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Insights on the Canadian Economy

Trends in Gross Domestic Product and Self-employment of Unincorporated Enterprises in the Canadian Economy, 1987 to 2005

by Luke Rispoli

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- . not available for any reference period
- .. not available for a specific reference period
- ... not applicable
- 0 true zero or a value rounded to zero
- 0^s value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
- ^p preliminary
- ^r revised
- x suppressed to meet the confidentiality requirements of the *Statistics Act*
- ^E use with caution
- F too unreliable to be published

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Abstract

This paper investigates the evolution of the unincorporated sector using the number of self-employed and gross domestic product (GDP), in that sector over the period 1987 to 2005. In 2005, there were over 1.5 million self-employed who were unincorporated, generating \$93.2 billion of GDP.

From 1987 to 1997, the growth of unincorporated GDP averaged 4.7% per year, following a similar trend to that of corporate GDP, at 4.5% per year. From 1997 to 2005, unincorporated GDP grew at a slower rate, averaging 3.8% per year, than that of corporate GDP, which averaged 6.4% per year. The unincorporated self-employed created most of the jobs in the business sector during most of the 1990s, creating 409,400 jobs from 1990 to 1998. However, job creation in the unincorporated sector peaked in 1998, and then declined by 128,400 jobs from 1998 to 2005.

GDP shares of unincorporated enterprises showed a substantial structural shift toward service industries. Service industries have grown from 67.8% of GDP in 1987, to 76.5% of unincorporated GDP in 2005. Similarly, the share of total unincorporated self-employment in service industries increased from 63.4% in 1987 to 74.6% in 2005.

Self-employment studies have analyzed various characteristics of self-employed workers, including age, sex, immigration status and education, but have generally lacked measures of GDP associated with unincorporated self-employment. This study redresses the lack of economic data, and estimates GDP by industry arising from unincorporated self-employment. This paper updates the 1997 – 2002 estimates of unincorporated GDP derived by Rispoli (2009).

The paper also examines how unincorporated self-employment responded to both overall economic trends and business cycles. The rate of unincorporated self-employment was positively correlated to the unemployment rate in the long run.

The paper also looks at incorporated self-employment. (Close to one million self-employed were incorporated in 2005). It investigates its relationship to the same macroeconomic conditions to determine if incorporated self-employment has a profile similar to unincorporated self-employment. Previous self-employment studies have typically treated self-employment as a homogeneous group. This paper examines the differences between the two groups and finds that they react differently to macroeconomic conditions.

Incorporated self-employment grew substantially between 1987 and 1999 (averaging 3.8% per year), and continued to grow between 2000 and 2005 (averaging 4.1% per year). The evidence suggests that a shift in self-employment did not occur from unincorporated enterprises to corporations, but that different forces were at work in the two sectors. Over the long run, the unincorporated self-employment rate is positively correlated to the unemployment rate. In contrast, the incorporated self-employment rate is not related to changes in the unemployment rate, but is positively correlated to overall GDP growth.

Executive summary

The paper examines how the unincorporated sector evolved in terms of self-employment and gross domestic product (GDP) from 1987 to 2005. It redresses the lack of economic data on this sector by estimating GDP by industry arising from unincorporated self-employment. The methodology to calculate unincorporated GDP is based on Rispoli (2009).

The paper investigates a number of issues associated with how the sector has changed over this period. They are outlined below:

How did unincorporated self-employment and GDP evolve from 1987 to 2005?

- Unincorporated self-employment initially rose during the 1990s (a period of high unemployment), but began to decline in the latter half of the decade (when unemployment was lower). It grew at 2.7% per year from 1987 to 1999 while declining by 0.5% from 2000 to 2005. Unincorporated GDP tracked corporate GDP throughout most of the 1990s (growing 4.7% per year from 1987 to 1997), but grew at a slower rate from 1997 to 2005, averaging 3.8% per year compared to corporate GDP of 6.4% per year.
- During the period, there was a compositional shift away from goods-producing industries towards services, for unincorporated self-employment and GDP. The share of unincorporated GDP in service industries increased from 67.8% in 1987 to 76.5% in 2005. Within service industries, there was a substantial shift towards finance and professional services. Within the goods-producing industries, there was a noticeable shift away from agriculture, while construction grew. Similarly, the share of total self-employment in service industries increased from 63.4% in 1987 to 74.6% in 2005.

What relationship existed between the economic climate and unincorporated and incorporated self-employment rates?

- Generally, the two components of self-employment reacted differently to the macroeconomic climate.
- The rate of unincorporated self-employment is positively correlated with change in the unemployment rate in the long run.
- The rate of incorporated self-employment was not related to changes in the unemployment rate but was positively correlated to the underlying long-run trend in the economy as measured by real GDP.

1 Introduction

The importance of the economic activity of self-employed entrepreneurs has changed considerably in recent years.¹ In 2005, there were over 1.5 million unincorporated self-employed who generated \$93.2 billion of gross domestic product (GDP). Its GDP experienced strong growth during most of the 1990s (growing 4.7% per year from 1987 to 1997).² From 1999 to 2005, self-employment receded, and GDP in the unincorporated sector grew slightly slower than in the previous decade (averaging 3.8% per year from 1997 to 2005). The unincorporated self-employed created most of the jobs in the business sector during the 1990s, creating 409,400 jobs from 1990 to 1998.

The paper provides estimates of Canadian GDP generated by self-employed owners in the unincorporated sector by industry. Unincorporated enterprises are typically small size businesses that play an integral role in the small business sector. GDP produced by industry provides a useful tool to monitor economic performance as it measures the value added generated by an industry. These estimates of unincorporated GDP provide insight into the contribution that small businesses make to economic activity and help to explain overall trends in productivity.³ The study divides the GDP of the business sector into the unincorporated sector and the remainder, which represents corporations.⁴

GDP estimates are a more complete measure of economic activity than statistics on self-employment. Most self-employment studies are restricted to only analyzing various characteristics of self-employed workers such as age, sex, immigration status and education, and have lacked measures of data on GDP associated with unincorporated self-employment.⁵

Unincorporated enterprises cross many industries. They include landlords, insurance and stock brokers in the finance industry; physicians and dentists in the health industry; lawyers, accountants and consultants in the professional services industry; general and special trade contractors in the construction industry; owner-operator carriers in the trucking industry; farmers; owners of retail stores; barbers, hair stylists and housecleaners and so on.

This study shows that the trend in unincorporated GDP changed from 1987 to 2005. Averaging 4.7% per year, it closely tracked the corporate sector (4.5% per year) between 1987 and 1997,

-
1. Self-employed owners hire paid workers, unpaid workers (including family members), or work without paid help. They are typically small-sized enterprises in which the entrepreneurs mainly work on their own, or with few staff.
 2. The National Accounts allocate the transactions in the economy into four sectors – households and unincorporated enterprises, corporations, government and external. This study estimates GDP of self-employed enterprises in the first sector—consisting of unincorporated enterprises. The GDP of self-employed incorporated enterprises is included with the remainder of the business sector, consisting of corporations. According to the Labour Force Survey, self-employment in unincorporated enterprises accounts for just over 60% of all self-employed enterprises in 2005. The study estimates GDP at basic prices.
 3. Baldwin and Chowhan (2003) studied the impact of self-employment on productivity growth in Canada for the period 1987 and 1998.
 4. The incorporated sector is comprised predominantly of larger companies, including multinationals. It covers public corporations, national privately controlled corporations, foreign-controlled corporations, as well as government business enterprises.
 5. See Lin, Yates and Picot (1999) and Hipple (2004). Rispoli (2009) estimated GDP of unincorporated enterprises in the Canadian economy for the period 1997 to 2002.

but from 1997 to 2005 grew at a slower rate (3.8% per year), compared to corporate GDP (6.4% per year).

During the study period, within the unincorporated sector, there was a compositional shift away from goods-producing industries towards services. The share of unincorporated GDP in service industries increased from 67.8% in 1987 to 76.5% in 2005. Within service industries, there was a substantial shift towards finance and professional services. Within the goods-producing industries, there was a noticeable shift away from agriculture, while construction grew substantially.

The paper also examines how self-employment in the unincorporated sector responded to both overall economic trends and business cycles. The rate of unincorporated self-employment was positively correlated to the unemployment rate in the long run.

Since understanding self-employment trends in the unincorporated sector requires an understanding of self-employment trends in the incorporated sector, the paper also looks at the part of self-employment that is incorporated. Close to one million self-employed were incorporated in 2005. The decision by the self-employed to incorporate depends on a number of factors. These include taxation and liability considerations, as well as overhead related to record-keeping requirements (corporations must file annual financial reports).⁶ Moreover, at the time of this study, some professionals (such as lawyers, doctors and dentists) in some provinces were not permitted to incorporate.

The paper investigates the relationship of the incorporated self-employment rate to macroeconomic conditions to determine if it has a profile similar to the unincorporated self-employment rate. Previous self-employment studies have typically treated self-employment as a homogeneous group. The paper examines the differences in the two groups and finds that they react differently to macroeconomic conditions.

The number of incorporated self-employed grew substantially during the 1990s and continued to grow during the 2000s, unlike the number of unincorporated self-employed, which declined. The evidence suggests that a shift did not occur from unincorporated enterprises to corporations. Different forces were at work in the two sectors. The study finds the incorporated self-employment rate is positively correlated to overall GDP, and not to changes in the unemployment rate.

The first part of the paper describes the methodology used to develop the GDP estimates for the unincorporated sector. This is followed by an overview of estimates of GDP of the unincorporated sector and its industrial composition. Next, trends in unincorporated and incorporated self-employment are discussed, followed by an investigation of the cyclical properties of each sector.

6. See Department of Finance consultation paper (2005) for a discussion of the effective tax rate for unincorporated businesses.

2 Overview of methodology

The estimate for GDP of unincorporated enterprises is based on the methodology used in the study by Rispoli (2009). Nominal aggregate business sector GDP is separated into portions coming from unincorporated enterprises and corporations.⁷

The estimates of GDP in the unincorporated sector include labour income of employed workers, mixed income of unincorporated owners (reflecting profit and wages), net indirect taxes and operating surplus, (which include interest payments, depreciation and resource rents).

For the period 1997 to 2005, estimates are derived from source data used to generate the National Accounts GDP (See Appendix A – period 1997 to 2005). Both corporate and unincorporated estimates are derived at the same time.

For the period 1987 to 1996, data are not available to estimate the components of unincorporated GDP and corporate self-employment.⁸ Alternatively, the GDP estimates for the unincorporated sector were determined by back-casting its 1997 GDP level (Table 2), using the mixed income component of GDP for unincorporated enterprises since mixed income represents over two-thirds of GDP (Appendix B – period 1987 to 1997). Finance and agriculture were treated differently.

For the finance (consisting primarily of lessor of real estate) and agriculture industries, the other components of GDP (primarily interest payments and depreciation) accounted for over two-thirds of GDP. Growth of GDP in the overall industry for both the lessors of real estate and agriculture were used to back-cast results from 1997. This approach was taken because GDP encompasses a broader measure of income, which includes depreciation and interest payments.

The corporate estimates for the period 1987 to 1996 were determined residually by subtracting the GDP estimate of the unincorporated sector from the aggregate business sector estimate of GDP. This was done because the corporate portion of GDP represents about nine tenths of overall GDP. The direct approach (using source data), could not be used to measure GDP for self-employed corporations, as data were not available.⁹

7. The study estimates GDP at basic prices. It looks at the business sector and excludes all activity generated by government, the non-commercial sector and owner-occupied dwellings, which combined accounted for about 23% of GDP in 2005.

8. For example, Canada Revenue Agency 1994 Taxation Statistics provided data up to 1992 for the various components of unincorporated GDP (wages and salaries, depreciation and interest payments). This was later supplemented, starting in 1998, by Statistics Canada's Tax Estimate Program.

9. Canada Revenue Agency's Generalized Index of Financial Information (GIFI), which starts in 1999, is a main indicator for the GDP estimate of corporate self-employment (i.e., offices of physicians and dentists).

