %)
7.1 Family 1 - Scale of project

A project’s implementation must have an additional impact on the Québec economy, that is, an impact that can be directly attributed to this initiative and that would not have been felt had the project not received SDI support.

The scale of a project relative to the size of the business that wants to carry it out is the first element that can be used to measure a firm’s ability to launch a project with our support. The first family of ratios is designed to determine whether a project is fairly limited in scope (e.g., replacement of a piece of equipment) or whether it is essential to a firm’s survival and growth (e.g., a major, costly expansion of production capacity). In the latter case, we can assert that the project will have a significant additional impact on the Québec economy.

Section 7.1.1 defines the ratios used to measure the scale of projects. Sections 7.1.2, 7.1.3 and 7.1.4 present, respectively, the rating scale used, the weight assigned to each ratio in Family 1, and the weight assigned to the family as a whole compared with the four other families.

7.1.1 Ratios

Two ratios are used to measure the scale of a business project relative to a firm’s size and cash flow. **Ratio 1:**

\[
\text{Cost of project} \\
\text{Total assets (R-5)}^{28}
\]

measures the scale of a project relative to the risk assumed by shareholders. This ratio has been selected based on the principle that the larger a project is in comparison with a business’s cash flow, the more its success depends on the financial participation of other partners (financial institutions, venture capital companies and government).

7.1.2 Rating scales\(^ {29} \)

---

\(^ {28} \) The term R-5 indicates that the results for the various items on the firm’s “0” pro forma balance sheet are based on the most recent audited financial statements. They constitute “real” as opposed to “predictive” data. We can affirm that they correspond to pre-project results.

\(^ {29} \) Given the large amount of information involved, the scales for each ratio and area (investment, export development and research and development) are presented in an appendix. Each scale is explained, however, in this section.
As mentioned earlier, a scale of 0 to 10 is used to establish a rating for each ratio. In addition, based on the average result calculated for all files authorized in a given area (i.e. investment, export development, or research and development), it is possible to benchmark measurements and thus determine, on an empirical basis, the relative importance of a project to a business.

If the result obtained by a firm for ratio 1 is similar to the average calculated for files as a whole, i.e. if the deviation is 0%, the business is assigned a rating of 5. The more negative the deviation—i.e. the smaller the scale of a project relative to the size of a business, compared with the average observed for this ratio—the less necessary is our financial assistance. In other words, the more negative the deviation, the lower the rating, which gradually decreases from 4 to 0.

The opposite reasoning applies to ratings of 6 to 10 regardless of the ratio concerned, unless indicated otherwise and except when the business is a start-up company. Start-up businesses do not have any assets prior to project implementation (denominator = 0), and therefore, are assigned a rating of 10.

Ratio 2 is governed by the same logic as ratio 1. An example of the rating system is shown on the next page.
Example of how to calculate a ratio’s rating

<table>
<thead>
<tr>
<th>Calculation of ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ratio</td>
</tr>
<tr>
<td>Cost of project</td>
</tr>
<tr>
<td>Total assets (R-5)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Calculation of deviation (as a percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deviation (as a percentage)</td>
</tr>
<tr>
<td>(Result obtained by business - Average for area)</td>
</tr>
<tr>
<td>Average for area</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Calculation of rating - Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deviation (%)</td>
</tr>
<tr>
<td>greater than or equal to -100%</td>
</tr>
<tr>
<td>less than or equal to -65% but greater than -100%</td>
</tr>
<tr>
<td>less than or equal to -35% but greater than -65%</td>
</tr>
<tr>
<td>less than or equal to -15% but greater than -35%</td>
</tr>
<tr>
<td>less than 0 but greater than -15%</td>
</tr>
<tr>
<td>0%</td>
</tr>
<tr>
<td>greater than 0% but less than 20%</td>
</tr>
<tr>
<td>greater than or equal to 20% but less than 60%</td>
</tr>
<tr>
<td>greater than or equal to 60% but less than 120%</td>
</tr>
<tr>
<td>greater than or equal to 120% but less than 200%</td>
</tr>
<tr>
<td>greater than or equal to 200%</td>
</tr>
<tr>
<td>- 100%</td>
</tr>
</tbody>
</table>

* Start-up company

7.1.3 Ratio weight

The same weight has been assigned to ratios 1 and 2 since they both measure the relative importance of projects to businesses and thus carry equal weight within the family.

7.1.4 Family weight

Family 1 accounts for 20% of a business’s final rating.

7.2 Family 2 - Relationship between borrowing capacity and shareholder’s equity

Financial institutions often set the maximum amount of a loan on the basis of shareholders’ equity.

7.2.1 Ratios

In the area of investment, the following two ratios are used to measure the relationship between a business’s borrowing capacity and shareholders’ equity.
Ratio 3:

\[
\frac{\text{New term loan}}{\text{Shareholders’ equity (R-5)}}
\]

gauges a firm’s borrowing capacity relative to shareholders’ pre-project equity. This ratio has been selected based on the principle that financial institutions will not grant a loan to a business if the loan represents more than 100% of shareholders’ equity prior to project implementation. In other words, the level of financing offered by a lender is generally equivalent to the risk assumed by a firm’s shareholders. Businesses that want to implement projects whose costs exceed shareholders’ pre-project equity will have to contact more than one financial institution to obtain a loan.

Ratio 4:

\[
\frac{\text{New term loan} + \text{SDI financing}}{\text{Pro forma shareholders’ equity}}
\]

is based on the same idea as the previous ratio. However, it constitutes a better indicator because it takes new capital outlays and a business’s global financing needs into account. It measures the relationship between a firm’s borrowing capacity and shareholders’ equity by taking a project’s implementation, and thus SDI financing, into consideration.

