GROWTH FIRMS PROJECT: KEY FINDINGS

Small Business Policy Branch

REVISED DRAFT September 10, 2003

Chris Parsley
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SUMMARY

SBPB has recently completed the first phase of an analysis of growth firms in Canada. The analysis provides answers to questions about which firms grow, who are the engines of growth and what their impact on creating employment has been.

The results demonstrate the following:

- Over a 14-year period, the net impact of churning, or the birth and death of firms, is an important source of job creation. Between 1985 and 1999 churning resulted in net employment creation of 1.3 million jobs.

- A small number of growth firms produce large gains in employment in relation to the rest of the economy. Hyper and strong growth firms, less than 7 percent of all private sector firms in 1985, created 1 million new jobs between 1985 and 1999 – nearly 56 percent of all jobs created in the private economy over the period.

- Small businesses were the principal engine of growth among firms who were in continuous operation from 1985 to 1999. Job creation by small business more than offset the job losses among large firms over the 14-year period.

- Hyper and strong growth firms are important in employment creation across all provinces. Small businesses are also vital in creating jobs in all provinces and regions. However, there are substantial differences among the provinces as to the leverage of growth firms into employment.

- Employment creation by hyper and strong growth firms was spread over a large number of industries and no single industry was predisposed to growth.

- The process of firm growth is a dynamic one with 50 to 60 percent of hyper and strong growth firms with 20 to 500 employees in 1985 having grown to higher firm size groups over the 14-year period.

These results are the first phase of a project and have generated a lot of interest. Future partnerships are planned for a second phase that will extend the analysis to include data on finances, exports, R&D and innovation, foreign ownership and age of firm. The analysis will probe the determinants of the behaviour of firms and answer specific questions in support of policy development.

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INTRODUCTION

Understanding how firms grow is critical to understanding how jobs and wealth are created and consequently how the living standard of Canadians is improved. In particular it is important to know what types of firms provide growth, their contribution to job creation, the barriers to growth and the nature of government action required. Growth, in the context of this project, is defined as an increase in the number of jobs. Recent work completed by the Small Business Policy Branch provides answers to some of these questions using a newly available data source covering all firms in Canada[1]. In particular, the data provide a profile of growth firms over a 14-year period and through all phases of the business cycle and present a historical perspective not previously seen.

SBPB has recently completed the first phase of this work which has been diagnostic and answers questions about which firms grow and what their impact is on the economy. In particular the data are able to answer the following specific questions:

- Who are the growth firms? Who are the engines of growth?
- How much churning is there?
- What is the contribution of growth firms to employment growth?
- What is the contribution of small business?
- What are the wage levels in growth firms?
- Is growth confined to certain industries?
- How do growth firms fare through the business cycle?
- What is the role of start-ups?
- Are there differences in growth among the provinces?
- How many small firms grow larger over the medium term?

Future work will probe deeper in order to provide an analysis of the process of firm growth across the economy, including identification of any barriers to growth, a comparison of different attributes of high and low/declining growth or failed firms and the policy implications of such findings.

This project has important connections to the transition work of the Department as understanding the process of firm growth is a key challenge.

DATA AND METHODOLOGY

The project uses a newly available data source at Statistics Canada – "LEAP/ SAF" – a longitudinal file of the universe of all firms (consequently there are no sampling issues). Some background on the data source and its construction is in Attachment A. The annual data used in this first project cover the period 1985-1999 and contain information on the

[1] The work is indebted to a 2001 Study for the Ontario government by Don Rumball. Specifically, the idea of triaging firms based on job creation in an initial number of years is derived from this study.

number of firms and on employment and wage levels for Canada by region or province for some 70 industries, by size of firm. Other variables will be added in a next phase of the project.

The concept of employment in this database is an Individual Labour Unit (ILU), one for each person for whom a T4 slip was filed. ILUs measure the number of people employed for an enterprise over the course of a given year.[2] The measure cannot distinguish between full-time and part-time nor seasonal and year-round jobs. Nor is the employ of owner-operators who are not on the payroll accounted for.

Business performance is built up from establishment data to the enterprise level. The enterprise is the organizational unit of a business that directs and controls the allocation of resources and is therefore most appropriate for the study of industrial growth patterns. What constitutes an enterprise is in part determined by the geographical scope of any tabulation -- the sum of the number of "enterprises" in each Province is larger than the number of enterprises at the national level. (For further discussion, please refer to Attachment A.) Results from each set of tabulations are reported below.

From the universe of firms, the firms in continuing existence between 1985 and 1999 were identified.[3] Based on their job growth performance (the change in ILUs) in an initial period, from 1985 to 1989, these continuing firms were classified into four types of firms:

- Hyper growth firms - those that grew more than 150 percent over these four years,
- Strong growth firms - those that grew more than 50 percent;
- Low growth firms – those that grew less than 50 percent and
- Declining firms, those with negative growth over the first four years.