Table 1
Gross domestic product (GDP) of unincorporated enterprises and corporations

Unincorporated sector	Level			Average annual growth rate		
	1987	1997	2005	1987/2005	1987/1997	1997/2005
	millions of dollars			percent		
All industries	43,658	69,219	93,159	4.3	4.7	3.8
Goods-producing industries	14,036	17,196	21,851	2.5	2.1	3.0
Service-producing industries	29,621	52,023	71,308	5.0	5.8	4.0
	Share of total GDP			Proportion of total		
	1987	1997	2005	1987	1997	2005
	percent					
All industries	11.1	11.3	9.4	100.0	100.0	100.0
Goods-producing industries	7.6	6.5	5.1	32.2	24.8	23.5
Service-producing industries	14.2	15.0	12.8	67.8	75.2	76.5
	Level			Average annual growth rate		
Corporations	1987	1997	2005	1987/2005	1987/1997	1997/2005
	millions of dollars			percent		
All industries	349,042	542,900	893,124	5.4	4.5	6.4
Goods-producing industries	170,070	247,268	405,361	4.9	3.8	6.4
Service-producing industries	178,973	295,632	487,763	5.7	5.1	6.5
	Share of total GDP			Proportion of total		
	1987	1997	2005	1987	1997	2005
	percent					
All industries	88.9	88.7	90.6	100.0	100.0	100.0
Goods-producing industries	92.4	93.5	94.9	48.7	45.5	45.4
Service-producing industries	85.8	85.0	87.2	51.3	54.5	54.6

Note: The average annual growth rate is the compound growth rate calculated between end points of the period.

Source: Statistics Canada, author's calculations.

3 GDP of unincorporated enterprises

3.1 An overview

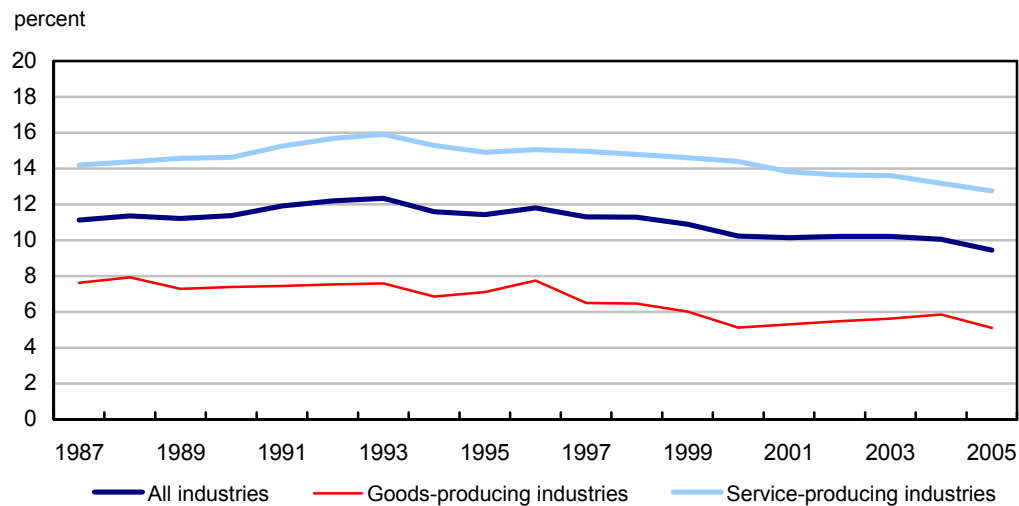
At the industry level, GDP measures the value added generated by an industry, that is, the income generated within that industry. Unincorporated enterprises are present across a wide range of industries, including lessors of real estate in the finance industry, physicians and dentists in the health industry, lawyers, accountants and consultants in professional services, and the construction and agriculture industries.

Unincorporated enterprises contributed \$43.7 billion of GDP in 1987, more than doubling that in 2005, to \$93.2 billion (Table 1). Unincorporated GDP produced by service industries grew even more, increasing from \$29.6 billion in 1987 to \$71.3 billion in 2005. GDP shares of unincorporated enterprises showed a structural shift toward service industries. Service industries have grown from 67.8% of GDP in 1987 to 76.5% of GDP in 2005.¹⁰

10. Pilat et al. (2006) discuss the deindustrialisation of the Organization of Economic Co-operation and Development (OECD) economies, that is, the long-term shift of the economy towards services. In many OECD countries, this shift resulted in a decline in the share of manufacturing in overall employment with a concurrent rise in the share of services. In Canada, the manufacturing share of total employment has declined over the past two decades because of rapid employment growth in the service sector, which out-paced the manufacturing sector.

Unincorporated enterprises in aggregate generated about 11% of overall GDP between 1987 and 1997, while falling below 10% of overall GDP in 2005 (Chart 1). The unincorporated share of the service industry's GDP peaked in 1993, then declined. The unincorporated share for goods-producing industries fluctuated at around 8% from 1987 to 1997, and then gradually declined to rates below 6% in 2005.

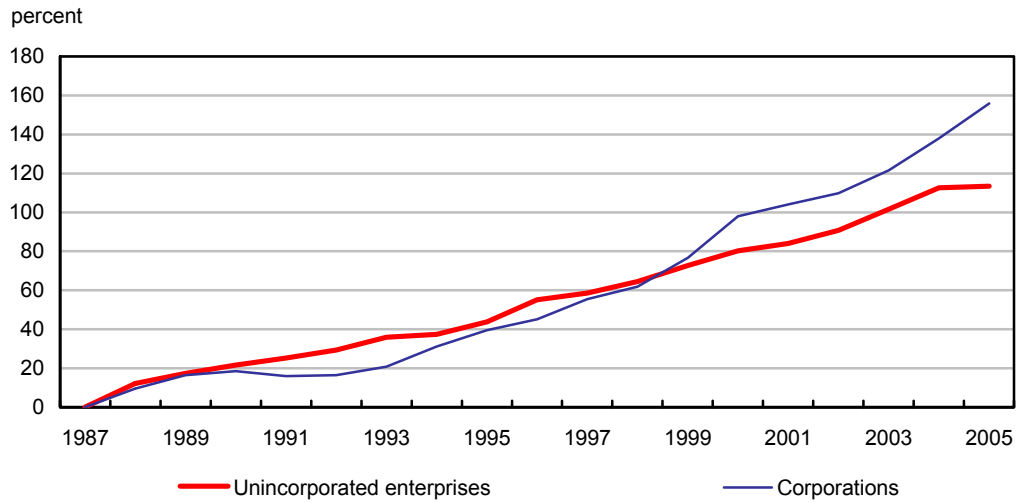
Chart 1
Share of Canadian unincorporated gross domestic product to overall business sector gross domestic product, 1987 to 2005



Source: Statistics Canada, author's calculations.

The growth of GDP in unincorporated enterprises followed a similar trend to that of corporate GDP throughout most of the 1990s (Chart 2). Since 1997 however, the growth of GDP of unincorporated enterprises slowed compared to that of corporations. GDP of unincorporated enterprises grew at an annual average rate of 4.3% from 1987 to 2005, 4.7% between 1987 and 1997 and 3.8% from 1997 to 2005.

Chart 2
Cumulative growth of Canadian gross domestic product by type of business, 1987 to 2005 (1987 = 0)



Source: Statistics Canada, author's calculations.

Corporate GDP grew at an average annual rate of 5.4% from 1987 to 2005, while growing 4.5% between 1987 and 1997 and 6.4% between 1997 and 2005. In the corporate sector, growth was strong in both goods-producing and service industries, averaging 4.9% and 5.7% respectively, from 1987 to 2005.

Over the past twenty years, the shift to services in the Canadian economy has had a greater impact on the unincorporated sector than on the corporate sector. The increase in the share of total GDP from 1987 to 2005 accounted for by the service industries was less pronounced for corporations than for unincorporated enterprises. The share of corporate GDP accounted for by service industries rose from 51.3% in 1987 to 54.6% in 2005, while the share of unincorporated GDP for the service industries climbed from 67.8% in 1987 to 76.5% in 2005.

Table 2
Gross domestic product of unincorporated enterprises

S level aggregation based on the North American Industry Classification [NAICS]	Level			Average annual growth rate			Proportion of total		
	1987	1997	2005	1987/2005	1987/1997	1997/2005	1987	1997	2005
	millions of dollars			percent					
All Industries	43,658	69,219	93,159	4.3	4.7	3.8	100.0	100.0	100.0
Goods-producing industries	14,036	17,196	21,851	2.5	2.1	3.0	32.2	24.8	23.5
Crop and animal production [1A]	7,002	7,718	6,998	0.0	1.0	-1.2	16.0	11.2	7.5
Forestry and logging [1B]	519	782	775	2.2	4.2	-0.1	1.2	1.1	0.8
Fishing, hunting and trapping [1C]	881	603	558	-2.5	-3.7	-1.0	2.0	0.9	0.6
Support activities for agriculture and forestry [1D]	177	145	175	-0.1	-2.0	2.4	0.4	0.2	0.2
Mining and oil and gas extraction [21]	156	297	278	3.3	6.7	-0.8	0.4	0.4	0.3
Utilities [22]	4	7	16	8.0	5.8	10.9	0.0	0.0	0.0
Construction [23]	4,860	6,903	12,239	5.3	3.6	7.4	11.1	10.0	13.1
Manufacturing [3A]	437	741	812	3.5	5.4	1.2	1.0	1.1	0.9
Service-producing industries	29,621	52,023	71,308	5.0	5.8	4.0	67.8	75.2	76.5
Wholesale trade [41]	845	1,336	1,538	3.4	4.7	1.8	1.9	1.9	1.7
Retail trade [4A]	3,207	4,604	5,822	3.4	3.7	3.0	7.3	6.7	6.2
Transportation and warehousing [4B]	1,844	3,441	3,943	4.3	6.4	1.7	4.2	5.0	4.2
Information and cultural industries [51]	10	147	303	20.8	30.7	9.5	0.0	0.2	0.3
Finance, insurance, real estate and rental and leasing [5A]	7,641	15,566	20,794	5.7	7.4	3.7	17.5	22.5	22.3
Professional, scientific and technical services [54]	4,000	7,542	11,622	6.1	6.5	5.6	9.2	10.9	12.5
Administrative and support, waste management and remediation services [56]	991	1,964	3,574	7.4	7.1	7.8	2.3	2.8	3.8
Educational services [61]	200	841	1,291	10.9	15.4	5.5	0.5	1.2	1.4
Health care and social assistance [62]	8,111	12,163	16,981	4.2	4.1	4.3	18.6	17.6	18.2
Arts, entertainment and recreation [71]	295	642	802	5.7	8.1	2.8	0.7	0.9	0.9
Accommodation and food services [72]	1,305	1,759	1,802	1.8	3.0	0.3	3.0	2.5	1.9
Other services (except public administration) [81]	1,172	2,018	2,836	5.0	5.6	4.3	2.7	2.9	3.0

Note: The average annual growth rate is the compound growth rate calculated between end points of the period.

Source: Statistics Canada, author's calculations.

3.2 Industry perspective

Much of the increase in unincorporated GDP in the service industries came from professional services, administrative services, finance and health (Table 2).¹¹ The finance, health and professional services industries generated over 40% of unincorporated GDP in 1987, while generating over half of the GDP of unincorporated enterprises in 2005.

The finance industry led the way, contributing \$20.8 billion in 2005, with a share of 22.3% of total unincorporated GDP, marking an increase from a 17.5% share in 1987. This industry is primarily driven by lessors of real estate (landlords), who traditionally account for about 80% of the unincorporated GDP produced in the finance industry.

In 1987, the health industry contributed \$8.1 billion, representing an 18.6% share of total unincorporated GDP. This contribution increased to \$17.0 billion in 2005, (18.2% of the total unincorporated GDP). Physicians' offices represented less than half of the industry's GDP in 1987, increasing slightly in the recent period. Since 2000, substantial increases occurred in other areas of the health industry, in particular the offices of all other health practitioners¹² and child day-care services.

The share of total unincorporated GDP accounted for by the professional services industry jumped from 9.2% in 1987 to 12.5% in 2005, as its GDP increased almost three-fold from \$4 billion in 1987 to \$11.6 billion in 2005. The majority of the professional services industry is comprised of lawyers and accountants. The large increase in the unincorporated share of the total between 1987 and 1997 in professional services came largely from the increase in GDP from lawyers, accountants and other professionals (including administrative management and general management consulting services, computer system design, management consulting services and veterinary services).

The remainder of the contribution to total unincorporated GDP by the service industries came from industries that have traditionally been important in the unincorporated sector, including the retail, truck transportation, other services and food service and drinking places industries.

For instance, the share of total unincorporated GDP in the retail industry has declined slightly since 1987. This partially reflects the increased competition from the entry of 'big box' retailers over the latter part of the 1990s (Kamhi and Leung 2005).¹³ Unincorporated stores operate in a variety of areas. In 2005, over 50% of net income was generated by health and personal care stores (the majority of these being pharmacies and drug stores), and other direct selling and grocery stores, including convenience stores. The remainder was generated by a variety of retail stores, including used-car dealerships; automotive parts and accessories stores; electronic and

11. The estimates in Table 2 are shown at the s-level aggregation, which is based on the North American Industry Classification system (NAICS). A more detailed representation at the w-level aggregation for some of the more important industries in the unincorporated sector is provided in Appendix C. The corporate estimate is provided in Appendix D.