Ratio 4 alone is considered in the areas of export development and research and development. Ratio 3 is not used because businesses that obtain SDI financing for projects in these areas rarely receive a new term loan, and would thus be assigned a rating of 0 for this ratio.

7.2.2 Rating scales

Based on the theoretical reasoning presented above, a business that obtains a result of 100% for ratio 3, given that the amount of its new term loan is equal to shareholders’ pre-project equity, receives a rating of 5. This result corresponds to a threshold, in that it indicates the point at which private financial institutions consider a project too risky. The smaller the new term loan compared with shareholders’ equity, the less necessary is SDI financing, because the business can obtain financing more easily from a single financial institution. It will thus obtain a lower rating for this ratio, i.e. between 4 and 0.

The same reasoning applies to ratio 4 for the areas of export development and research and development.

7.2.3 Ratio weight

In the area of investment, ratio 3 has been assigned a weight of 0.25 and ratio 4, a weight of 0.75. These values are based on empirical data gathered when projects are financed.
7.2.4 Family weight

Family 2 accounts for 20% of a firm's final rating.

7.3 Family 3 - Borrowing capacity as a function of the realizable value of securities

Financial institutions also set the maximum amount of financial assistance offered to businesses according to the realizable value of assets held as securities. We use two ratios to determine this limit, one of which calculates the realizable value of primary securities and the other the realizable value of assets held as secondary securities. These ratios were developed on the basis of security valuation practices at the SDI.

7.3.1 Ratios

Two ratios are used to gauge a business’s borrowing capacity as a function of the realizable value of its securities. In the area of investment, ratio 5:

\[
\frac{\text{New term loan}}{\text{Project’s fixed assets}}
\]

measures the realizable value of primary securities, that is, risk sharing, or the extent to which the various sources of financing available to businesses are used. Lenders decide whether to grant a loan based on the value of primary securities.

Ratio 6:

\[
\frac{[(\text{Net fixed assets}^{30} \times 52\%) - \text{Net long-term debt (R-5)}]}{\text{New term loan}}
\]

measures the realizable value of secondary securities and establishes a business’s borrowing capacity in relation to its existing assets and level of indebtedness. This ratio makes it possible to determine what secondary securities a business can offer once prior claims have been evaluated. New lenders look at the value of available secondary securities before deciding whether to grant a loan.

The method used to calculate the coefficient of 52% is explained below.\(^{31}\)

\(^{30}\) “Net fixed assets” include the following items: “land,” “buildings” and “machinery and equipment” net of depreciation, excluding intangible assets (deferred expenses, capitalized research and development costs, patents, licences, etc.).

\(^{31}\) According to the internal directive on the method for calculating the net value of a firm’s securities in the event of liquidation, the following items must be taken into account:

- 80% of the municipal assessment for land and buildings in administrative regions 03 (Québec), 06 (Montréal), 13 (Laval) and 16 (Montérégie), or 60% of the assessment in all other administrative regions;

- 30% of the most recent depreciated book value of machinery and equipment;

- 0% of leasehold improvements; and
Ratio 6 alone is used in the areas of export development and research and development because firms that obtain SDI financing for projects in these fields have mostly intangible assets and few fixed assets. Therefore, a result of 0 is usually observed for the ratios used in these two areas. To take this situation into account, ratios 5 and 6 have been reformulated as follows:

\[ \text{new term loan - (50% of project’s fixed assets + value of available secondary securities)} \]

### 7.3.2 Rating scales

In the area of investment, the smaller a business’s new term loan compared with its project’s fixed assets, the greater is the realizable value of securities and the less necessary is SDI financing. Therefore, the ratings associated with ratio 5 are low. A rating of 5—which corresponds to the point at which projects are deemed too risky by private sector institutions—is obtained when a new term loan represents at least 50% of a project’s fixed assets.

The opposite reasoning is applied in the case of ratio 6 to take into account the financial logic of the ratio. In other words, the more positive the result, the less essential is our financial assistance and the lower is the rating for the ratio. This means that the firm’s borrowing capacity is good, that its net fixed assets, according to the latest audited balance sheet, weighted by a factor of 52%, are higher than its long-term debt (also according to the most recent balance sheet) and that the difference between these two terms (fixed assets less debt) will cover the new term loan. Therefore, as the numerator (fixed assets less debt) decreases, without becoming negative, the rating for the ratio rises, from 0 (little or no need for SDI financial assistance) to 5. In the latter case, the result for the ratio is 0%, which marks the point at which projects become too risky for private financial institutions.

The rating scale for ratio 6 is somewhat unusual in the areas of export development and research and development. The point at which SDI financing becomes necessary is 8 rather than 5. The SDI is less justified in intervening when a business’ new term loan is fully secured by fixed assets and the realizable value of secondary securities. Firms in this situation obtain lower ratings.
7.3.3 Ratio weight

In the area of investment, ratio 5 accounts for 60% of the rating obtained for Family 3, while ratio 6 accounts for 40%.

7.3.4 Family weight

Like the previous two families, Family 3 accounts for 20% of a business’s final rating.

7.4 Family 4 - Working capital

A business may use its working capital to finance a project as long as this does not jeopardize its survival. On financial markets, it is generally acknowledged that, for a business to operate normally, its working capital must represent 15% of its projected sales. This standard applies mainly to manufacturing firms.

7.4.1 Ratio

This family comprises only one ratio (ratio 7):

Pro forma working capital
Projected sales (P1)\textsuperscript{32}

7.4.2 Rating scale

In accordance with the financial logic for this ratio, results are interpreted in the same way as those for the ratio relating to the realizable value of secondary securities, i.e. in a manner contrary to that for the other ratios. In other words, the higher the result, the lower the rating for ratio 7, since SDI financial assistance is less necessary.