The performance of each type of firm was then examined over the entire 14-year period, 1985-1999, as well as over the sub-periods 1985-90, 1990-93 and 1993-99.

NATIONAL RESULTS

Employment Creation Overall

In 1985 total employment (or ILU count) in the private sector across Canada was 9.6 million. By 1999 this figure had grown to 11.3 million and net employment creation was (with rounding) 1.8 million. (Adding in the public sector yields net employment creation of 2.0 million). Table A indicates there were two principal sources of this growth:

- **Churning, or the birth and deaths of firms**. Of the 860,000 firms existing in 1999, 661,000, or 77 percent, had been established after 1985. These firms

[2] People who work for more than one employer are not double counted but have a fraction of their "unit" assigned to each employer. An ILU differs from the concept of an Average Labour Unit (ALU) in that ALUs measure the number of people, on average over the course of the year, who worked for an enterprise. Please refer to Attachment A for further discussion of the measure of employment.

[3] Firms starting up in 1985 were excluded from the tabulations in this phase of the project: A condition for inclusion was that the firm had to have been in existence in 1984.

created 4.9 million new jobs. Over the same time 529,000 firms that existed in 1985 no longer existed in 1999 – taking with them 3.6 million jobs.[4] Consequently the large amount of churning of firms resulted in net employment creation of 1.3 million jobs.[5]

- **Hyper and strong growth firms**. Among the firms that existed in both 1985 and 1999, hyper and strong growth firms over 14 years created net 1 million new jobs. (Slow growth firms created 0.4 million jobs while declining firms lost 0.9 million jobs). More remarkable is that these 48,000 hyper and strong growth firms represented only 6.6 percent of the number of private sector firms in 1985, yet they accounted for 55.6 percent of the net employment creation in the private sector over the period 1985-1999. Clearly a small number of growth firms can produce large gains in employment in relation to the rest of the economy.

Small Business Contribution

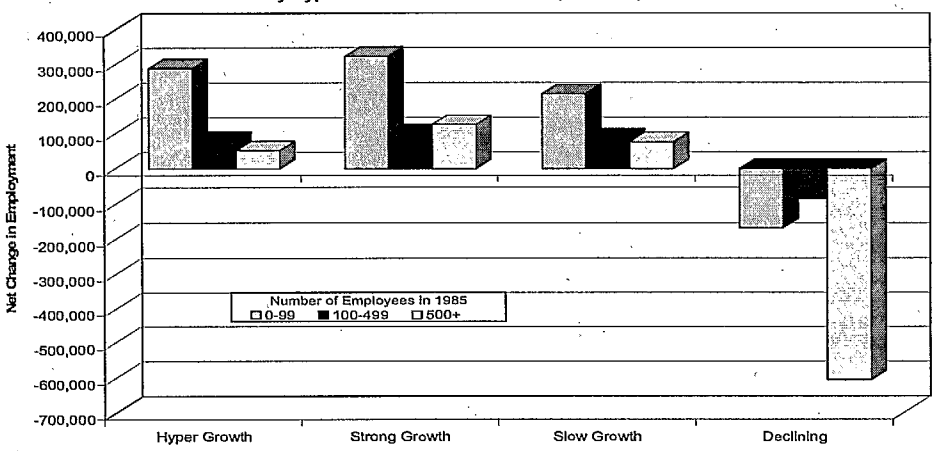
Small firms (businesses with fewer than 100 employees) played an important part in this growth (Table B). Overall, small continuing firms created 661,000 jobs between 1985 and 1999; medium sized businesses (100-499 employees) created 184,000 jobs whereas large businesses shed 348,000 jobs. Job creation by small business therefore more than made up for employment losses by large firms over these fourteen years.

Among continuing hyper growth and strong growth firms small firms were again predominant (Figure 1). Of the 1.0 million jobs created by hyper and strong growth firms over the period, 63 percent were created by small businesses. In contrast, large firms were concentrated among the slow growth or declining growth firms -- 89 percent of large firms that continued to exist in 1999 fell into one of these two categories. Large firms accounted for 71 percent (605,000 jobs) of the loss of employment in declining firms. The results clearly demonstrate that small businesses were the principal engine of growth among continuing firms between 1985 and 1999.

[4] Some of these jobs will truly have disappeared, but others may have reemerged not only in newly-born firms, but also in the employment growth of continuing firms in the year following an acquisition.

[5] The total magnitude of year-to-year churning is naturally many times this number – over 100,000 businesses (with payroll) enter and exit the market place on an annual basis. The tabulations reported on here capture only the "net" churn over a 14-year period. Much has come and gone in between.