12. NAICS Industry 62139 Offices of All Other Health Practitioners includes offices of acupuncturists, dental hygienists, denturists, dieticians, midwives, naturopaths, nutritionists, registered nurses and offices and clinics of podiatrists.

13. Kamhi and Leung (2005) suggest that self-employment in the retail sector began to decline in the mid 1990s as it faced increased competition from the entry of many 'big box' retailers during the latter part of the 1990s.

appliance stores, specialty food stores; sporting goods, hobby and musical instrument stores, and; building materials and supplies.

Other contributions came from owner-operator carriers in trucking and other services (largely comprised of personal services and auto repairs). A noticeable increase occurred in administrative services, which include industries such as janitorial services, office administrative, landscapers and document preparation services.

In the goods-producing sector between 1987 and 2005, a noticeable decline in the share of unincorporated GDP occurred in agriculture's crop and animal production industries, which fell from 16% in 1987 to 7.5% in 2005. Conversely, unincorporated GDP in the construction industry more than doubled, from \$4.9 billion in 1987 to \$12.2 billion in 2005. Most of these gains occurred during the latter part of the 1990s and after 2000. The last few years were characterized by a housing boom, lower interest rates and increases in housing starts.

In 2005, about two-fifths of unincorporated GDP in construction came from residential building construction and renovation, with most of the remainder being accounted for by specialty trade contractors such as finish carpentry; painting, drywall and insulation; plumbing; electrical; flooring; site preparation; framing; masonry; roofing and siding.

There are a number of reasons for the declines in the unincorporated GDP in agriculture. For over a century, Canadian farms grew and became more productive with a growing trend towards fewer, but larger, farms (Sparling, Laughland and Mitura 2008).¹⁴ Many of these larger farms have incorporated: Some may still be unincorporated or working through formal or informal partnerships. More farming activity is conducted as a second job, as farmers and their spouses take advantage of better non-farm employment opportunities (Bowlby 2002).

The fishing industry generated about \$881 million unincorporated GDP in 1987. This fell to \$558 million in 2005. Production of Canada's commercial sea (or capture) fisheries declined during the period between 1988 and 2000.¹⁵ The decline in volume of production is associated with a decline in several major species¹⁶, which led to the closure of the fishery for northern cod in 1992 and the reduction in the salmon fleet on the West Coast. During this period, the number of licensed fisherman decreased from 87,100 to 48,800.

3.3 Structural factors

Many of the structural factors affecting the business sector as a whole during the 1990s and 2000s have had a substantial impact on the unincorporated sector. These factors include the growth of services, in particular the professional and business service industries, fuelled by the rapid growth of computer services and outsourcing, the strong growth of the energy sector after 2000 (which affected many industries including several professional and business services), and the growth of the housing sector, as well as the construction industry, fuelled by domestic

14. The Census of Agriculture reported that the average area in hectares per farm reporting increased from 231 in 1986 to 295 in 2006. The number of farms declined from 293,089 in 1986 to 229,373 in 2006. The total farm area has remained relatively stable during this period (67,825,757 in hectares in 1986 to 67,586,739 in hectares in 2006).

15. See Fisheries and Oceans Canada (2003).

16. The value of fish landings, however has increased over the period as a result of an increase in fish prices and a switch to more expensive non-traditional species (such as shrimp and lobster).

demand (Cross 2005). The 1989 North American Free Trade Agreement (NAFTA) fostered a stronger manufacturing sector which, in turn, fuelled demand for many different types of services.

Macdonald (2007) has documented the structural changes occurring in the Canadian economy after 2002. The rise in resource prices beginning in 2003 (referred to as the ‘resource boom’), attracted labour into the resource industries, while an appreciating currency and strong competition contributed to reduced employment in manufacturing.

Within the manufacturing sector, restructuring occurred as output shifted from non-durable to durable production (Baldwin and Macdonald 2009). Manufacturers of non-durable products like paper, clothing or textiles were most affected and the level of their output declined. Manufacturers of durable goods, like metal products or machinery and equipment, increased their output as demand expanded in the resource sector. As the economy moved labour and capital into resource industries and manufacturers re-oriented themselves, the service sector expanded to meet new needs.

4 Trends in self-employment

4.1 Class of worker and business structure

While estimates of self-employed GDP cover only the unincorporated sector, data from the Labour Force Survey on self-employment cover both the unincorporated and incorporated sectors. Understanding changes in trends in the unincorporated sector may require examination of self-employment trends in the incorporated sector.

Growth of total self-employment from 1987 to 2005 averaged 2.2% per year, creating 812,500 jobs and outpacing growth of employment of paid workers (with an average growth of 1.4% per year). The period between 1987 and 1999 was extraordinary for those who were self-employed, as they created 733,900 jobs, which accounted for about 4 out of 10 new jobs in Canada.

Between 1987 and 1999, the growth in self-employment came mostly from those who did not hire paid workers (close to 700,000), while only 90,100 jobs were created by those self-employed who hired paid workers (Table 3). Gauthier and Roy (1997) suggested this large increase in own-account self-employment (during most of the 1990s), may have been the result of companies outsourcing labour to previous employees as they became self-employed. It is also possible that the increase reflected push factors associated with less-than-full employment.

Table 3
Paid employment and self-employment in the Canadian economy, 1976 to 2008

	All paid employees	Self-employed							Unpaid family worker
		Total	Incorporated enterprises			Unincorporated enterprises			
			Total	With paid help	Without paid help	Total	With paid help	Without paid help	
thousand									
1976	8,562.5	1,185.0	248.0	202.6	45.4	937.1	238.1	566.0	133.0
1977	8,706.9	1,210.3	270.1	224.6	45.5	940.1	246.2	571.9	122.0
1978	8,956.9	1,263.4	284.8	235.3	49.5	978.5	248.3	604.3	125.9
1979	9,343.9	1,324.7	307.8	258.3	49.5	1,016.9	251.5	635.9	129.5
1980	9,620.5	1,363.6	360.0	301.8	58.2	1,003.7	239.8	654.5	109.4
1981	9,879.9	1,425.2	402.9	337.7	65.2	1,022.3	251.2	651.5	119.6
1982	9,460.5	1,483.2	430.0	354.2	75.8	1,053.2	276.5	662.1	114.6
1983	9,478.8	1,543.2	448.2	369.1	79.1	1,094.9	296.1	686.6	112.2
1984	9,732.1	1,569.7	439.3	359.6	79.7	1,130.4	286.5	739.3	104.6
1985	9,901.2	1,726.0	486.7	404.0	82.7	1,239.3	333.7	793.5	112.1
1986	10,312.5	1,674.2	498.4	407.1	91.3	1,175.8	322.7	755.0	98.1
1987	10,633.9	1,699.1	518.8	419.7	99.1	1,180.3	315.7	772.0	92.6
1988	10,935.5	1,774.1	568.1	467.0	101.1	1,205.9	314.8	812.0	79.1
1989	11,195.9	1,800.3	580.3	468.1	112.2	1,219.9	326.2	822.2	71.5
1990	11,249.8	1,836.6	596.9	476.4	120.5	1,239.8	321.1	851.4	67.3
1991	10,961.6	1,895.8	633.6	500.2	133.4	1,262.2	332.5	865.1	64.6
1992	10,803.4	1,927.5	637.9	495.7	142.2	1,289.5	321.2	902.2	66.1
1993	10,781.6	2,011.1	647.2	502.9	144.3	1,363.9	321.9	968.6	73.4
1994	11,030.3	2,028.5	625.5	467.5	158.0	1,403.0	334.1	1,011.9	57.0
1995	11,212.3	2,083.1	676.9	507.1	169.8	1,406.2	316.4	1,032.9	56.9
1996	11,249.8	2,171.6	682.7	491.9	190.8	1,488.9	320.4	1,112.4	56.1
1997	11,356.6	2,349.4	781.4	528.9	252.5	1,568.0	287.7	1,215.9	64.4
1998	11,640.5	2,405.7	756.5	508.9	247.6	1,649.2	296.3	1,293.6	59.3
1999	11,973.8	2,433.0	809.7	532.9	276.8	1,623.3	292.6	1,285.9	44.8
2000	12,390.5	2,373.7	811.8	519.8	292.0	1,561.9	295.8	1,224.5	41.6
2001	12,669.5	2,276.7	799.5	495.3	304.2	1,477.2	291.8	1,153.0	32.4
2002	12,995.9	2,314.5	820.4	497.2	323.2	1,494.0	283.9	1,177.6	32.5
2003	13,270.5	2,401.8	868.4	513.1	355.3	1,533.4	283.1	1,216.3	34.0
2004	13,493.6	2,453.4	944.0	559.4	384.6	1,509.5	275.9	1,203.9	29.7
2005	13,658.2	2,511.6	990.7	590.4	400.3	1,520.8	273.4	1,221.8	25.6
2006	13,986.3	2,498.0	992.8	584.9	407.9	1,505.3	263.0	1,214.0	28.3
2007	14,251.4	2,615.0	1,043.5	594.8	448.7	1,571.5	260.7	1,285.5	25.3
2008	14,496.2	2,629.6	1,072.9	603.8	469.1	1,556.8	257.5	1,274.0	25.3
First difference									
thousand									
1976/1986	1,750.0	489.2	250.4	204.5	45.9	238.7	84.6	189.0	-34.9
1987/1999	1,339.9	733.9	290.9	113.2	177.7	443.0	-23.1	513.9	-47.8
2000/2005	1,267.7	137.9	178.9	70.6	108.3	-41.1	-22.4	-2.7	-16.0
2006/2008	509.9	131.6	80.1	18.9	61.2	51.5	-5.5	60.0	-3.0
Average annual growth rate									
percent									
1976/1986	1.9	3.5	7.2	7.2	7.2	2.3	3.1	2.9	-3.0
1987/1999	1.0	3.0	3.8	2.0	8.9	2.7	-0.6	4.3	-5.9
2000/2005	2.0	1.1	4.1	2.6	6.5	-0.5	-1.6	0.0	-9.3
2006/2008	1.8	2.6	4.0	1.6	7.2	1.7	-1.1	2.4	-5.4

Note: The average annual growth rate is the compound growth rate calculated between end points of the period.

Source: Labour Force Survey, CANSIM table 282-0012.

Most of the jobs (443,000) were created by the unincorporated self-employed. Jobs that came from those who did not hire paid workers (513,900), grew an average of 2.7% per year from 1987 to 1999. The difference is accounted for by the fact that jobs created for both paid workers and unpaid family workers working for the unincorporated self-employed declined substantially.

There was a reduction of 23,100 jobs, accounted for by the unincorporated self-employed with paid workers and a drop of 47,800 jobs, accounted for by the unincorporated self-employed with unpaid family workers. The incorporated self-employed created 290,900 jobs and grew an average of 3.8% per year; 177,700 of these jobs being from those incorporated self-employed who did not hire paid workers, 113,200 jobs being from those who did.

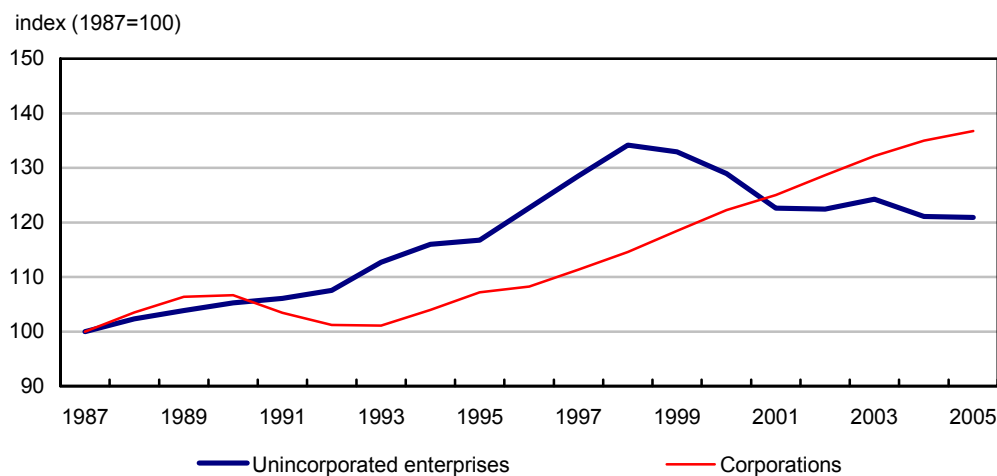
From 2000 to 2005, unincorporated self-employment declined moderately by 41,100 jobs while incorporated self-employment continued to grow from the previous decade, creating 178,900 jobs, growing an average of 4.1% per year.

4.2 Employment growth

The previous section examined both unincorporated and corporate self-employment. In this section, estimates for total employment of unincorporated enterprises and corporations are examined for the period between 1987 and 2005. These employment numbers include both self-employed and paid workers for both business structures. The methodology for deriving these totals is developed in Rispoli (2009) and summarized in Appendix E. The entire decline in the total employment of unincorporated enterprises (self-employed plus their paid workers), was accounted for by the self-employed.