A business will use its working capital to finance a project if the ratio of pro forma working capital to sales for the first forecast year following project implementation is greater than 15%. SDI financing is less justified the more the ratio’s results exceed 15%, thus bringing the rating down from 4 to 0. A rating of 5 is obtained when results are equal to 15%, which corresponds to the standard set.

7.4.3 Ratio weight

Since this is the only ratio in Family 4, it accounts for 100% of the result obtained for this family.

7.4.4 Family weight

Family 4 accounts for 20% of a business’s final rating.

7.5 Family 5 - Activity substitution

---

\textsuperscript{32} The term P1 refers to the first forecast year after a project has been implemented. The results concerned are those forecast by the business for the various items on its “O” pro forma balance sheet following the implementation of its project as a result of SDI financing.
As mentioned in Chapter 1, another economic indicator was added in fiscal 1997-1998. This new family makes it possible to identify and select businesses that are experiencing financial difficulties but that operate in a growing market. It is essential to avoid financing projects that lead to activity substitution among Québec businesses since public funds must be granted to firms whose activities represent a net gain for the Québec economy.

### 7.5.1 Ratio

The indicator used to measure the likelihood of activity substitution following the implementation of a business project does not involve a traditional ratio. The process consists in comparing the growth rate of the firm’s sector of activity with the appropriate economic sector: the Québec economy, in the case of primary sector businesses; the manufacturing sector, in the case of manufacturing firms; and the service sector, in the case of service firms.

Sectoral growth rates are calculated using BSQ data on the province’s gross domestic product at factor cost by industry from 1984 to 1996. The data used are based on prices in 1986 dollars. The years 1984 to 1996 were studied to take recent economic cycles into account. It was thus possible to identify trends that would not have emerged had only the last available data year been considered. In any case, data years prior to 1984 do not exist for Canadian provinces.

Growth rates for each economic activity sector were determined and benchmarked as follows: moving averages were computed for the first three years (1984-1986) and the last three (1994-1996). The growth rate for the intervening period was then calculated based on the number of years involved, i.e. 10.

### 7.5.2 Rating scale

A scale of 0 to 10 was established to rate businesses according to the deviation (%) calculated for ratio 8 (growth rate of business’s sector of activity minus benchmark growth rate divided by benchmark growth rate).

The scale was built to reflect the fact that the higher the growth rate of a business’s activity sector compared with the benchmark growth rate, the lower is the probability of activity substitution following project implementation and the greater is the need for SDI financing. Businesses in sectors that meet these conditions are given a high rating of between 6 and 10.

A rating of 5 marks the point at which projects are deemed too risky by private financial institutions. It is obtained when the growth rate of a firm’s sector of activity is equal to the benchmark growth rate.

### 7.5.3 Ratio weight

Since this is the only ratio in this family, it has been assigned a weight of 100%.

### 7.5.4 Family weight

Family 5 accounts for 20% of a business’s final rating.
7.6 Calculation of a business’s final rating

The formula explained above is used to rate each business on a scale of 0 to 10, using the four levels of mathematical relations presented in the introduction to this chapter.

The final rating of businesses that implement projects in the area of investment is calculated using the following algebraic formula:

\[
0.8 \left( 0.25 \times \text{Rating for ratio 1} \times 0.50 + \text{Rating for ratio 2} \times 0.50 + \text{Rating for ratio 3} \times 0.25 + \text{Rating for ratio 4} \times 0.75 \right) + 0.20 \left( \text{Rating for ratio 5} \times 0.60 + \text{Rating for ratio 6} \times 0.40 + \text{Rating for ratio 7} \times 1 + \text{Rating for ratio 8} \times 1 \right).
\]

The final rating of businesses that implement projects in the areas of export development or research and development is calculated using the following algebraic formula:

\[
0.8 \left( 0.25 \times \text{Rating for ratio 1} \times 0.50 + \text{Rating for ratio 2} \times 0.50 + \text{Rating for ratio 3} \times 1 + \text{Rating for ratio 4} \times 1 \right) + 0.20 \left( \text{Rating for ratio 5} \times 1 + \text{Rating for ratio 6} \times 1 \right).
\]

Using the rating for each business, we can quantify the latter’s financial structure in an impartial manner on the basis of objective criteria recognized by the financial industry.
8. METHOD USED TO QUANTIFY IMPACTS DIRECTLY ATTRIBUTABLE TO THE SDI

This chapter explains the method used to measure, once businesses have been selected, economic impacts attributable specifically to the SDI. It is a logical follow-up to chapters 6 and 7 which discussed, respectively, the principles guiding the assessment of this type of impact and the rating method used to select firms most in need of SDI financial assistance.

8.1 Objective

The SDI credits itself only with economic impacts generated by business projects whose risk level is higher than that usually accepted by private financial institutions and which are not very likely to involve activity substitution. Obviously, however, it does not credit itself with economic impacts associated with activities carried out prior to the implementation of projects it finances, except when a project is deemed essential to a business’s survival.

8.2 Classification of businesses

Businesses are divided into three groups based on the ratings obtained using the method described in the previous chapter.

8.2.1 Group 1 - Financial leeway

This group comprises businesses that use SDI financial products to obtain the financial leeway they need to deal with unexpected situations or errors. In such cases, SDI financing ensures that a firm’s activities will have an economic impact or that their impact will be reinforced. Businesses that obtain a rating of less than 5 are placed in this group.

8.2.2 Group 2 - High risk level

This group consists of businesses that want to implement projects whose risk level exceeds that normally accepted by private financial institutions and where the probability of activity substitution is low. Businesses that obtain a rating of 5 or over but of less than 7.25 are included in this group.

8.2.3 Group 3 - Essential project

This group is made up of businesses whose projects are essential to their survival and involve little likelihood of activity substitution. Businesses with a rating of 7.25 or over are placed in this group.