Figure 1: Net Employment Creation by Continuing Private Sector Firms, by Type of Growth Firm and Size, Canada, 1985-1999



Employment Creation by Industry

Tabulations by industry show that no single industry is predominantly responsible for employment creation. Among hyper and strong growth firms, the leading industry (Business Services) accounted for only 15 percent of net employment creation by these types of firms. The top three industries accounted for only 25 percent of net employment creation and to account for 80 percent of the employment creation required a list of 26 industries (on a 70-industry grid). Moreover, the type of industries found in the top ten job creators were not those traditionally viewed as high technology industries.[6] Instead the top ten job creating industries included Transportation; Grocery Stores and Pharmacies; Restaurants, Take-Out Food, Taverns and Bars; Shoe, Fabric & Yarn Stores; and Food Industries.

Consequently, employment creation is spread over a large range of industries and no single industry is predisposed to hyper or strong growth.

Changes in Size Groups

An important and illuminating table is one that describes how hyper and strong growth firms evolved over the 14-year period (Table C). This transition matrix shows their size group in 1985 (the left hand column) and the size group by 1999 (horizontally across the columns). Thus the first cell shows that 62 percent of hyper and strong growth firms with 1 to 4 employees in 1985 were in the same size group in 1999; one-third had moved to the 5 to 19 employees category and a further 4 percent to the 20 to 49 category.

Larger small businesses and medium sized firms exhibit even more movement across size groups. Among firms with 20 to 49 employees in 1985, only 33 percent were still in that category in 1999 – 51 percent had moved to a higher size group. Only 23 percent of firms having 50 to 99 employees in 1985 were in the same size group in 1999, while 59

[6] Please refer to Attachment B for a brief report on tabulations for Knowledge-Based Industries (KBIs) as defined for SBPB's Financing Data Initiative. Business Services includes some KBIs, as do five other industries in the top 26 industries with hyper and strong growth firms.

percent of these firms moved to a larger size category. In medium sized businesses 58 percent of firms with 100 to 199 employees in 1985 had more than 199 employees by 1999 and 49 percent of firms with 200 to 499 employees in 1985 were large firms in 1999. These numbers are a graphic illustration of the dynamics of firm growth.

A few more detailed national results on employment creation are described in Attachment B.

Wages and Wage Growth

Average annual wage levels were higher in declining firms and lower in hyper and strong growth firms. In 1999, the average wage among the continuing firms was $32,890, but in hyper growth firms it was only $30,587 (7 percent lower) and in strong growth firms $30,813 (6 percent lower). In contrast, wages were $33,966 in slow growth firms and $33,008 in declining firms. The preponderance of large firms, who tend to have higher wage levels, in the declining and slow growth sectors is consistent with this phenomenon.

At the same time the growth of wages is highest in hyper growth firms (4.6 percent annualized) and lowest in slow growth firms (3.7 percent annually). Strong growth firms and declining firms both had an annualized growth rate of 4.1 percent. The higher wage growth in hyper growth firms is consistent with the notion that the path of wages reflects the successful performance of these firms. Firms which might have started out small and paid low wages can afford to increase wages faster as the company grows and becomes more successful and productive.

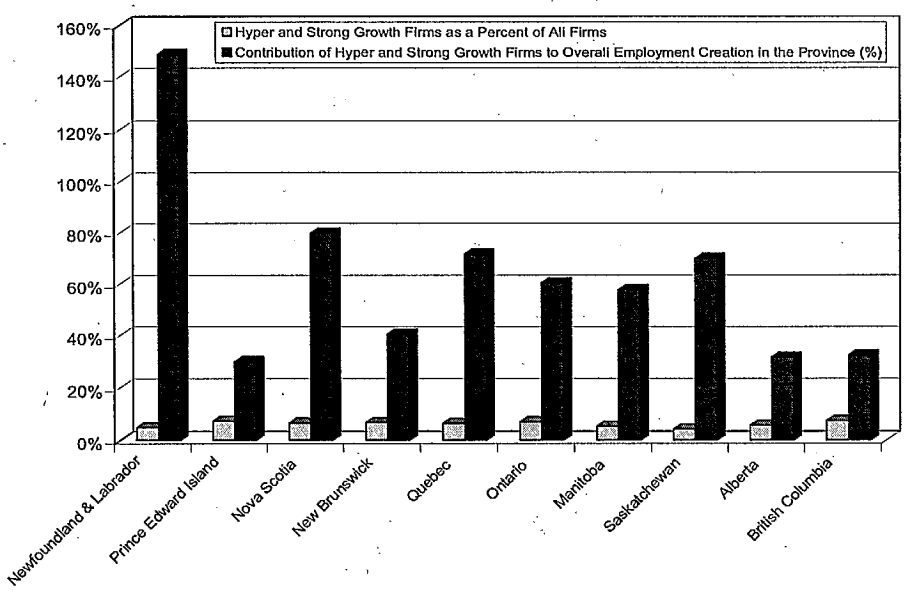
PROVINCIAL AND REGIONAL RESULTS

Employment Creation

Results for each Province and Region confirm that hyper and strong growth firms make a disproportionate contribution to employment creation in relation to the number of firms everywhere. However, there are some very substantial and interesting differences between the provinces (Figure 2 and Table D). Except for Saskatchewan, hyper and strong growth firms accounted for between 5 and 7 percent of firms in each province. But their contribution to employment creation was relatively low in Prince Edward Island, Alberta and British Columbia. By contrast, the employment contribution by hyper and strong growth firms was particularly high in Saskatchewan, Nova Scotia, Quebec and Newfoundland and Labrador.[7]

[7] On the surface, hyper and strong growth firms may offer a development model for "home grown" employment and wealth creation. However, the ILU measure chosen could unduly bias the measured growth if over the period there was an increased use of job sharing, i.e. increased occurrence of part-year jobs. This could help explain the unusually high "job growth" for Newfoundland and Labrador and elsewhere.