Employment in unincorporated enterprises grew at a faster rate than employment in corporations throughout most of the 1990s (Chart 3), but declined after 1998, while employment in corporations continued to rise throughout the first five years of the 2000s.

Chart 3
Employment in the Canadian economy by business structure, 1987 to 2005



Source: Statistics Canada, author's calculations.

4.3 Industry composition by business structure

As is the case with GDP, the compositional shift in the industry structure of the self-employed is more pronounced for unincorporated enterprises than for those self-employed who incorporated. For unincorporated enterprises, the goods-producing industries played a much larger role in 1987 than in 2005, with their share of total unincorporated enterprises falling from 36.6% in 1987 to 25.4% in 2005. During the same period, the share of total self-employment in service industries increased from 63.4% in 1987 to 74.6% in 2005 (Table 4).

Despite the overall increase in self-employment, declines occurred in trade and other services. In the goods-producing industries, the decline occurred mainly in the agriculture industry, as its share of total self-employment fell from 21.2% in 1987 to 9.8% in 2005.

The increase in unincorporated self-employment in services occurred predominantly in professional services (with a relative share increase of 6.3 percentage points), business and other support services (with a relative share increase of 4 percentage points), finance (a relative share increase of 3.5 percentage points), educational services (a relative share increase of 1.6 percentage points), health (a relative share increase of 1.5 percentage points) and information (a relative share increase of 1.2 percentage points).

The industry distribution for incorporated self-employment has been fairly constant in the years from 1987 to 2005, during which time the share of self-employment in goods-producing industries fluctuated between 31.6% and 29.4%.

Substantial increases in incorporated self-employment from 1987 to 2005 occurred in both the goods-producing industries (127,000 jobs) and the service industries (345,100 jobs). For the goods-producing sector, increases occurred primarily in construction, while some gains occurred in agriculture, with the relative share of agriculture remaining constant throughout the period. Increases occurred throughout most of the service industries, but especially in the professional services sector, where its share increased substantially.

Table 4
Share of self-employment by type of business

	Share					
	Unincorporated enterprises			Corporations		
	1987	1999	2005	1987	1999	2005
	percent					
All Industries	100.0	100.0	100.0	100.0	100.0	100.0
Goods-producing	36.6	27.1	25.4	31.6	28.8	29.4
Agriculture	21.2	12.8	9.8	5.0	6.8	5.9
Forestry, fishing, mining, oil and gas	2.8	1.9	1.6	2.3	1.9	2.7
Construction	10.0	10.1	11.9	15.3	13.1	14.2
Manufacturing	2.6	2.4	2.1	9.0	7.0	6.5
Service-producing	63.4	72.9	74.6	68.4	71.2	70.6
Trade	12.5	10.4	9.0	25.8	19.0	17.5
Transportation and warehousing	5.2	5.8	5.2	4.1	4.9	5.4
Finance, insurance and leasing	3.2	5.3	6.7	5.7	5.4	6.5
Professional, scientific and technical services	7.4	12.8	13.7	10.2	15.7	16.4
Business, building and other support services	3.5	6.6	7.5	2.5	4.1	3.8
Educational services	1.4	2.4	3.0	0.4	1.2	1.1
Health care and social assistance	9.7	9.9	11.2	2.3	4.1	4.7
Information, culture and recreation	4.3	4.4	5.5	2.8	2.9	3.5
Accommodation and food services	3.2	2.6	2.5	6.4	6.3	5.4
Other services	13.0	12.6	10.4	7.8	7.5	6.3

Note: Data for unincorporated enterprises do not include unpaid family workers since they are suppressed for some industries in the Labour Force Survey.

Source: Labour Force Survey, CANSIM table 282-0012.

Table 5
First difference of self-employment by type of business

	First difference			
	Unincorporated enterprises		Corporations	
	1987/1999	2000/2005	1987/1999	2000/2005
	thousand			
All Industries	490.8	-25.1	290.9	178.9
Goods-producing	30.4	-27.6	69.5	65.0
Agriculture	-28.7	-30.4	29.0	7.4
Forestry, fishing, mining, oil and gas	-0.2	-4.2	3.4	9.0
Construction	49.9	9.7	26.9	38.1
Manufacturing	9.3	-2.6	10.1	10.3
Service-producing	460.4	2.5	221.5	113.8
Trade	28.2	-13.4	19.8	14.8
Transportation and warehousing	34.7	-12.3	18.5	5.9
Finance, insurance and leasing	49.1	21.0	14.1	17.0
Professional, scientific and technical services	121.7	16.7	74.0	31.1
Business, building and other support services	66.2	-6.4	20.2	1.9
Educational services	22.7	6.7	8.1	3.6
Health care and social assistance	51.5	6.0	21.1	12.4
Information, culture and recreation	21.7	13.5	9.1	8.5
Accommodation and food services	6.4	-5.0	18.0	6.9
Other services	57.9	-23.9	20.2	11.6

Note: Data for unincorporated enterprises do not include unpaid family workers since they are suppressed for some industries in the Labour Force Survey.

Source: Labour Force Survey, CANSIM table 282-0012.

4.4 Newly formed incorporated self-employed businesses

The previous sections have outlined how self-employment in the unincorporated sector declined, while in the corporate sector it continued to increase after 2000. This may have occurred either because the unincorporated self-employed responded to new demands as the economy expanded or, because unincorporated enterprises were shifting to incorporated status.

To shed light on this question we will look at changes in the industrial composition of self-employment, between unincorporated enterprises and corporations, to investigate whether a shift from one to the other occurred.

Growth in the incorporated sector is about equally large during the periods 1987 to 1999 and 2000 to 2005. In contrast, the unincorporated sector generally falls over the period 2000 to 2005 compared to the earlier period, but the size of the decline in the unincorporated sector is generally unrelated to the increase in the incorporated sector.

The increases in incorporated self-employment spanned many industries (Table 5). Some noticeable increases occurred in the professional services and construction industries. There were no widespread corresponding declines within the same industry in the unincorporated sector with two exceptions: transportation and trade. For the trade industry, the declines for unincorporated enterprises since 1997 were mostly in retail, while the increases for corporations were mostly in wholesale.

In general, the patterns of growth do not suggest that shifts occurred from unincorporated enterprises to corporations. Different forces were at work in the incorporated and unincorporated sectors. Sections 4.5 and 4.6 examine the differences between these two groups in more detail.

4.5 Factors effecting self-employment

Are changes in self-employment related to cyclical factors coming from the macroeconomic climate, or are they more effected by non-cyclical factors or underlying long-term trends in the economy? Examination of the cyclical nature of each self-employment category helps determine whether unincorporated and corporate self-employment respond differently to economic forces.

4.5.1 Long-term trends

Lin, Yates and Picot (1999) discuss the two schools of thought concerning the relationship between self-employment and economic conditions. The first school of thought suggests that individuals endowed with particular abilities, who are motivated to establish their own entrepreneurial businesses, can be pulled into self-employment in a sector that lends itself to self-employment expansion. Self-employment in this case will be related to a wide range of factors, including long-term trends or a favourable macroeconomic environment that contributes to the success of the industry and to the success of self-employed businesses contained therein. The second school of thought, on the other hand, is that individuals can be pushed into self-employment because they cannot find suitable paid employment during periods of economic hardship (Hipple 2004).¹⁷ If the pull theory applies, self-employment would not be related to unemployment. If the push theory applies, self-employment would be positively related to unemployment.

Individuals who are pulled into self-employment are likely found in all industries, but they will be more common in some, for example, doctors and dentists in the health industry; lawyers, accountants, engineers and other consultants in professional services; landlords in the finance industry and general contractors or trades people in the construction industry.¹⁸

4.5.2 Cyclical elements of self-employment

Self-employed workers, like paid workers, are likely to be effected by economic cycles. One argument is, that in downturns, new businesses may delay their start-ups for better economic times. There is however, a competing argument that some laid-off workers are pushed into the

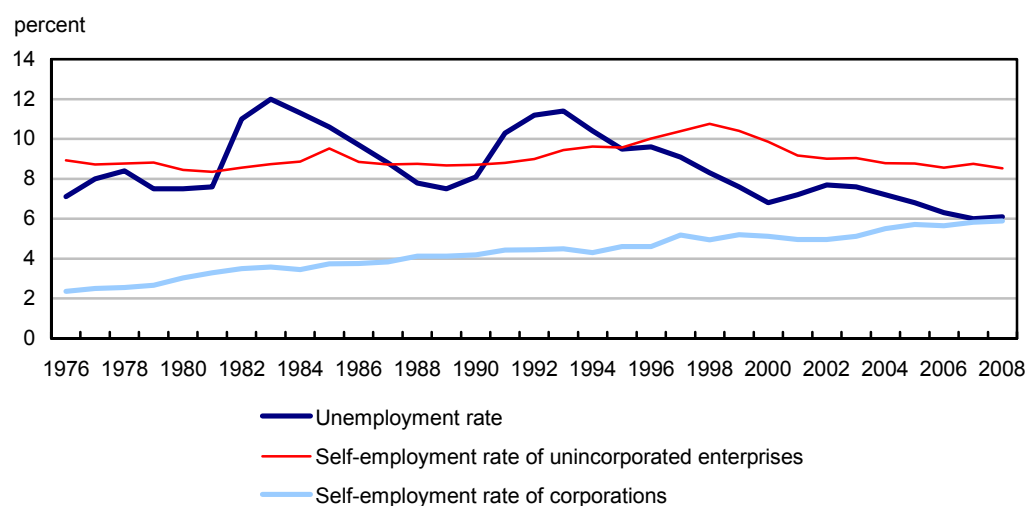
17. Rasteletti (2009) suggests that in the presence of labour-market frictions, two types of self-employed workers emerge. The first group includes entrepreneurs, while the second group uses self-employment as stopgap employment.

18. It is outside the scope of this paper to estimate GDP for incorporated self-employment, which at present is included with the rest of the corporations in the business sector. Hipple (2004), found that in the United States employment in incorporated self-employment tends to be concentrated in those occupations – management, professionals and related occupations – for which a large proportion of workers have advanced degrees.

self-employment market (Hipple 2004). Chart 4 depicts the relationship between the unemployment rate and the rates of unincorporated and incorporated self-employment in Canada.¹⁹

The long-term movements of the rate of self-employment during various economic cycles are quite different for unincorporated self-employment than for incorporated self-employment.²⁰ The rate of unincorporated self-employment increased during the 1980s and early 1990s (periods of high unemployment), but it gradually declined through the late 1990s and 2000s (periods of lower unemployment) to rates comparable to those seen in the 1970s (Chart 4). This historical pattern accords with the argument that many unincorporated enterprises are formed during weaker labour markets (as characterized by high unemployment rates), and subsequently disappear as labour market conditions improve. Unlike unincorporated enterprises, the rate of incorporated self-employment gradually increased over this period.

Chart 4
Impact of economic conditions on self-employed individuals of unincorporated enterprises and corporations, 1976 to 2008



Source: Statistics Canada, CANSIM table 282-0012.

The rate of unincorporated self-employment has fluctuated around its long-term trend. It increased during the mid-1980s and mid-1990s, following the recessions of 1981–1982 and 1990. This increase in the latter years of the business cycles suggests that either the push factor operated with a long lag or, what seems more plausible, important pull factors operated during the latter half of the economic cycle. Of course, the two may be related if upswings in an economy encourage paid workers who have been displaced to become self-employed or encourage new workers to consider self-employment rather than paid employment.

These patterns in the rates of unincorporated self-employed can be found in many industries including professional services; other services; health; construction; manufacturing and

19. The self-employment rate is expressed as the number of self-employed as a percentage of the labour force. The rate of unincorporated self-employment is expressed as the number of self-employed who are unincorporated as a percentage of the labour force. The rate of incorporated self-employment is expressed as the number of self-employed who are incorporated as a percentage of the labour force.