8.3 Quantifying the economic impact of projects financed

The SDI’s quantification method is conservative in that it does not consider businesses in Group 1 (financial leeway). This is not because their projects do not have an economic impact, but because these firms could have obtained financing from other sources. Therefore, we do not want to attribute the impact of their activities to the SDI.

For files relating to businesses in Group 2 (high risk level), we consider the amount of financing granted by the SDI for the programs concerned through loans or guaranteed loans. In the case of files pertaining to firms in Group 3, we look at total
Project financing by area (i.e. investment, export development and research and development), given that our financial assistance is deemed essential. This approach is the same as that used with regard to sales in evaluating the economic impact of the SDI’s portfolio.

The sum of these two results divided by total financing for the area concerned provides the portion of economic impacts directly attributable to the SDI.

### 8.4 Quantifying the economic impact of the SDI’s portfolio

To calculate the percentage of economic impacts that may be attributed directly to the use of assets financed by the SDI, we measure the change in the activities (sales) of businesses in Group 2.

This change is measured for each area studied by calculating the difference between actual activities and those of period P2. Period P2 sales are considered for businesses in Group 3.

The sum of these results by area for groups 2 and 3 is divided by total period P2 sales for the area concerned to obtain the portion of economic impacts directly attributable to the SDI’s portfolio.

The percentages obtained for each area and component (i.e. projects and portfolio) provide a measure, for each of the economic parameters evaluated by the BSQ, of the portion of economic impacts that may be attributed directly to the SDI.

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The term P2 refers to the second forecast year after a project has been implemented. The results concerned are those forecast by the business for the various items on its “O” pro forma balance sheet following the implementation of its project as a result of SDI financing.
9. BENEFIT/COST RATIO

This chapter defines the benefit/cost ratio used to measure the profitability of SDI activities as a whole. It discusses the method and elements employed to calculate the return on investment that our financing operations represent for Québec society.

9.1 Definition of the concept of benefits

As mentioned in Chapter 1, measuring the performance of a government financial institution, whose activities complement those of private sector institutions, cannot focus solely on the results presented in its financial statements. These results do not provide all the data needed for this purpose owing to the particular nature of this type of institution's shareholder, namely the Government of Québec, which is the only economic agent with the authority to tax other such agents. Under these circumstances, any government institution which can demonstrate that its activities promote the growth of its shareholder's tax base is entitled to record such growth as an external benefit.

Growth of the Government’s tax base is generated by businesses that carry out projects financed by the SDI. Such projects allow businesses to boost their level of activity, which in turn leads to an increase in their total payroll and in that of their suppliers. This larger wage bill fosters an increase in the tax base. The Government thus brings in more revenue from the two tax categories discussed in this document, i.e. income tax and indirect taxes, and payroll taxes, part of which it then redistributes among the various economic agents through its programs. These two parameters are excellent indicators for evaluating the profitability of SDI activities.

Using revenue from these two tax categories to measure the profitability of SDI financing operations is conservative for the following two reasons:

- first, because reductions in the cost of social programs associated with project implementation are not evaluated. Given our limited human and budgetary resources, it is impossible to carry out the complex task of calculating, based on job growth generated by payroll increases, the number of people who cease to participate in social programs;

- second, because we consider only benefits that accrue to the Government of Québec even though the federal government* and Québec municipalities also reap certain benefits.

In addition, as mentioned in Chapter 5, the BSQ's econometric model does not measure induced effects or corporate tax.

9.1.1 Methodology

This section explains the method used to evaluate the benefits the Government of Québec derives from SDI financing operations. It takes the following two elements into account:

- revenue from income tax and indirect taxes as well as from payroll taxes, as estimated by the BSQ;

---

* Benefits that accrue to the Government of Canada are evaluated by the BSQ.
the percentage of economic impacts directly attributable to SDI financing in the areas of investment, export development and research and development, as explained in Chapter 8.

Projects

Benefits derived from projects financed by the SDI are calculated by multiplying the preceding two elements together, and it is important to note that the method is valid for only the above-mentioned areas. However, the percentage calculated for investment is applied to programs where project type and business profile are similar, namely, programs targeting cooperatives, strategic alliances and tourism. For all other programs, the percentage is obtained by dividing the amount of financial assistance by the cost of projects.

Portfolio

As above, the percentage calculated for the area of investment is applied to programs where project type and business profile are similar, namely, programs directed at cooperatives, strategic alliances and tourism, as well as the SMB Recovery Program. A rate of 100% was assigned to the “SMB Revitalization” Program following discussions among the members of the economic impact committee and with employees of the ministère des Finances. All parties agreed that this “last resort” assistance program targeted businesses that would have gone bankrupt without SDI assistance, given that they were having temporary liquidity problems.

During the first few years economic impact studies were conducted, a rate of 5% was arbitrarily assigned to files authorized under section 7 of the Act respecting the Société de développement industriel du Québec and to those associated with the Private Investment and Job Creation Promotion Fund (FAIRE). In an effort to refine our benefit/cost analysis method, we carried out a detailed study on a major client in fiscal 1997-1998 for the purpose of measuring exports financed relative to total sales. This study confirmed the validity of the 5% rate.