Figure 2: Contribution of Hyper and Strong Growth Firms to Employment Creation in the Private Sector, by Province, 1985-1999



Data on size of firm by Region (firm size breakdowns for each Province are not available)[8] also confirm the earlier finding that small businesses make a more important contribution to employment growth in all provinces. Among hyper growth firms only, small business accounts for between 71 percent of employment growth in Ontario and 83 percent in Quebec and British Columbia. Among strong growth firms, the employment contribution of small business is lower, as the national results showed, but still has a range of 58 percent in Ontario to 71 percent on the Prairies and British Columbia.

Thus the provincial and regional data confirm the importance of hyper growth and strong growth firms as well as small business in contributing to employment and wealth creation across all provinces, though there are substantial differences in certain leverage factors.

CONCLUSIONS

To date, the project has yielded a picture of how the "cohort of 1985" (i.e. all firms existing then) has fared over a 14-year period. The following conclusions emerge.

- The Canadian economy is a dynamic one with a great deal of churning going on. This is the Schumpeterian world of embracing change and moving forward - not a Galbraithian model of protection and conserving the status quo. There is much "adjustment" going on in the SME sector that goes largely unnoticed.
- In such a dynamic world business start-ups and new firms are an enormously important source of employment and wealth creation. It will therefore be

[8] Please refer to Attachment A for some discussion on disclosure limitations encountered with this data source.

important to understand the barriers and the special needs faced by new firms, if government action is to have a decisive impact.

- High growth is confined to a small number of firms. Less than 7 percent of private sector firms accounted for nearly 56 percent of the net employment creation between 1985 and 1999. If it is possible to identify the conditions which promote these firms then government interventions could be targeted more effectively.
- It is abundantly clear that small business is an important engine of growth. Among all continuing firms, small business more than offset the employment declines of large business. Among hyper growth firms only, they accounted for 68 percent of employment creation. Fostering small business growth and their transition to bigger or medium-sized firms could pay huge employment dividends.
- No one industry seems predisposed to growth. Hoping to find a lucky cluster of firms is an approach that will ultimately fail to generate the wealth creation required.

Next Steps

This project has generated a lot of interest among outside organizations and SBPB is moving forward in partnership with Statistics Canada, the Province of Ontario and the National Research Council (IRAP) to add more variables into the database and engage in more in-depth analysis and customized tabulations. The data linkages will enable analysis of growth firms according to such variables as sales revenue; financial data (from SBPB's Financing Data Initiative); age of firm; exports, R&D activities and innovative behaviour; and foreign ownership. In addition, the period under analysis will be extended and different sub-periods will be studied to answer specific questions in support of policy and program development.

All these improvements will permit a deeper analysis of the determinants of how firms grow and will inevitably provide much food for thought and offer implications for further policy development.

TABLES

Table A Type of Growth Firm and Employment Creation, Canada 1985-1999		
	Number of firms	**Net Jobs Created (Lost) 1985-99**
All firms in 1985 in private sector	728,280	
All firms in 1999 in private sector	859,774	
Total net job creation		**1,752,220**
Churning – net effect of births and deaths		***1,254,595***
Firms not existing in 1985 but operating in 1999 (births)	660,897	4,896,206
Firms existing in 1985 but not operating in 1999 (deaths)	529,403	(3,641,611)
Continuing firms: those existing in 1985 and 1999	***198,877***	***497,625***
Hyper growth firms	13,975	422,188
Strong growth firms	34,030	552,233
Slow growth firms	76,076	381,297
Declining growth firms	74,796	(858,093)