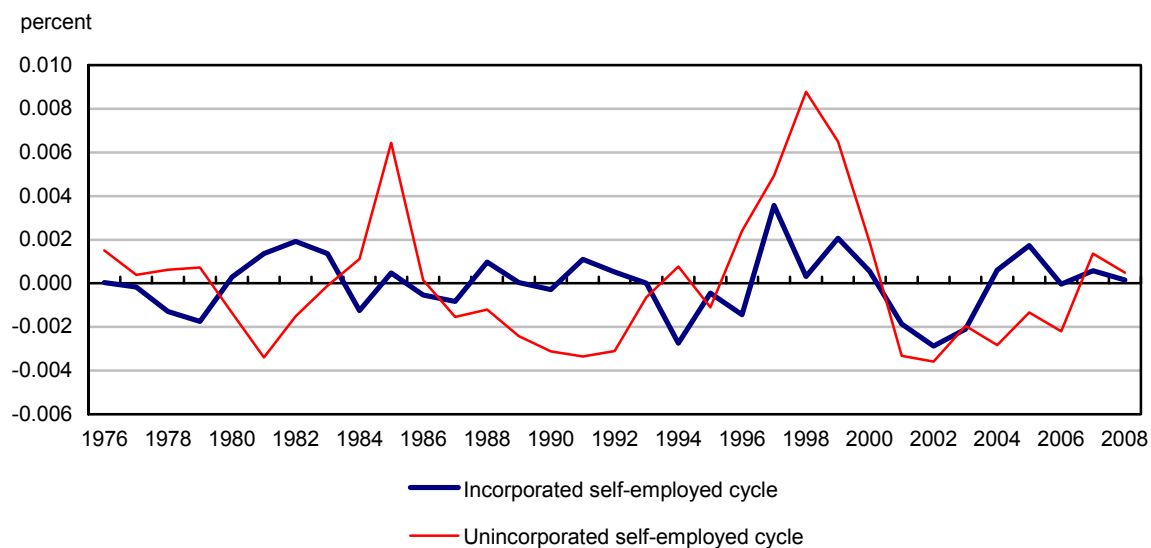
20. Lin, Yates and Picot (1999) found that exits out of self-employment (including both unincorporated and incorporated individuals) were negatively related to unemployment.

accommodation (See Appendix F).²¹ For other unincorporated industries, long-term factors may have had a larger impact on the rates of self-employment. Declining rates of self-employment occurred in agriculture, forestry and retail, well before the overall rate of self-employment began to decline in 1998. Rising rates throughout the 1990s and 2000s were observed in finance and education.

Moving from long-term trends to short-run cyclical fluctuations allows us to test whether the two types of self-employment respond differently to shorter frequency economic fluctuations.

Chart 5 depicts the deviation from the trend of the rate of unincorporated and the rate of incorporated self-employment. The trend line is shown as 0 on the y-axis.²² The movements in the rate of unincorporated self-employment are more pronounced than that of the corporate self-employment rate. The movements of the rate of incorporated self-employment are more stable with smaller deviations from the trend line. Interestingly, the two rates are not closely associated over time, with the exception of the late 1990's.

Chart 5
Deviations from trend of self-employed individuals of unincorporated enterprises and corporations, 1976 to 2008



Source: Statistics Canada, author's calculation, CANSIM table 380-0017.

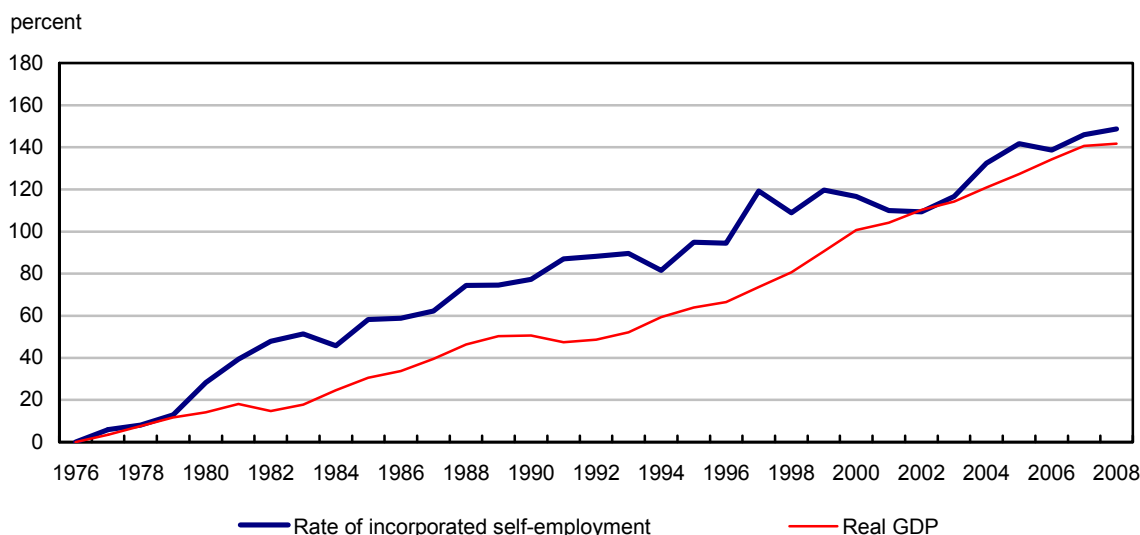
Generally, the two components react very differently to both short- and long-run economic trends. As in chart 4, these data show that, in the short-run, the rates of unincorporated self-employment increased several years after the major recessions in the early 1980s and 1990s, when the economy began to recover from the recessions. This did not occur for incorporated self-employment in the 1980s, but did, to a lesser extent, in the 1990s.

21. Industry data on the self-employed by class of worker only became available from the LFS starting in 1987.

22. The cycle is calculated using a Hodrick-Prescott filter.

The two self-employed categories also exhibited different long-run trends. Unlike unincorporated self-employment, that first increased and then decreased between 1976 and 2008, incorporated self-employment increased over the entire period. In Chart 6, we observe a strong positive correlation between the rates of incorporated self-employment and GDP. Throughout most of the 1990s and 2000s, the incorporated self-employment rate grew in step with the overall economy.

Chart 6
Cumulative growth rates of real gross domestic product (GDP) and rate of incorporated self-employment, 1976 to 2008 (1976 = 0)



Note: This phenomenon occurs across all of the industries that we have examined.
 Source: Statistics Canada, CANSIM tables 282-0008, 282-0012 and 380-0017.

4.6 Additional empirical evidence

This section provides additional empirical evidence on differences in the cyclical nature of the two components of self-employment, by using multivariate analysis to examine the long-run relationship between self-employment and indicators of overall economic activity, including the unemployment rate and real GDP.

To evaluate the relationship between the rate of unincorporated or incorporated self-employment and the unemployment rate, data were taken from the Labour Force Survey for the period 1976 to 2008 and used to estimate:

$$(1) S_t = \alpha + \beta U_{t-1} + \delta t + \varepsilon_t$$

where

S_t is the natural log rate of unincorporated self-employment at time t

U_t is the natural log rate of unemployment at time $t-1$

t is the time trend (year)

ε_t is a normal disturbance error.

The unemployment rate was lagged by one year as unemployed individuals experience an adjustment period to start up, or acquire, an existing business.

The Phillips-Perron unit root test was used to test for stationarity on both the unemployment and the unincorporated self-employment rate. We found that they both have unit roots so we conducted regressions in first differences in order to purge the relationship of potential similar underlying causes (Table 6).

In order to evaluate the relationship between the rate of unincorporated (or incorporated), self-employment and real GDP, data for the period 1976 to 2008, from both the Labour Force Survey and the National Accounts on real GDP (chain-linked 2002), were used to estimate:

$$(2) SI_t = \alpha + \beta GDP_t + \varepsilon_t$$

where

SI_t is the natural log of the rate of incorporated self-employment at time t

GDP_t is the natural log of real GDP (chain-linked 2002) at time t

ε_t is the normal disturbance term.

Although we found that both of these variables have unit roots, we ran these regressions using natural logs (and not first differences), as we are interested in determining whether the rising rates of incorporated self-employment can be partially explained by increases in the general trend of the economy that comes from long-term growth in GDP.

Table 6 presents regression results for the period 1976 to 2008. The first set of regressions finds a positive relationship between the unincorporated self-employment rate and the unemployment rate (0.11 and significant).²³ In the long run, a 10% increase in the unemployment rate raises the self-employment rate of unincorporated enterprises by 1.1%. On the other hand, the regressions do not show any relationship between the rate of unincorporated self-employment and real GDP.

The second set of regressions in Table 6 shows a positive relationship between the rate of incorporated self-employment and real GDP. On the other hand, the incorporated rate is not significantly related to the unemployment rate. In the long run, a 10% increase in real GDP raises the incorporated self-employment rate by 0.60%.

23. Lin, Yates and Picot (1999, p. 9) used data from an earlier period and found that in Canada, “on average, a 1% increase in the unemployment rate is found to be associated with 0.05% decrease in the overall self-employment level and 0.06% decrease in the overall self-employment rate.” These authors did not examine the unincorporated group separately. In contrast, Aaronson, Rissman and Sullivan (2004) found that in the United States from 2002 to 2003, a 10% increase in the state unemployment rate increases the state unincorporated rate of self-employment by between 0.4% and 0.7%, a finding more in keeping with that reported here.

Table 6
Regression of rate of unincorporated and incorporated self-employment with the unemployment rate and real gross domestic product

	Dependent variables					
	Unincorporated self-employment rate			Incorporated self-employment rate		
	coefficient	t-statistics	p-value	coefficient	t-statistics	p-value
First set of regressions						
Independent variables						
Unemployment rate ¹	0.110	2.040	0.051	-0.039	-0.520	0.610
Constant	0.000	-0.020	0.988	0.027	3.380	0.002
Summary statistics						
Observations (number)	31	...	...	31	...	...
R-squared	0.126	...	...	0.009	...	...
F-value	4.160	...	...	0.270	...	...
P-value	0.051	...	...	0.610	...	...
Second set of regressions						
Independent variables						
GDP ²	0.060	1.430	0.162	0.904	16.670	0.000
Constant	1.385	2.420	0.022	-10.917	-14.740	0.000
Summary statistics						
Observations (number)	32	...	...	32	...	...
R-squared	0.062	...	...	0.900	...	...
F-value	2.060	...	...	277.870	...	...
P-value	0.162	...	...	0.000	...	...

1. First difference in the natural log of the unemployment rate lagged by 1 year.

2. Natural log of real GDP.

Note: These coefficients are positive and significant across all major industries although slightly lower on services than goods.

Source: Regressions are based on data from Labour Force Survey, CANSIM tables 282-0008 and 282-0012.

5 Conclusion

This paper has examined the evolution of the unincorporated sector from 1987 to 2005 using the number of self-employed and gross domestic product (GDP) originating in the sector. It also analyzes how the rates of unincorporated and incorporated self-employment were related to the macroeconomic climate.

How did unincorporated GDP change from 1987 to 2005?

- Unincorporated enterprises contributed \$43.7 billion of GDP in 1987, almost doubling to \$93.2 billion in 2005.
- Unincorporated GDP (growing 4.7% per year between 1987 and 1997) tracked corporate GDP throughout most of the 1990s, but grew at a slower rate between 1997 and 2005 (3.8% per year), compared to corporate GDP (6.4% per year).
- GDP shares of unincorporated enterprises shifted toward service industries. Service industries have grown from 67.8% of unincorporated GDP in 1987 to 76.5% of unincorporated GDP in 2005. Unincorporated GDP produced by service industries more than doubled, increasing from \$29.6 billion in 1987 to \$71.3 billion in 2005.

- Many of the increases in unincorporated GDP in the service industries came from professional services, administrative services, finance and health. The finance, health and professional services industries generated just over 40% of unincorporated GDP in 1987, while generating just over half of the GDP of unincorporated enterprises in 2005.
- The compositional shift from goods to services was more pronounced in unincorporated enterprises than corporations. The share of services for corporations increased from 51.3% in 1987 to 54.6% in 2005.

How did unincorporated self-employment change during the period from 1987 to 2005?

- Growth of total self-employment from 1987 to 2005 averaged 2.2% per year, creating 812,500 jobs, outpacing the employment growth of paid workers (whose average growth was 1.4%).
- The unincorporated self-employed created most of the jobs in the business sector (409,400 jobs), between 1990 and 1998. Job creation however, decreased dramatically between 2000 and 2005 for the unincorporated sector. Incorporated self-employment, on the other hand, continued to grow between 2000 and 2005, when 178,900 new jobs were created.
- As was the case with GDP, the compositional shift in the industry structure from goods to services of the self-employed was more pronounced for unincorporated enterprises than for those self-employed individuals who incorporated. The share of unincorporated self-employment climbed from 63.4% to 74.6% in 2005, while the share of corporate self-employment increased from 68.4% in 1987 to 70.6% in 2005. The increase in the share of unincorporated self-employment for services occurred predominantly in professional services; business and other support services; finance; educational services; health, and information.

How are changes in the macroeconomic climate related to the self-employment rate of unincorporated enterprises and corporations?

- Generally, the two components of self-employment react very differently to the macroeconomic climate.
- The rate of unincorporated self-employment was positively correlated to the rate of unemployment. The rate of unincorporated self-employment grew throughout most of the 1990s, while after 2000, it returned to rates similar to those seen during the 1970s. This historical pattern suggests that many unincorporated enterprises are formed during weaker labour markets (as characterized by high unemployment rates), and subsequently disappear as labour market conditions improve.
- The rate of incorporated self-employment was strongly correlated to the underlying trend in real GDP rather than unemployment.