The following table shows the rates assigned to the various types of programs:

<table>
<thead>
<tr>
<th>Population selected</th>
<th>Component</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>projects</td>
<td>portfolio</td>
</tr>
<tr>
<td>Section 7 of the Act respecting the SDI</td>
<td>23%</td>
<td>5%</td>
</tr>
<tr>
<td>Buyer credit*</td>
<td>61%</td>
<td>ND</td>
</tr>
<tr>
<td>Start-up</td>
<td>48%</td>
<td>ND</td>
</tr>
<tr>
<td>Export development</td>
<td>37%</td>
<td>15%</td>
</tr>
<tr>
<td>FAIRE*</td>
<td>12%</td>
<td>5%</td>
</tr>
<tr>
<td>Investment, cooperatives, strategic alliances and tourism</td>
<td>14%</td>
<td>20%</td>
</tr>
<tr>
<td>Research and development</td>
<td>41%</td>
<td>48%</td>
</tr>
<tr>
<td>Re-start (ice storm)</td>
<td>61%</td>
<td>ND</td>
</tr>
<tr>
<td>SMB Revitalization</td>
<td>ND</td>
<td>100%</td>
</tr>
<tr>
<td>SMB Recovery</td>
<td>ND</td>
<td>20%</td>
</tr>
</tbody>
</table>

* The SDI plans to re-examine the method used to evaluate economic impacts attributable to financing operations under these programs.

The sum of the results for each type of program identified above provides a measure of the benefits that accrue to the Québec government from SDI financing operations. However, as mentioned earlier, this assessment does not take into account cost reductions under programs administered by the ministère
de l’Emploi et de la Solidarité or other social programs. Nor does it consider qualitative benefits, induced effects or corporate tax.

9.2 Costs

The total program costs evaluated in this study are divided into three large categories:

- The first category consists of costs related to regular programs financed out of SDI funds. These costs are a function of changes in the provision for losses, interest rate increases based on the cost of funds to the SDI, and guarantee fees, premiums, options and management fees (now called “commitment fees”). These results lead to a loss or a gain, which in turn entails an increase or a decrease in costs.

- The second category includes costs related to programs or mandates managed on behalf of the Government. It comprises the following accounting items: write-offs, disbursements in respect of guarantees that did not lead to the creation of an asset, contributions for interest charges, and contributions for loans granted at lower rates.

- The third category comprises operating expenses, namely, salaries and wages, rent and other expenses. Under the current accounting system, these expenses cannot be charged to each of our programs or to those that we administer on behalf of the Government.

The sum of the costs making up these three categories represents the total cost of programs targeted by our economic impact assessments.

The cost of these programs has been calculated by the SDI’s accounting and treasury branch using information contained in our financial statements for the following items:

- Write-offs: the balance of principal and interest written off from the SDI’s financial statements when a file is closed.

- Disbursements in respect of guarantees that did not lead to the creation of an asset: a situation that arises in the case of almost all wind-ups. Assets are created, however, when loan guarantees are disbursed, as a precautionary measure, prior to winding-up operations to help businesses get back on their feet.

- Operating expenses: all expenses not directly related to a client’s file, namely, salaries and wages, fringe benefits, rent, data processing equipment, and so forth.

- Contributions for interest charges: the SDI grants interest-free loans at the Government’s request. The Government repays the interest on a quarterly basis on behalf of the client (who, according to the loan agreement, is not required to do so).

- Contributions for loans granted at lower rates: contributions paid notably under programs intended for cooperatives or businesses that registered for assistance under the Act respecting the Agence québécoise de valorisation industrielle de la recherche (repealed on December 20, 1990). The type of loan involved here
is granted to clients at the prime lending rate, with the Government paying the
difference between the cost to the SDI and the rate of interest granted to the
client.

- Net earnings (net loss).

9.3 Benefit/cost ratio

This ratio makes it possible to determine how profitable our financing operations are,
that is, to determine whether the benefits that accrue to the Government of Québec
outweigh the costs it incurs.

If the result obtained in calculating the benefit/cost ratio is higher than 1, we can affirm
that SDI financing operations have increased the Government's tax base.
CONCLUSION

This document demonstrates that economic impact studies have always played an important role within the Société de développement industriel du Québec. A series of situational and cyclical factors, both internal and external, have contributed to the establishment of an ongoing economic impact assessment process.

This document draws attention to the different types of economic impact studies conducted. These studies may be divided into two groups, depending on whether they deal with the overall economic impact of our activities or with impacts directly attributable to our financing operations.

This document also reveals that such studies are useful from several standpoints. They highlight the importance of our employees' work, guide the development of our programs and show that SDI financing operations are justified.

Lastly, this document shows that our economic impact studies not only evolve but are constantly refined. We hope that it will be of use to all those who carry out this type of assessment and will foster fruitful discussions that will improve the process as a whole.

Over the coming months, the SDI plans to re-examine its method for assessing economic impacts attributable to financing operations under the Private Investment and Job Creation Promotion Fund (FAIRE) and the “buyer credit” section of the Business Financing Assistance Program.
BIBLIOGRAPHY


Bureau de la statistique du Québec. Les études d’impact économique - deux exemples.


Yves Rabeau. Analyse des retombées économiques des programmes d’aide de la SDI. École des Sciences de la gestion, Université du Québec à Montréal, 1995.

Yves Rabeau. Élaboration d’un système d’information visant à évaluer les retombées économiques de la Société de développement industriel du Québec. École des Sciences de la gestion, Université du Québec à Montréal, 1994.