Table B Net Employment Creation and Percentage Contribution by Size of Firm, Canada, 1985-1999										
Size of Firm	**Hyper Growth**		**Strong Growth**		**Slow Growth**		**Declining**		**All Continuing Firms**	
	Job Creation	***%***	***Job Creation***	***%***	***Job Creation***	***%***	***Job Creation***	***%***	***Job Creation***	***%***
< 5	87,443	21%	47,945	9%	26,833	7%	-2,691	0%	159,530	32%
5-19	99,694	24%	112,284	20%	71,366	19%	-69,657	8%	213,687	43%
20-49	60,115	14%	95,010	17%	73,097	19%	-61,149	7%	167,073	34%
50-99	41,947	10%	67,805	12%	44,801	12%	-33,502	4%	121,051	24%
0-99	*289,199*	*69%*	*323,044*	*58%*	*216,097*	*57%*	*-166,999*	*19%*	*661,341*	*133%*
100-199	42,173	10%	47,072	9%	36,896	10%	-42,091	5%	84,050	17%
200-499	37,937	9%	54,279	10%	51,295	13%	-43,586	5%	99,925	20%
100-499	*80,110*	*19%*	*101,351*	*19%*	*88,191*	*23%*	*-85,677*	*10%*	*183,975*	*37%*
500+	52,878	13%	127,839	23%	77,009	20%	-605,417	71%	-347,691	-70%
All firms	422,188	100%	552,233	100%	381,297	100%	-858,093	100%	497,625	100%

TABLE C Change in Size Group 1985 to 1999, Hyper and Strong Growth Firms (Percent)								
	Size Group in 1999							
	1 to 4	**5 to 19**	**20 to 49**	**50 to 99**	**100 to199**	**200 to 499**	**500 plus**	**Total**
Size Group in 1985								
1 to 4	**62%**	33%	4%	1%	0.1%	0.1%	0%	100%
5 to 19	13%	**50%**	28%	7%	2%	0.4%	0.1%	100%
20 to 49	5%	12%	**33%**	32%	13%	4%	1%	100%
50 to 99	3%	6%	10%	**23%**	36%	18%	5%	100%
100 to199	2%	3%	6%	8%	**24%**	39%	19%	100%
200 to 499	2%	2%	2%	4%	11%	**31%**	49%	100%
500 plus	0%	1%	2%	5%	1%	2%	**90%**	100%

Table D Contribution of Hyper and Strong Growth Firms to Provincial Employment Creation, 1985-1999, Continuing Firms by Province		
Province	**Hyper and Strong Growth Firms as a Percent of All Firms**	**Contribution of Hyper and Strong Growth Firms to Overall Employment Creation in the Province (%)**
Newfoundland & Labrador	4.9%	148.9%
Prince Edward Island	7.3%	29.9%
Nova Scotia	6.6%	79.7%
New Brunswick	6.8%	40.7%
Quebec	6.5%	71.6%
Ontario	7.0%	60.6%
Manitoba	5.4%	57.9%
Saskatchewan	4.3%	69.9%
Alberta	5.7%	31.7%
British Columbia	7.5%	32.5%

ATTACHMENT A

Statistics Canada's Longitudinal Business Data Bases, the Measure of Employment, and the Feasibility of Tabulations: Some Background and Discussion

Development of longitudinal business data

Statistics Canada has been engaged in developing longitudinal data bases of businesses in Canada since 1972. One such effort combines information from its Business Register (in itself an evolving and significantly improving frame of all employer businesses in Canada – and, since 1998, also non-employer businesses) with payroll data from the Canada Customs and Revenue Agency (CCRA). The original intent was to measure "job turnover – the degree to which jobs are created in newly-identified and growing businesses and lost in no-longer-identified and declining businesses."[1] The name of the endeavour, Longitudinal Employment Analysis Program, became the name of the file, LEAP. Statistics Canada's product *Employment Dynamics* – a year-to-year pairwise comparison of continuing, entering and exiting businesses and their associated employment – is a by-product of LEAP. The file encompasses the universe of employer businesses in Canada, that is, all entities that maintain a payroll and submit information to CCRA.

The file uses business level data obtained from Revenue Canada tax records, which do not accord well with establishment level data that are frequently used in Statistics Canada's surveys. The establishment, while being more amenable to industrial classification because it comprises a more homogeneous set of activities, has no counterpart in Revenue Canada tax data. Businesses may span one or more establishments, and include all private and public employers. Carefully tracking employment information at both the business and establishment level allows enterprise data to be reported, identified at the 3-digit SIC industrial level, by province. All analysis in this project is at the enterprise level. (See below for more on the enterprise concept and on limitations on the release of data.)

In constructing the file, considerable effort goes into identifying true continuity, or conversely, recognizing false births and false deaths of establishments, corporations and enterprises. Tests have shown that a computerized search for continuity in employment through matching of social insurance numbers is a highly effective tool. In a second round, more costly name matching exercises add further to the accuracy of the assignment of longitudinal identifiers.

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[1] John Baldwin, Richard Dupuy and William Penner, "Development of Longitudinal Panel Data from Business Registers: Canadian Experience," Statistics Canada, Analytical Studies Branch Research paper No. 49, 1992, p. 3. See also Cat. No. 18-501E (1988).

The 1983-2000 version of the file has recently become available, reflecting the current state of affairs and correcting past errors. LEAP has been successfully linked with Statistics Canada's corporate tax information file and an update of this linked file to cover 1983-2001 is expected next spring.