Appendix A – Methodology – For period 1997 to 2005

A.1 Variables

The estimates of aggregates for the gross domestic product (GDP) of incorporated and unincorporated sectors were prepared as follows.

Gross domestic product of the incorporated sector

Labour income + operating surplus (for example, capital consumption) + other taxes on production – other subsidies in production

Gross domestic product of the unincorporated sector

Labour income + mixed income + other operating surplus (for example, capital consumption) + other taxes on production – other subsidies in production

In the Canadian Input-Output Accounts, the main GDP aggregates (i.e., labour income and other operating surplus), have been reconciled with the Income and Expenditure Accounts (IEA). In this paper, the components of other operating surplus have not been reconciled with IEA and are based on the author's own calculations. All of the calculations are outlined below. Estimates were obtained from the Input-Output Accounts for the years 1997 (final), 1998 (final); 1999 (final), 2000 (final), 2001 (final), 2002 (final), 2003 (final), 2004 (final), and; 2005 (preliminary).

A.2 Industries

Estimates were prepared at the S-level aggregation (25 industry groupings), but for the more important unincorporated industries estimates were prepared at the W-level (300 industries) and then aggregated to the S-level. The Owner Occupied Dwellings are not included as part of the study in the estimates of the unincorporated sector. Concerning the treatment of owner-occupied dwellings, the 1993 System of National Accounts (SNA) states “the ratio of owner-occupied to rented dwellings can vary significantly between countries and even short periods of time within a country, so that both international and intertemporal comparisons of production and consumption of housing services could be distorted if no imputation were made for the value of own-account housing services” (1993 SNA, paragraph 6.29).

The S-level industry Health Care and Social Assistance was disaggregated into five W-level industries including Offices of Physicians and Offices of Dentist; the Finance Industries (S level) into the thirteen W-level industries including Lessors of Real Estate and Office of Real Estate Agents and Brokers; Transportation and warehousing (S level) into four W-level industries including Truck Transportation and Taxis and Limousine Services; and Accommodation and Food Service (S level) into three W-level industries including Food Service and Drinking Place.

A.3 Data sources

Data are drawn from a variety of sources. The analysis examines growth rates, the ratio of GDP (and its components) to gross output and the share of GDP to the total industry. Some data on gross output and GDP were provided by SNA analysts' worksheets. These included industries for offices of physicians, offices of dentists, lessors of real estate, agriculture, mining and oil and gas extractions and utilities. For the other industries, estimates were developed by employing the same data sources used in the production of the Canadian Input-Output Accounts.

For the unincorporated sector, data were drawn from Canada Revenue Agency's T1 Universe File, Statistics Canada T1 (Tax Estimate Program [TEP]),²⁴ SNA analysts' worksheets, and the T1 portion of various Statistics Canada surveys, listed below:

- Census of Agriculture
- Unified Enterprise Surveys (UES) including retail; wholesale; manufacturing; forestry; accountants; and, food service industry
- Transportation surveys including motor carriers of freight, couriers and local messenger industry, and taxi and limousine service
- Various service surveys including automotive repairs, beauty salons, unisex hair salons, and barbershops.

For gross output, data were drawn from the T1 Universe file, gross revenues from TEP, operating revenues from the T1 portion of Statistics Canada surveys and worksheets provided by SNA analysts. Various trends of self-employed owners of unincorporated enterprises from the Labour Force Survey (LFS) were employed to arrive at estimates of gross output. Similarly, data produced by the Micro-economic Analysis Division (MEAD), for employment for hours worked for self-employed and paid employees were used.

For GDP, data were drawn from the GDP components from TEP, T1 portion of Statistics Canada Surveys and from worksheets provided by SNA analysts. Mixed income was used 'as is' from the published Input-Output Accounts. The estimates for other taxes on production; other subsidies on production; claims; financial surplus adjustment and software adjustments; and 'resource rents and royalties' were based on their respective shares of gross output.

The corporate estimates were drawn from the T2 portion of the Statistics Canada surveys listed above. Some establishment data on the sales of goods and services from Generalized Index of Financial Information (GIFI) were analyzed to determine the trend in gross output for industries in the incorporated sector. This was the basis for estimating gross output for the incorporated sectors while the portion for the unincorporated sector was derived residually. This was done for physicians and dentists, various construction industries, accountants and lawyers.

The interest and depreciation components of operating surplus for the incorporated sector were derived from the T2 portion of Statistics Canada surveys, the Generalized Index of Financial Information (GIFI), the Annual Financial and Taxation Statistics, the Industrial Organization and Finance Division (IOFD), and from analysts' worksheets. The combined estimates of

24. The Tax Estimate Program estimates by Methodology Division are based on a sample of the T1 data from the Canada Revenue Agency.

depreciation for both sectors were further compared with the geometric depreciation by industry from Investment and Capital Stock to determine the appropriate level and growth.

A.4 Data limitations

Data sources for which data are missing for some years:

- Data are not available for GIFI prior to 1999
- Data are not available for various UES surveys prior to 1999
- Data are not available in T1 TEP for 1997, and interest payment is missing for 1998 and
- Data are not available for Claims, Financial Surplus and Software adjustments for 1997 and 1998.

Data quality

- There is a break in the IOFD data between 1998 (the last year using Standard Industrial Codes), and 1999 (the first year using North American Industrial Codes)
- T1 Universe data over-estimated gross revenue for lawyers and accountants because of double counting the revenues of partnerships.

Both the missing data and other data quality issues were addressed through careful scrutiny and analysis. This included using the ratio of GDP (including the various components) to gross output of previous years to move current period GDP values, or by trending gross output of various industries in the unincorporated sector with employment and hours worked data from the Labour Force Survey (LFS) or Micro-economic Analysis Division (MEAD).

Appendix B – Methodology – For period 1987 to 1997

Table B-1
Methodology and data used to estimate the unincorporated sector 1987 to 1997

North American Industry Classification System [NAICS] ^{1,5}	Level											Share to business sector GDP
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1997
	millions of dollars											percent
Mixed income												
Total industries	32,745.8	36,395.8	36,841.8	37,596.8	38,875.4	41,132.7	44,085.2	46,185.9	49,065.7	53,102.6	56,325.6	...
Crop and animal production [1A]	1,985.0	3,283.0	1,987.0	2,053.0	1,854.0	1,727.0	2,017.0	1,255.0	2,702.1	3,825.0	1,662.5	23.6
Forestry and logging [1B]	320.0	340.7	395.1	381.8	368.2	373.0	376.5	439.3	441.2	464.9	481.9	63.0
Fishing, hunting and trapping [1C]	690.4	585.5	483.8	454.9	443.7	474.4	545.7	566.2	632.6	513.0	472.5	80.3
Support activities for agriculture and forestry [1D]	122.0	138.2	146.8	157.7	171.3	186.0	197.6	218.7	226.4	245.0	99.7	69.3
Mining and oil and gas extraction [21]	79.9	93.5	99.8	123.8	127.1	119.1	118.1	125.0	130.0	136.9	152.6	52.9
Utilities [22]	0.6	0.7	0.8	0.7	0.7	1.4	1.2	0.8	0.9	0.0	0.6	10.1
Construction [23]	3,284.8	3,516.7	3,778.7	3,660.7	3,376.6	3,619.6	3,788.4	4,059.8	3,804.8	4,081.3	4,665.6	72.2
Manufacturing [3A]	231.0	247.3	255.1	242.3	246.0	231.2	270.0	309.7	346.6	354.9	392.0	54.8
Wholesale trade [41]	453.0	456.6	464.7	495.1	405.3	442.9	462.6	519.5	598.5	652.0	716.5	55.9
Retail trade [4A]	1,987.1	2,195.0	2,156.5	2,183.3	2,563.8	2,692.9	3,048.3	2,509.5	2,558.9	2,731.9	2,853.0	63.7
Transportation and warehousing [4B]	1,090.2	1,215.6	1,383.3	1,489.8	1,417.7	1,615.7	1,816.1	1,806.4	1,692.4	1,768.7	2,033.9	62.2
Information and cultural industries [51]	7.0	9.5	8.3	16.1	9.3	8.3	18.3	16.9	22.5	23.0	101.6	73.2
Finance, insurance, real estate and rental and leasing [5A] ¹	1,172.8	1,375.4	1,383.6	1,347.9	1,488.7	1,663.4	1,962.4	2,409.2	2,434.5	3,001.3	3,801.3	36.5
Professional, scientific and technical services [54]	2,595.1	3,054.1	3,392.0	3,503.9	3,563.2	3,610.6	3,642.7	3,771.8	4,023.9	4,224.1	4,892.8	65.9
Administrative and support, waste management and remediation services [56]	763.4	1,000.6	1,155.0	1,199.9	1,109.8	1,153.8	1,276.5	1,396.7	1,474.2	1,564.9	1,513.4	79.0
Educational services [61]	134.5	142.5	149.0	169.7	179.2	187.3	190.6	190.4	190.0	477.5	564.6	69.4
Health care and social assistance [62]	6,086.1	6,592.4	7,187.4	7,650.4	8,394.7	8,800.2	8,823.2	9,063.5	9,119.0	8,941.9	9,126.9	75.5
Arts, entertainment and recreation [71]	217.8	257.4	270.6	239.7	253.5	258.1	302.9	294.1	306.0	316.1	473.7	77.6
Accommodation and food services [72]	727.8	824.3	907.0	918.8	1,025.1	1,045.9	1,094.1	1,140.1	1,136.9	1,112.1	980.8	57.5
Other services (except public administration) [81]	726.4	806.6	896.4	899.3	868.5	887.7	922.1	980.1	1,059.2	1,151.3	1,250.5	63.5
Gross domestic product												
Crop and animal production [1A]	10,418.0	10,802.0	11,739.0	12,270.0	11,981.0	11,774.0	11,959.0	12,117.0	13,164.0	14,819.0	12,756.0	..
Lessors of real estate [5A03]	17,545.0	18,842.0	21,444.0	23,266.0	25,277.0	25,293.0	25,734.0	25,840.0	26,307.0	27,628.0	29,341.0	..

1. Excludes owner occupied dwellings.

Source: CANSIM tables 381-0013 and 379-0023.

The GDP estimates for the unincorporated sector were determined by back-casting its 1997 GDP level (Table 2), using the mixed income component of GDP for unincorporated enterprises since mixed income represents over two-thirds of GDP. Finance and agriculture were treated differently.

For the finance (consisting primarily of lessors of real estate), and agriculture industries the other components of GDP (primarily interest payments and depreciation) accounted for over two-thirds of GDP. Growth of GDP in the overall industry for both the lessors of real estate and agriculture was used to back-cast results from 1997. This approach was taken because GDP encompasses a broader measure of income that includes depreciation and interest payments.

Appendix C – Gross domestic product of unincorporated enterprises

Table C-1

Unincorporated gross domestic product for selected industries ranked by importance, 1997 to 2005

Industry group	Level									Average annual growth
	1997	1998	1999	2000	2001	2002	2003	2004	2005	1997/2005
	millions of dollars									percent
All industries	69,219	71,843	75,406	78,700	80,335	83,254	88,012	92,827	93,159	3.8
Goods-producing industries	17,196	17,311	17,938	17,756	18,206	18,856	20,575	23,107	21,851	3.0
Service-producing industries	52,023	54,532	57,468	60,944	62,129	64,398	67,437	69,720	71,308	4.0
Finance, insurance, real estate and rental and leasing	15,566	16,433	17,067	17,726	17,548	17,932	19,497	20,067	20,794	3.7
Lessors of real estate	13,674	14,438	14,853	15,240	15,008	15,338	16,862	17,101	17,550	3.2
Agencies, brokerage and other insurance	861	894	1,000	1,196	1,192	503	565	447	500	-6.6
Offices of real estate agents/ brokers	792	896	903	935	1,059	1,654	1,669	1,902	2,031	12.5
Health care and social assistance	12,163	12,438	13,011	13,898	14,830	15,528	16,108	16,779	16,981	4.3
Offices of physicians	6,785	6,990	7,313	7,662	8,127	8,583	9,088	9,657	9,741	4.6
Offices of dentists	2,454	2,615	2,712	2,948	2,970	3,048	3,029	2,965	2,871	2.0
Professional, scientific and technical services	7,542	8,258	9,179	10,111	10,195	10,551	10,938	11,405	11,622	5.6
Construction	6,903	7,042	7,323	7,582	8,025	8,900	10,184	11,349	12,239	7.4
Crop and animal production	7,718	7,751	7,787	7,329	7,405	7,227	7,641	8,953	6,998	-1.2
Retail trade	4,604	4,807	5,199	5,446	5,548	5,787	5,606	5,819	5,822	3.0
Transportation and warehousing	3,441	3,784	3,615	3,636	3,654	3,722	3,782	3,838	3,943	1.7
Truck transportation	2,490	2,803	2,626	2,668	2,777	2,787	2,885	3,034	3,091	2.7
Administrative and support, waste management and remediation services	1,964	2,016	2,186	2,446	2,645	2,862	3,310	3,426	3,574	7.8
Other services (except public administration)	2,018	2,090	2,277	2,391	2,522	2,626	2,677	2,712	2,836	4.3
Accommodation and food services	1,759	1,603	1,511	1,618	1,576	1,740	1,759	1,824	1,802	0.3
Food service and drinking places	1,306	1,191	1,078	1,179	1,158	1,232	1,249	1,262	1,263	-0.4
Wholesale trade	1,336	1,428	1,638	1,728	1,551	1,500	1,554	1,561	1,538	1.8
Educational services	841	910	1,004	1,071	1,123	1,180	1,184	1,221	1,291	5.5
Manufacturing	741	742	861	947	874	802	816	788	812	1.2
Forestry and logging	782	733	777	768	775	824	805	852	775	-0.1
Arts, entertainment and recreation	642	551	547	629	698	734	750	783	802	2.8
Fishing, hunting and trapping	603	553	703	672	621	632	649	644	558	-1.0
Mining and oil and gas extraction	297	333	306	265	285	255	255	273	278	-0.8
Information and cultural industries	147	214	234	244	239	236	272	285	303	9.5
Support activities for agriculture and forestry	145	153	164	174	195	197	207	231	175	2.4
Utilities	7	4	17	19	26	19	18	17	16	10.9

Note: The average annual growth rate is the compound growth rate calculated between end points of the period.