### List of codes

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<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
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<td>Act respecting the Agence québécoise de valorisation industrielle de la recherche section 7 of the Act respecting the Société de développement industriel du Québec</td>
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<tr>
<td>ART7</td>
<td>&quot;strategic business alliance&quot; section of the Business Financing Assistance Program</td>
</tr>
<tr>
<td>AS96</td>
<td>&quot;buyer credit&quot; section of the Business Financing Assistance Program</td>
</tr>
<tr>
<td>CI96</td>
<td>&quot;credit for establishment&quot; section of the Business Financing Assistance Program</td>
</tr>
<tr>
<td>CIMP</td>
<td>&quot;credit for establishment&quot; section of the Program for Export Development</td>
</tr>
<tr>
<td>COOP</td>
<td>Program of Financial Assistance for Cooperative Undertakings</td>
</tr>
<tr>
<td>CR96</td>
<td>&quot;tax credit financing&quot; section of the Business Financing Assistance Program</td>
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<tr>
<td>CRIC</td>
<td>Regulation respecting the capitalization of small and medium-sized businesses</td>
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<tr>
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<td>Program to Finance Tax Credits</td>
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<td>DE96</td>
<td>&quot;design innovation section&quot; of the Business Financing Assistance Program</td>
</tr>
<tr>
<td>DEEX</td>
<td>Program for Export Development</td>
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<tr>
<td>EACQ</td>
<td>Canada-Quebec Auxiliary Agreement</td>
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<tr>
<td>ENCO</td>
<td>Program to Promote the Development of Cooperative Undertakings</td>
</tr>
<tr>
<td>EC97</td>
<td>Program to Promote the Development of Cooperative Undertakings</td>
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<td>&quot;credit for establishment&quot; section of the Export Assistance Program</td>
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<td>&quot;consortium&quot; section of the Export Assistance Program</td>
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<td>EXFI</td>
<td>&quot;financing&quot; section of the Export Assistance Program</td>
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<td>FAA7</td>
<td>Private Investment and Job Creation Promotion Fund, specific projects</td>
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<tr>
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<td>Private Investment and Job Creation Promotion Fund, investment</td>
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<tr>
<td>FAMI</td>
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<td>Technology Development Fund</td>
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<td>&quot;investment&quot; section of the Business Financing Assistance Program</td>
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<tr>
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<td>Program of Assistance to Tourist Investment</td>
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<tr>
<td>INVE</td>
<td>Program to Promote Investment</td>
</tr>
<tr>
<td>IT96</td>
<td>&quot;technological innovation&quot; section of the Business Financing Assistance Program</td>
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<td>section 7 of the Act respecting the Société de développement industriel du Québec, government mandates</td>
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<tr>
<td>PARI</td>
<td>Program of Assistance for Technological Innovation for New Businesses</td>
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<tr>
<td>PDPE</td>
<td>initials used to designate the Business Start-up Investment Program and the Business Start-up Support Program (commonly known as the Paillé Plan)</td>
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<td>PIDE</td>
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<tr>
<td>PMPB</td>
<td>Small amount for balancing</td>
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<tr>
<td>PRAS</td>
<td>Program to Promote the Grouping or Strategic Alliance of Businesses</td>
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<tr>
<td>PREP</td>
<td>SMB Recovery Support Program</td>
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<tr>
<td>PRID</td>
<td>&quot;design&quot; section of the Program of Assistance for Research and Innovation Activities</td>
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</table>
Glossary of terms

Guarantee fees

Fees paid to the SDI as compensation for guarantees it offers financial institutions in respect of business loans. Annual fees, payable once a year and applicable to the balance of a loan guarantee.

Input-output table

Québec’s input-output model is based on very detailed data pertaining to the exchange of goods and services among economic agents. This structured set of data constitutes Québec's input-output table, which provides an accounting picture of Québec's economic production system. It shows relationships between the various sectors by indicating, for each so-called “transaction category” of goods and services, those sectors that use these goods and services and those that produce them. The table reveals “Who produces what” and “Who buys what”, in addition to indicating transaction amounts.

Interest rate increase based on the cost of funds to the SDI

One of the various types of premiums paid in respect of risks assumed by the SDI.

Management fees (commitment fees)

Fees charged a client for opening and studying its file. Represents a percentage of the financial assistance or guaranteed loan granted by the SDI.

Option

One of the various types of premiums required in respect of risks assumed by the SDI. Call option, equal to up to a certain percentage of a risk-sharing loan, that the SDI may take on a business’s participating shares. The option may be exercised at any time while financing is provided.
**Premium**

One of the various types of premiums paid in respect of risks assumed by the SDI. Represents a percentage of a business’s earnings and is payable once a year at the same time as a the firm’s risk-sharing loan payment.

**Provision for losses**

Represents a sum of money set aside by the SDI to cover possible losses. Used to better reallocate expenditures over time.
# Appendix B (Codes for population selected, by fiscal year)

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<th>Type</th>
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<th>Fiscal year</th>
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<td>PADD, PADD, CRIR</td>
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<td>PREP</td>
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<td>Tourism</td>
<td>PFIT, TO96</td>
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<td>ND</td>
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<td>PDPE</td>
<td>PIDE, PIDE</td>
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<td>CIMP, DEEX, EXCI, EXFI, EXCO</td>
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<td>ENCO, PACO, COOP</td>
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<td>PRAS, PARE</td>
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Appendix C (Levels of funding authorized)

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<td>5</td>
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<td>$2 500 001 and over</td>
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Appendix D (Definitions of general terms used by the BSQ)

The following definitions pertain to economic terms used in the econometric studies conducted by the Bureau de la statistique du Québec for the Société de développement industriel du Québec.

Labour (employment)

Labour represents the amount of work performed in the different sectors of Québec’s economy. The unit of measurement is the person-year, which is defined according to the number of hours normally worked by one person in one year in the sector concerned. Data are interpreted in terms of workload rather than number of jobs. For example, if 100 workers each do 10% overtime, this amounts to 110 person-years, or a 10% increase in labour, even though the number of persons employed remains unchanged. Similarly, two half-time jobs correspond to one person-year.

The term labour, in addition to including salaried employees in the various economic activity sectors, includes entrepreneurs who own sole proprietorships, such as farmers and the owners of farm businesses, as well as self-employed professionals. However, prior to the 1996-1997 fiscal year, the term labour included only salaried workers.

Value added at factor cost

This is a measure of the value of domestic production in the Québec economy, which is equal to the sum of factor payments, i.e. salaries and wages before taxes, net income of sole proprietorships and other value added before taxes.