Measuring employment

The employment measure in LEAP is derived by dividing a firm's payroll by the most appropriate average annual earnings figure available from the Survey of Employment, Payrolls and Hours (SEPH; its earnings data are, for each province, industry- and size-class specific[2]). The resulting measure is referred to as an *Average Labour Unit* or ALU. ALUs measure the number of persons, on average over the course of the year, who worked for a firm.

An expanded version of LEAP brings in data from the Small Area File (SAF), adding more detail in the geographical dimension. But LEAP/SAF also offers another measure of employment, the *Individual Labour Unit* or ILU. Unlike ALUs, an ILU does not require an industry average annual wage in order to be derived. Instead, the measure counts the number of T4 slips submitted by firms. T4 recipients who worked for more than one employer have their "unit" partitioned in proportion to their earnings. That makes an ILU a measure of the number of people who, over the course of a year, worked for an employer. The 1983-1999 version of LEAP/SAF was available for this project.

Either measure, ALU and ILU, is blind to part-time or seasonal work.[3] However, provided a firm conforms to its industry average, an ALU will accurately measure what it intends to measure, even if the work is part-time or seasonal.[4] The total quantum of ILUs in the economy (15.1 mln in 1999) is therefore larger than the total quantum of ALUs 12.8 mln).[5] As long as one recognizes what is being measured, either measure would do with regard to its ability to account of other than full time work. An issue arises to the extent that patterns of part-time and seasonal work have changed over the course of the period considered – a consideration which needs to be further pursued.

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[2] The size ranges used to calculate the ALU are: less than 19, 20 to 49, 50 to 199, and more than 200.

[3] In particular, there seems to be a widespread belief that ALUs represent a full-time-equivalent. This is not in general the case. Assume a firm pays one worker $50 for a 10-hour week and another worker $150 for a 40-hour week, for a total payroll of $200. Assume the relevant average industry wage is $100/week. The resulting ALU measure is 2, while the full-time-equivalent is 1¼.

[4] For an extreme example, assume a firm employs 12 people over the course of the year, one each for one month. Provided other firms in the industry do the same on average and pay the same wage, the ALU measure will be 1 – on average, one person was employed. Barring multiple employers, the ILU will measure 12 – a total of 12 persons were employed.

[5] The Labour Force Survey grand total employment figure for that year was 14.5 mln. The Survey of Employment, Payrolls and Hours (which excludes Agriculture and certain other industries) measured 11.6 mln.

For this study, ILUs were chosen as the measure of employment considering that growth firms may significantly deviate from industry averages – in their remuneration or with regard to the employ of part-time workers. Moreover, the growth pattern of their wages could be expected to be different. Using ILUs allows firm-specific average wage rates to be calculated and permits comparisons of average wage rates between firms and across growth groups. Under any of these conditions, an ALU measure would be biased. As noted in the main text, indications from this phase of the project are that indeed growth firms start from lower wages and increase wages faster.

Finally, one should bear in mind that neither ALU nor ILU counts owner-operators who are not on their own payroll. The full size of the SME sector is in that regard understated. Likewise, measured job creation through births excludes people not on their own payroll. The smaller the firm, the greater the likelihood that the owner-operator is not counted here. Labour market participation through contract work is likewise not accounted for here, unless the worker is on some entity's payroll.

The concept of enterprise

Another important choice made in this growth firms project was the decision to tabulate the data at the enterprise level. This is also the level at which SEPH data by size of firm are published.[6] While establishment-level data are best suited for location-centred analysis, for growth patterns it was felt that decision making (and hence the most helpful analysis) was more likely to be found at the enterprise level.

The choice of enterprise as the level of analysis has important implications for the geographical dimension of the tabulations. In Canada-wide tabulations, establishments are aggregated to enterprises at the national level. In tabulations by province, the operation of a multi-province enterprise is counted in each province where it occurs – a provincial "enterprise" is created. There are therefore 199,000 continuing firms in the national tabulations, against 203,600 in the sum of all provincial tabulations. Likewise the classification of enterprises in types of growth firms, births or deaths is province-specific because it is based on these "provincial enterprises." Sub-provincial data would likewise compute CMA "enterprises" – the representation of possibly a national enterprise in the specific CMA. The regional tabulations of this project are strictly subtotals of provincial tabulations.

Disclosure limitations

Detailed tabulations by province, and even national cross-tabulations by industry and size rapidly run into confidentiality constraints. Tabulations by region, however (Atlantic, Quebec, Ontario, Prairies, B.C.) are more feasible. In both national and regional tabulations, seven size classes[7] were distinguished and seventy 2-digit industries.

[6] Payroll employment data by size class are regularly published in the *Small Business Quarterly*.

Aggregation to eight or ten subgroups of industries may allow more disclosure but a preliminary look suggests that less useful information relevant to the analysis of growth emerges at that high a level of aggregation. This will be further examined. Disaggregation to the 3-digit level would rapidly run into disclosure problems.