Source: Statistics Canada, author's calculations.

Appendix D – GDP of corporations

Table D-1

Corporations gross domestic product for selected industries ranked by importance, 1997 to 2005

Industry Group	Level									Average annual growth
	1997	1998	1999	2000	2001	2002	2003	2004	2005	1997/2005
	millions of dollars									percent
All Industries	542,900	564,916	616,332	690,985	712,266	732,443	773,686	830,816	893,124	6.4
Good-producing industries	247,268	250,446	280,240	328,639	324,875	325,083	345,278	371,161	405,361	6.4
Services-producing industries	295,632	314,470	336,092	362,346	387,391	407,360	428,408	459,655	487,763	6.5
Manufacturing	141,525	149,334	169,445	186,515	179,061	181,917	179,821	185,622	184,911	3.4
Finance, insurance, real estate and rental and leasing	76,261	79,454	84,182	90,546	97,837	101,456	105,931	113,962	119,544	5.8
Lessors of real estate	15,667	15,466	17,866	16,791	18,491	18,983	19,014	19,612	20,555	3.5
Agencies, brokerage and other insurance	3,067	3,116	3,010	3,268	3,673	4,715	4,607	5,217	5,294	7.1
Offices of real estate agents/brokers	2,651	2,815	3,124	3,440	4,180	4,565	5,028	5,875	6,647	12.2
Wholesale trade	42,355	44,020	46,619	49,204	51,800	53,716	57,306	62,376	66,326	5.8
Mining and oil and gas extraction	33,639	27,101	34,161	60,641	59,157	53,233	71,290	85,114	110,784	16.1
Retail trade	37,618	40,754	42,616	45,865	48,879	52,651	57,412	60,568	63,741	6.8
Construction	36,093	37,116	38,902	42,066	46,186	48,875	50,997	56,619	63,647	7.3
Transportation and warehousing	34,683	35,959	38,163	40,261	42,716	43,951	44,446	46,861	51,309	5.0
Truck transportation	7,770	8,564	8,946	9,533	10,877	10,969	11,027	11,839	13,395	7.0
Professional, scientific and technical services	22,570	26,213	28,546	33,456	35,879	37,649	40,293	42,705	46,141	9.4
Information and cultural industries	25,939	28,053	30,086	31,906	33,965	36,080	37,767	41,196	42,876	6.5
Utilities	25,435	24,941	25,213	26,222	27,013	27,295	29,465	29,119	31,347	2.6
Accommodation and food service	17,712	18,950	20,417	21,645	22,423	23,476	23,454	24,906	26,226	5.0
Food service and drinking places	11,391	12,099	13,371	14,185	14,792	15,497	15,636	16,538	17,298	5.4
Administrative and support, waste management and remediation services	13,361	14,653	16,531	17,921	19,862	21,920	23,218	25,506	27,819	9.6
Other services (except public administration)	11,387	11,923	13,080	14,125	15,137	16,026	16,772	17,877	18,938	6.6
Health care and social assistance	8,048	8,472	9,195	10,058	10,910	11,694	12,795	13,997	15,183	8.3
Offices of physicians	1,804	1,896	2,072	2,406	2,775	2,968	3,411	3,575	3,936	10.2
Offices of dentists	1,004	1,128	1,212	1,271	1,518	1,687	1,929	2,253	2,530	12.2
Crop and animal production	5,038	6,052	6,656	7,132	7,764	7,385	7,690	8,132	7,834	5.7
Arts, entertainment and recreation	5,036	5,194	5,725	6,380	6,965	7,613	7,841	8,428	8,292	6.4
Forestry and logging	4,691	4,976	4,712	4,811	4,354	4,971	4,519	5,088	5,203	1.3
Educational services	662	825	932	979	1,018	1,128	1,173	1,273	1,368	9.5
Support activities for agriculture and forestry	603	649	826	873	894	922	975	980	1,096	7.8
Fishing, hunting and trapping	244	277	325	379	446	485	521	487	539	10.4

Note: The average annual growth rate is the compound growth rate calculated between end points of the period.

Source: Statistics Canada, author's calculations.

Appendix E – Methods and analysis of self-employment and hours worked in the unincorporated sector

E.1 Methods

The employment and hours worked series from 1987 to 2005 consists of self-employed owners and those who work for owners as paid employees. The hours worked data for self-employed owners are obtained directly from Statistics Canada's Labour Productivity Program (SCLPP) on self-employment of working owners of unincorporated farms, businesses or professional practices.

The employment data of self-employed owners is obtained from the Labour Force Survey (LFS). The employment of the paid employees was estimated by applying the unincorporated share of labour income for the latest year 1997 to the LFS data on private sector employment of paid employees. The hours worked of the paid employees were estimated by applying the unincorporated share of labour income for the latest year 1997 to the SCLPP data on private sector employment of paid employees. These two components (self-employment and paid employment) were added together to arrive at the employment and hours worked for the unincorporated sector.

Similarly, the employment estimate for the incorporated sector includes both self-employed owners of corporations and paid employees of corporations. The first group was obtained directly from the LFS. The second group was derived residually by subtracting the estimate of the unincorporated sector from the private sector employment of paid employees from the LFS. They were then summed to arrive at the total employment and hours worked for corporations.

E.2 Trends in unincorporated hours worked

The hours worked for unincorporated enterprises follow a trend similar to employment between 1987 and 2005. They were very strong during the 1990s and then declined marginally during the 2000s (Table 7).

Some noticeable decreases occurred in agriculture and retail. For agriculture, hours worked declined by 300 million hours between 1987 and 2005 and its share of hours worked in the unincorporated sector declined by about 50% (from 28.4% in 1987 to 14.6% in 2005). In the retail industry, there were substantial declines since 1999: 4.7%, on average.

Between 1987 and 2005, there were some noticeable increases in the hours worked for unincorporated enterprises, particularly in the service-producing industries. Many service-producing industries saw their share of total unincorporated enterprises increase, with the largest increase occurring in professional services, which rose from 9.2% of the total unincorporated enterprises in 1987 to 14% in 2005. Other industries in which an increase occurred were health, administrative, and finance industries. A noticeable increase in the goods-producing industries occurred in the construction industry.

Table E-1
Hours worked for unincorporated enterprises

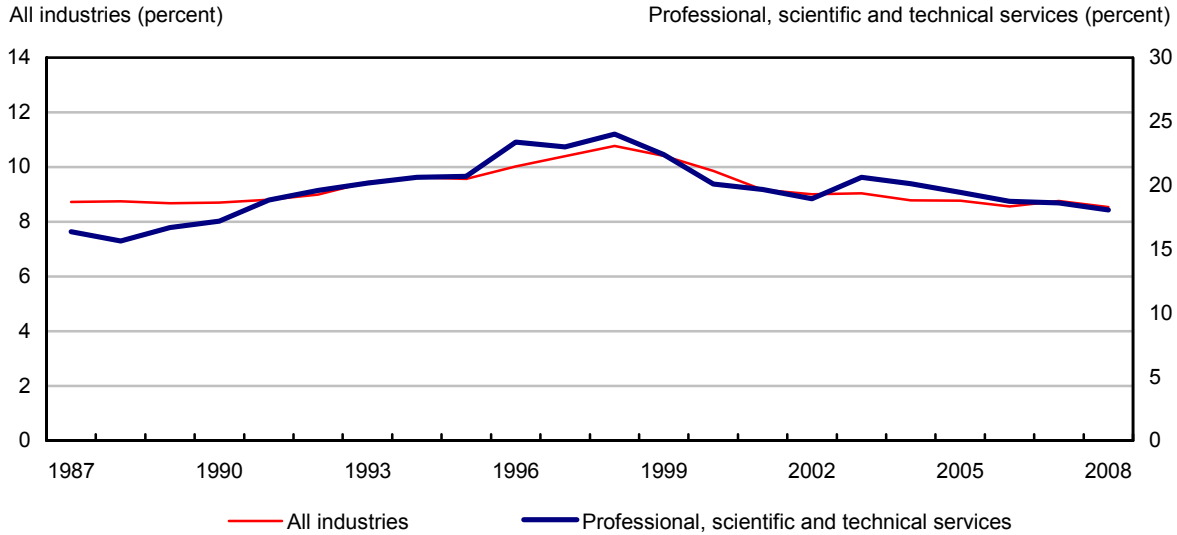
Industry	Hours worked			Average annual growth			Proportion of total hours worked		
	1987	1999	2005	1987/2005	1987/1999	1999/2005	1987	1999	2005
	millions of hours			percent					
Forestry	22.3	21.5	17.2	-1.4	-0.3	-3.7	0.8	0.6	0.5
Fishing	36.8	30.9	14.8	-5.0	-1.5	-11.6	1.3	0.9	0.4
Agriculture and related services	822.3	724.1	520.1	-2.5	-1.1	-5.4	28.4	20.0	14.6
Mining and oil and gas extractions	3.5	11.8	10.9	6.5	10.7	-1.3	0.1	0.3	0.3
Utilities	0.9	0.6	1.1	0.9	-3.8	10.9	0.0	0.0	0.0
Construction	253.0	310.8	376.4	2.2	1.7	3.2	8.7	8.6	10.6
Manufacturing	92.5	100.3	137.3	2.2	0.7	5.4	3.2	2.8	3.9
Wholesale trade	54.0	84.8	74.7	1.8	3.8	-2.1	1.9	2.3	2.1
Retail trade	310.8	357.0	268.3	-0.8	1.2	-4.7	10.7	9.8	7.5
Transportation	144.2	204.9	192.6	1.6	3.0	-1.0	5.0	5.6	5.4
Information services	30.4	56.7	32.0	0.3	5.3	-9.1	1.0	1.6	0.9
Finance	78.1	165.9	200.0	5.4	6.5	3.2	2.7	4.6	5.6
Professional services	266.3	464.2	500.0	3.6	4.7	1.2	9.2	12.8	14.0
Administrative	45.7	112.6	178.8	7.9	7.8	8.0	1.6	3.1	5.0
Education	44.2	42.0	50.2	0.7	-0.4	3.0	1.5	1.2	1.4
Health	275.5	425.8	470.9	3.0	3.7	1.7	9.5	11.7	13.2
Arts and entertainment	60.1	76.4	99.2	2.8	2.0	4.4	2.1	2.1	2.8
Accommodation and food services	155.4	173.4	148.5	-0.3	0.9	-2.5	5.4	4.8	4.2
Other services	204.2	265.9	269.2	1.5	2.2	0.2	7.0	7.3	7.6
Total unincorporated sector	2900.4	3629.5	3562.1	1.1	1.9	-0.3	100.0	100.0	100.0

Note: The average annual growth rate is the compound growth rate calculated between end points of the period.

Source: Statistics Canada, author's calculations.