Net income of sole proprietorships

Net income of sole proprietorships represents the earnings of sole proprietors through their business. This term also includes the net income of self-employed professionals, such as doctors, dentists, lawyers, engineers and so forth, as well as individuals’ net rental income.

Salaries and wages before taxes

Salaries and wages before taxes correspond to the gross payroll of salaried workers.

Other value added before taxes

This includes entrepreneurial income, the remuneration of capital (amortization, depletion and depreciation of buildings and equipment), interest charges and other expenses (employer contributions, fringe benefits, etc.).

Income tax and indirect taxes

Income taxes are calculated on the basis of income brackets using Québec and federal tax tables and taking into account the deductions allowed by the two income tax returns applicable to Québec. Taxable income (employment income minus deductions) is used to determine the amount of tax payable, from which non-refundable income tax credits are subtracted and to which surtaxes are added to obtain the “real” amount of income tax.

Indirect taxes consist of payments to the Québec and federal governments following the purchase of goods and services in the various activity sectors. Such taxes include the
Québec sales tax (QST), the federal sales tax (GST) and special taxes such as federal excise taxes and duties and specific Québec taxes applicable to fuel, alcoholic beverages, tobacco products and so forth. Sales tax amounts correspond to sales tax paid by the different sectors minus government rebates.

Payroll taxes

Québec payroll taxes consist of contributions to the Commission de la santé et de la sécurité du travail (CSST), the Québec Health Services Fund (HSF) and the Québec Pension Plan (QPP). The contribution rate set annually by the CSST varies according to the sector concerned, given that this rate is determined on the basis of occupational hazards. The HSF finances its activities through employer premiums corresponding to a fixed percentage of the total payroll, regardless of the sector concerned. Federal payroll taxes consist mainly of employer and employee contributions to the Employment Insurance Program (known prior to January 1997 as the Unemployment Insurance Program).
Appendix E ("0" pro forma balance sheet items)

BALANCE SHEET ITEMS ($ 000) - ASSETS

Cash on hand
Accounts receivable
Other accounts receivable
Liquid assets: other or total

ST - 1 LIQUID ASSETS

Raw materials
Work in process
Finished goods
Inventory: other or total

ST - 2 INVENTORY

Other current assets

ST - 3 QUICK ASSETS

Land
Buildings (net)
Machinery and equipment (net)
Automotive equipment (net)
Fixed assets: other or total

ST - 4 FIXED ASSETS

Deferred expenses
Advances by shareholders or affiliates
Other investments
Goodwill
Other intangible assets

ST - 5 TOTAL OTHER ASSETS

GT - 1 TOTAL ASSETS
BALANCE SHEET ITEMS ($ 000) - LIABILITIES

Bank loans
Accounts payable
Other accounts payable

ST - PAYABLES

Current portion of loan(s)
Current portion of other LTD
Miscellaneous liabilities

ST - OTHER LIABILITIES

ST - 6 LIABILITIES

Capital lease
SDI loan(s)
Other long-term debt

ST - 7 LONG-TERM DEBT

Deferred income taxes

ST - 8 LONG-TERM LIABILITIES

Shareholder advances
Common stock
Preferred stock
Risk-sharing loan - SDI
Appraisal increase credit
Other capital (subsidies, etc.)
Retained earnings

ST - 9 SHAREHOLDERS’ EQUITY

GT - 2 TOTAL LIABILITIES
### Appendix F (Rating scales)

#### Investment

**Family 1 - Scale of project**

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<th>Range</th>
<th>Rating</th>
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<td>deviation # - 100%</td>
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<td>(- 35% #deviation &gt; - 65%)</td>
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<td>(60% $ deviation &lt; 120%)</td>
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* start-up company
### Family 2 - Relationship between borrowing capacity and shareholders’ equity

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<th>New term loan + SDI financing</th>
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<td>Shareholders’ equity (R-5)</td>
<td>Pro forma shareholders’ equity</td>
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Family 3 - Borrowing capacity as a function of the realizable value of securities

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<th>Net fixed assets (R-5) X 52% - Net long-term debt (R-5) New term loan</th>
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## Family 4 - Working capital

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Family 5 - Activity substitution

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Export development and research and development

Family 1 - Scale of project

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<th>Range</th>
<th>Rating</th>
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<tr>
<td>(20% $ deviation &lt; 60%)</td>
<td>7</td>
<td>(20% $ deviation &lt; 60%)</td>
<td>7</td>
</tr>
<tr>
<td>(60% $ deviation &lt; 120%)</td>
<td>8</td>
<td>(60% $ deviation &lt; 120%)</td>
<td>8</td>
</tr>
<tr>
<td>(120% $ deviation &lt; 200%)</td>
<td>9</td>
<td>(120% $ deviation &lt; 200%)</td>
<td>9</td>
</tr>
<tr>
<td>deviation $ 200%</td>
<td>10</td>
<td>deviation $ 200%</td>
<td>10</td>
</tr>
<tr>
<td>deviation = - 100% *</td>
<td>10</td>
<td>deviation = - 100% *</td>
<td>10</td>
</tr>
</tbody>
</table>

* Start-up company
### Family 2 - Relationship between borrowing capacity and shareholders’ equity

**New term loan + SDI financing**  
**Pro forma shareholders’ equity**

<table>
<thead>
<tr>
<th>Range</th>
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<tbody>
<tr>
<td>deviation # - 40%</td>
<td>0</td>
</tr>
<tr>
<td>(10% #deviation &gt; - 40%)</td>
<td>1</td>
</tr>
<tr>
<td>(50% #deviation &gt; 10%)</td>
<td>2</td>
</tr>
<tr>
<td>(80% #deviation &gt; 50%)</td>
<td>3</td>
</tr>
<tr>
<td>(100% &lt; deviation &gt; 80%)</td>
<td>4</td>
</tr>
<tr>
<td>result = 100%</td>
<td>5</td>
</tr>
<tr>
<td>(100% &gt; deviation &lt; 120%)</td>
<td>6</td>
</tr>
<tr>
<td>(120% $ deviation &lt; 150%)</td>
<td>7</td>
</tr>
<tr>
<td>(150% $ deviation &lt; 190%)</td>
<td>8</td>
</tr>
<tr>
<td>(190% $ deviation &lt; 240%)</td>
<td>9</td>
</tr>
<tr>
<td>deviation $ 240%</td>
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</tr>
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</table>
Family 3 - Borrowing capacity as a function of the realizable value of securities