More disclosure could also be bought at the expense of putting the bar for hyper growth lower. Compressing size classifications – all at the high end – would provide little solace. As it stands, many suppressions (in cross-tabulations by industry) result in "20+" or "50+" aggregations; there seldom are disclosure issues for micro-firms (fewer than 5 employees).

[7] Size classes were: less than 5 ILUs, 5 to 19, 20 to 49, 50 to 99, 100 to 199, 200 to 499, and more than 500. This conforms to the groupings in SEPH's quarterly employment and earnings data since 2000.

ATTACHMENT B

More National Results

Employment creation among hyper and strong growth firms by size of firm

While small businesses accounted for the majority of employment creation among the hyper and strong growth firms, there are differences between these two types of growth firms. Among hyper growth firms, 68 percent of the jobs were created by small business and only 13 percent by large businesses. Moreover, 45 percent of employment creation in hyper growth firms took place in business that had fewer than 20 employees at the start of the period. Very small businesses were therefore important among hyper growth firms.[8]

Among strong growth firms the small business contribution to employment creation between 1985 and 1999 was less than in hyper growth firms but still very significant at 58 percent of all net new jobs. Large firms were responsible for 23 percent of new jobs in strong growth firms compared to 13 percent in hyper growth firms. Among small business, net employment creation was more evenly spread among the different size classes – businesses with fewer than 20 employees contributed 29 percent, as did businesses with 20 to 99 employees.

Consequently very small businesses were very important in hyper growth firms and one can infer that, although true 1985 start-ups were excluded from these tabulations, many of these firms were still in the early stages of start-up during 1985-1989. Strong growth firms are found more evenly across all size classes.

Changes in size groups for all continuing firms, 1985-1999

Table E shows the transition matrix for all continuing firms and provides a useful comparison with Table C discussed in the main text. Table C is the transition matrix for hyper and strong growth firms only. As before, the 1985 size for all continuing firms is shown in the left hand column and the size group by 1999 is shown horizontally across the columns. Thus the first cell shows that 78 percent of firms who had 1 to 4 employees in 1985 still had 1 to 4 employees in 1999; 20 percent of these firms grew to have 5 to 19 employees in 1999 and a further 2 percent of firms grew even larger to between 20 and 49 employees by 1999. The diagonals in the table show the percentage of firms that were in the same size group in both 1985 and 1999, i.e. their size of firm group did not change. Table E shows that, generally, the vast majority of continuing firms either stayed in the same group or grew (to the right) or shrank (to the left) by only one size group.

[8] A one-employee firm need only to have grown to 2.5 employees in four years (and survived to 1999) to have been classified as a hyper growth firm. Growth to at least 1.5 in four years would have qualified it as a strong growth firm.

TABLE E Change in Size Group 1985 to 1999, All Firms (Percent)								
	Size Group in 1999							
	1 to 4	**5 to 19**	**20 to 49**	**50 to 99**	**100 to199**	**200 to 499**	**500 plus**	**Total**
Size Group in 1985								
1 to 4	**78%**	20%	2%	0.2%	0.1%	0%	0%	100%
5 to 19	29%	**56%**	12%	2%	1%	0.1%	0%	100%
20 to 49	8%	27%	**43%**	16%	4%	1%	0.2%	100%
50 to 99	5%	9%	23%	**38%**	20%	5%	1%	100%
100 to199	5%	5%	10%	21%	**37%**	20%	4%	100%
200 to 499	3%	4%	5%	6%	19%	**42%**	21%	100%
500 plus	2%	2%	3%	3%	3%	14%	**73%**	100%

As should be expected, far fewer hyper and strong growth firms stayed "on the diagonal" and their movement to the right is far more pronounced than among all continuing firms.

Growth and the business cycle

Tabulations for 1985-90, 1990-93 and 1993-99 show that hyper growth firms increased their number of workers at an annual rate of 34% in the first period, retracted at 0.5% per year in the second and grew again at a 1.8% annual rate in the final period. Similarly, strong growth firms grew on average at a rate of 13% per year over 1985-90, shrank 1.0% per year during the recession and bounced back at a 2.1% rate over 1993-99.

Slow growth firms fared worse during the recession – their employment shrank at 1.4% per year. Their pre-recession annual rate of growth of 3.3% became an anaemic 0.2% after 1993.

Firms classified as in decline over 1985-89 slowed down their shedding of jobs throughout the period: Annual rates were -5.0% over 1985-90, -3.2% over 1990-93 and -0.6% over 1993-99.

Put another way, by 1990 hyper and strong growth firms had grown to 82% of where they would end up in 1999, and smartly resumed their growth after 1993. Slow growth firms, in contrast, by 1990 had swelled to 123% of their 1999 destination, suffered worst in the recession and barely resumed growing over 1993-99.

Perhaps more than any other tabulation, the analysis by sub-periods points to a characteristic of all these tabulations: They portray the cohort of the base year – in this case all firms in existence in 1985 – and in particular those that survived to 1999. Given

the same end year, later cohorts face an increasingly easier condition of survival and are re-enforced by new firms entering the marketplace. Choosing the period of analysis – its starting point with regard to the business cycle and the number of years in the comparison – is closely tied to the research or policy question being pursued.