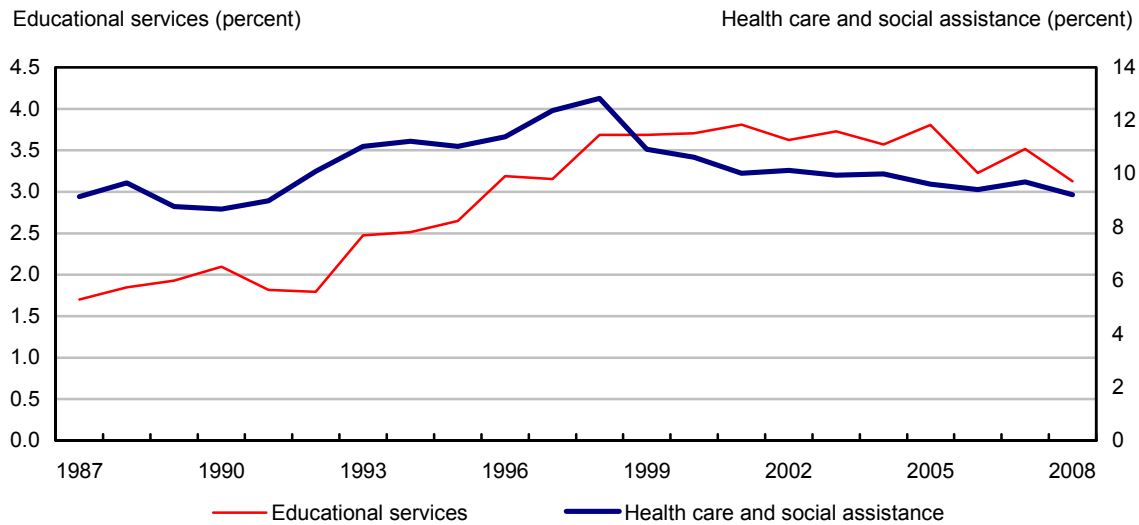
Appendix F – Rates of unincorporated self-employment by industry

Chart F-1
Unincorporated self-employment rate for all industries and for professional, scientific and technical services, 1987 to 2008



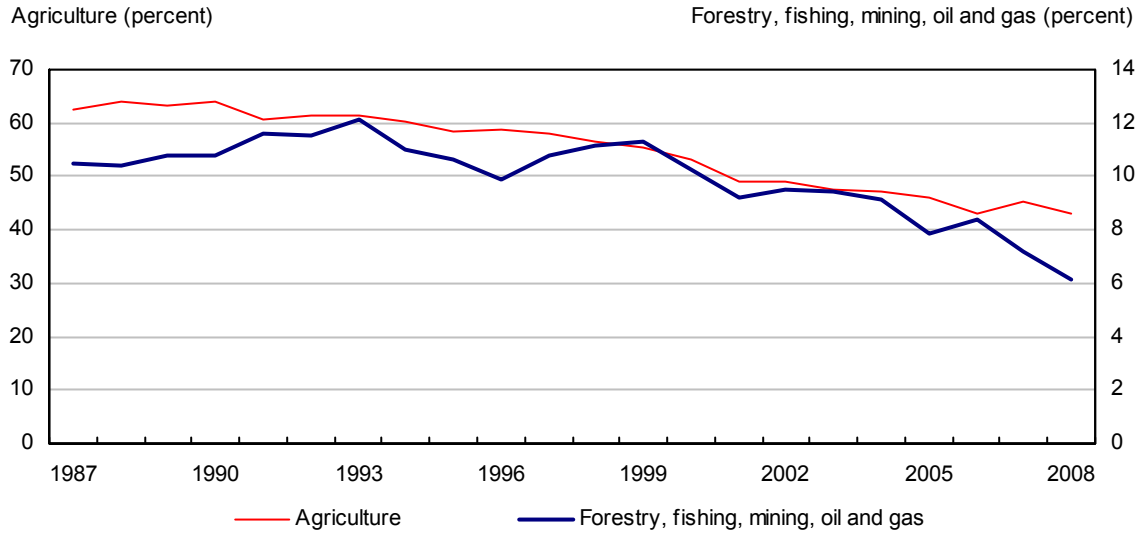
Source: Statistics Canada, CANSIM tables 282-0008 and 282-0012.

Chart F-2
Unincorporated self-employment rate for educational services and for health care and social assistance, 1987 to 2008



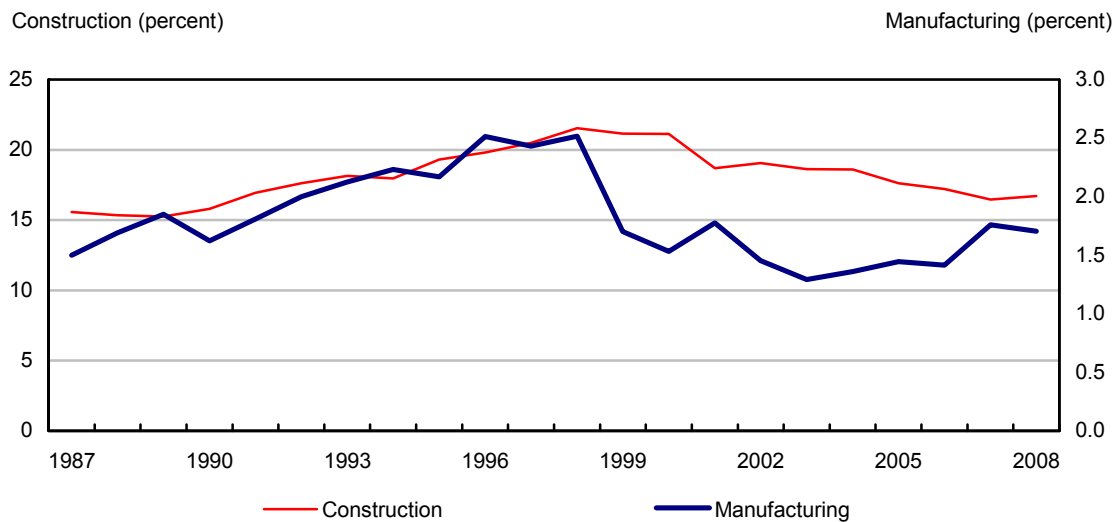
Source: Statistics Canada, CANSIM tables 282-0008 and 282-0012.

Chart F-3
Unincorporated self-employment rate for agriculture and for forestry, fishing, mining, oil and gas, 1987 to 2008



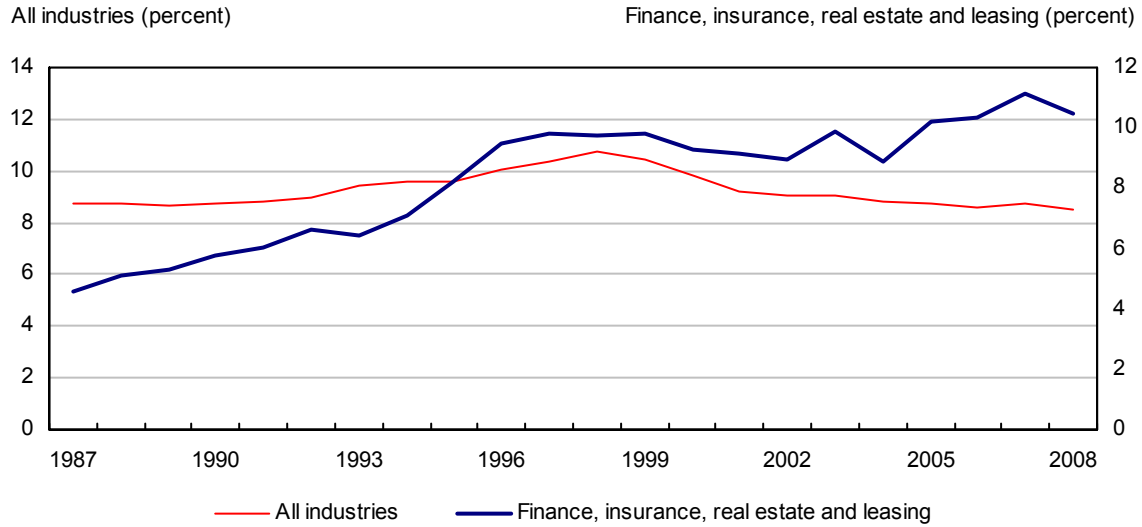
Source: Statistics Canada, CANSIM tables 282-0008 and 282-0012.

Chart F-4
Unincorporated self-employment rate for construction and manufacturing, 1987 to 2008



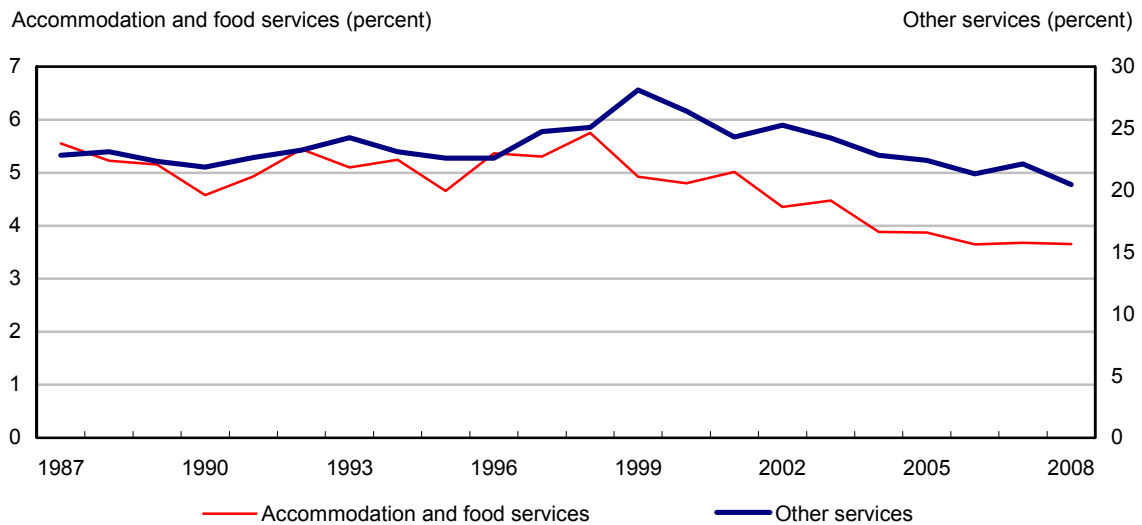
Source: Statistics Canada, CANSIM tables 282-0008 and 282-0012.

Chart F-5
Unincorporated self-employment rate for all industries and for finance, insurance, real estate and leasing, 1987 to 2008



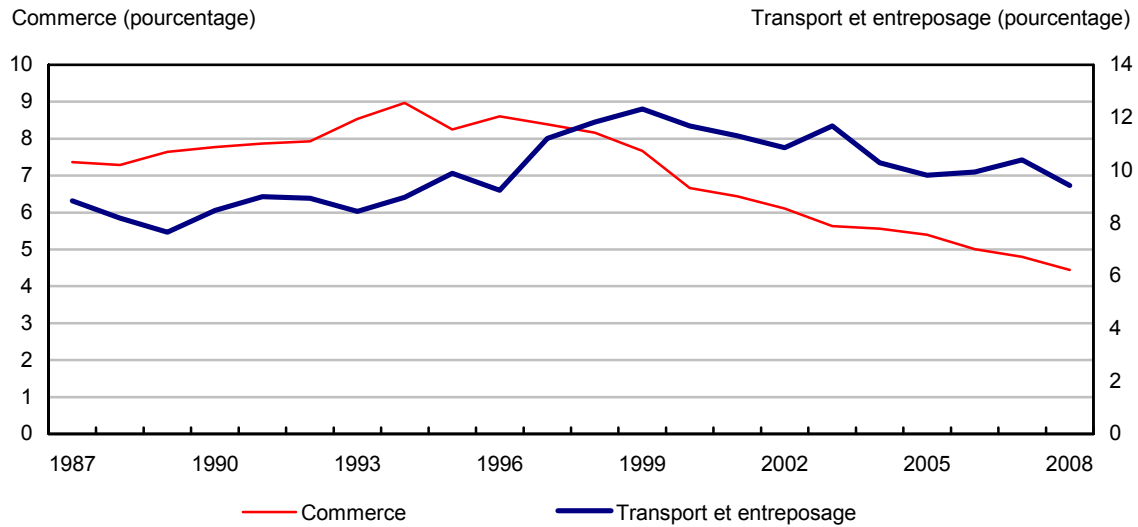
Source: Statistics Canada, CANSIM tables 282-0008 and 282-0012.

Chart F-6
Unincorporated self-employment rate for accommodation and food services and for other services, 1987 to 2008



Source: Statistics Canada, CANSIM tables 282-0008 and 282-0012.

Chart F-7
Unincorporated self-employment rate for trade and for transportation and warehousing, 1987 to 2008



Source: Statistics Canada, CANSIM tables 282-0008 and 282-0012.

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