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>result # - 475</td>
<td>0</td>
</tr>
<tr>
<td>(- 330 # result &gt; - 475)</td>
<td>1</td>
</tr>
<tr>
<td>(- 220 # result &gt; - 330)</td>
<td>2</td>
</tr>
<tr>
<td>(- 135 # result &gt; - 220)</td>
<td>3</td>
</tr>
<tr>
<td>(- 75 # result &gt; - 135)</td>
<td>4</td>
</tr>
<tr>
<td>(- 35 # result &gt; - 75)</td>
<td>5</td>
</tr>
<tr>
<td>(- 15 # result &gt; - 35)</td>
<td>6</td>
</tr>
<tr>
<td>(0 &lt; result &gt; - 15)</td>
<td>7</td>
</tr>
<tr>
<td>result = 0</td>
<td>8</td>
</tr>
<tr>
<td>(0 &gt; result &lt; 100)</td>
<td>9</td>
</tr>
<tr>
<td>result $ 100</td>
<td>10</td>
</tr>
</tbody>
</table>
## Family 4 - Working capital

### Pro forma working capital

<table>
<thead>
<tr>
<th>Range</th>
<th>Cote</th>
</tr>
</thead>
<tbody>
<tr>
<td>result $ 65%</td>
<td>0</td>
</tr>
<tr>
<td>(45% $ result &lt; 65%)</td>
<td>1</td>
</tr>
<tr>
<td>(30% $ result &lt; 45%)</td>
<td>2</td>
</tr>
<tr>
<td>(20% $ result &lt; 30%)</td>
<td>3</td>
</tr>
<tr>
<td>(15% $ result &lt; 20%)</td>
<td>4</td>
</tr>
<tr>
<td>result = 15%</td>
<td>5</td>
</tr>
<tr>
<td>(15% &lt; result &gt; 10%)</td>
<td>6</td>
</tr>
<tr>
<td>(10% #result &gt; 0%)</td>
<td>7</td>
</tr>
<tr>
<td>(0% #result &gt; - 15%)</td>
<td>8</td>
</tr>
<tr>
<td>(- 15% #result &lt; - 35%)</td>
<td>9</td>
</tr>
<tr>
<td>result # -35%</td>
<td>10</td>
</tr>
</tbody>
</table>
Family 5 - Activity substitution

<table>
<thead>
<tr>
<th>Range</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>deviation # -150%</td>
<td>0</td>
</tr>
<tr>
<td>(-95% # deviation &gt; -150%)</td>
<td>1</td>
</tr>
<tr>
<td>(-55% # deviation &gt; -95%)</td>
<td>2</td>
</tr>
<tr>
<td>(-25% # deviation &gt; -55%)</td>
<td>3</td>
</tr>
<tr>
<td>(0% &lt; deviation &gt; -25%)</td>
<td>4</td>
</tr>
<tr>
<td>deviation = 0%</td>
<td>5</td>
</tr>
<tr>
<td>(0% &gt; deviation &lt; 25%)</td>
<td>6</td>
</tr>
<tr>
<td>(25% $ deviation &lt; 55%)</td>
<td>7</td>
</tr>
<tr>
<td>(55% $ deviation &lt; 95%)</td>
<td>8</td>
</tr>
<tr>
<td>(95% $ deviation &lt; 150%)</td>
<td>9</td>
</tr>
<tr>
<td>deviation $ 150%</td>
<td>10</td>
</tr>
</tbody>
</table>
Appendix G (Example of data gathered)

P1851-2                                                    Société de développement industriel du Québec
Economic impact                                          Date: 99/99/99

Portfolio broken down by program

PROGRAM: XXXX (SECTOR: XXXX,XXXX) XXXXXXX X
SECTOR: X99 XXXXXXXXXX XXX XXXXXXXX

Period covered by financial statements: July 1 to June 30

| No. of businesses with financial statements: | Total no. of businesses: |
| Amounts authorized: | Amounts authorized: |

PROFITS AND LOSSES ($ 000)

<table>
<thead>
<tr>
<th>Item</th>
<th>Amounts authorized</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturers’ sales</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td>Other sales</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td>ST-10 TOTAL SALES</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td>Opening inventory</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td>Purchases of materials</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td>Closing inventory</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td>ST-11 COST OF MATERIALS USED</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td>Labour costs</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td>General production costs</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td>Amortization</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td>Change in goods in process - finished</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td>Operations 1</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td>Operations 2</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td>ST-12 TOTAL COST OF SALES</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td>ST-13 GROSS OPERATING INCOME</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td>Selling expenses</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td>Administrative expenses</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td>Financial expenses</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td>Other amortization</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td>Other expenses</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td>ST-14 TOTAL EXPENSES</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td>ST-15 OPERATING INCOME</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td>+ Extraordinary income</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td>- Extraordinary expenditures</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td>- Income tax payable</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td>- Deferred income tax</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td>ST-16 NET EARNINGS</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td>ST-17 TOTAL AMORTIZATION</td>
<td>$</td>
<td>%</td>
</tr>
<tr>
<td>GT - 3 AVAILABLE FUNDS</td>
<td>$</td>
<td>%</td>
</tr>
</tbody>
</table>