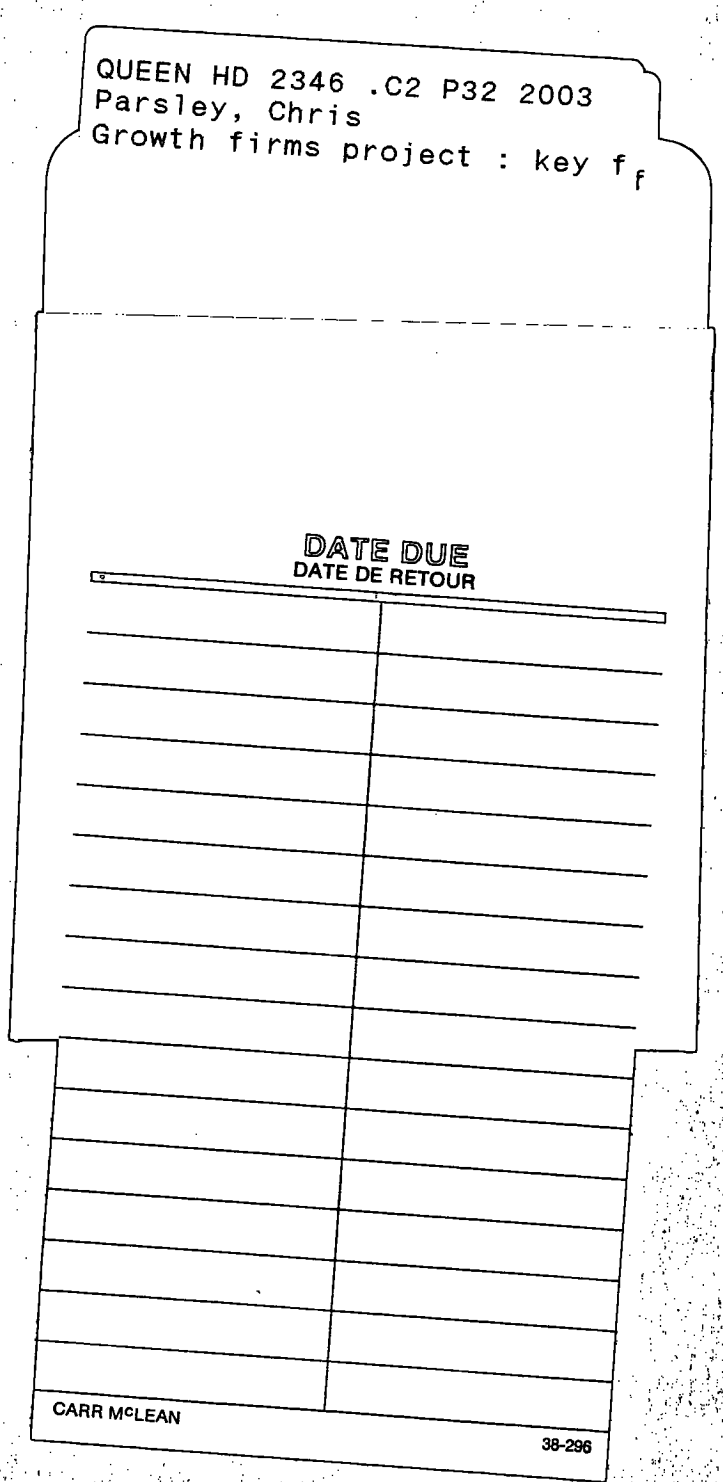
Knowledge-based industries

Special tabulations were obtained for knowledge-based industries (KBIs), at least as defined by a 3-digit mapping of the 4-digit Tier 1 and Tier 2 list provided in Clendenning (2000).[9] Six thousand seven hundred or 3.4% of all continuing firms were in KBIs. They were somewhat more likely to meet the hyper or strong growth criteria than were continuing firms in general (5.2% of all high-growth firms and 4.1% of the strong growth group). Hyper growth KBIs grew faster (at 15.4% per year) than all hyper growth firms (12.2%) and there was a similar though lesser edge for KBI firms in the other groups.

Wages in KBI firms in both 1985 and 1999 were 40 to 60% above the corresponding Canadian aggregate in all types of firms and they grew faster across the board.

In all, 10% of KBI firms were hyper or strong growth firms and these firms accounted for 29% of job growth in the sector. Ten to 13% of job growth in all hyper, strong or slow growth firms was on account of KBIs, while their share of job loss among declining firms was only 4%. This made these 6,700 KBI firms responsible for 23% of the net job gain among continuing firms over the period.

[9] E. Wayne Clendenning & Associates, "Comparison and Reconciliation of SIC and NAICS Industry Codes Used to Define Knowledge-Based Industries (KBIs)." Paper prepared for SBPB, May 2000.

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